July 2011

2010 Ventura River and San Antonio Creek Watershed Sanitary Survey Update

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Ventura River/San Antonio Creek Watershed Sanitary Survey 2010 Update

July 2011

Prepared for

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Acronyms

AF	acre-feet
AL	Action Level
AMCL	alternative MCL
Avenue WTP	Ventura Avenue Water Treatment Plant
BWT	Business Plan (BP), Waste Producer (W), Underground Tank (T)
CAP	Cryptosporidium Action Plan
CCR	Consumer Confidence Report
CCTV	line cleaning and video inspection
CMMS	Computerized Maintenance Management System
CMWD	Casitas Municipal Water District
DBP	disinfection byproducts
DBPR	Disinfection By-Products Rule
DBPP	Disinfection Byproduct Precursors
DPH	California Department of Public Health
DTSC	Department of Toxic Substances Control
DU	Dwelling Unit
DWR	Department of Water Resources
DWSAP	Drinking Water Source Assessment and Protection
E&ERD	Ventura County Environmental and Energy Resources Division
EIS	Environmental Impact Statement
FBR	Filter Backwash Rule
FEMA	Federal Emergency Management Act
FOG	Fats, Oil and Grease
gpm	gallons per minute
HPC	heterotrophic plate count
GSA	General Services Agency (Ventura County)
GWR	Ground Water Rule
HHWCF	Household Hazardous Waste Collection Facility
I&I	inflow and infiltration
ICR	Information Collection Rule
IDSE	Initial Distribution System Evaluation

IESWTR	Interim Enhanced Surface Water Treatment Rule
IWPP	Integrated Watershed Protection Plan
L	Liter
LAFCO	Local Agency Formation Commission
LARWQCB	Los Angeles Regional Water Quality Control Board
LCR	Lead and Copper Rule
LRAA	locational running annual average
LT1ESWTR	Long-Term 1 Enhanced Surface Water Treatment Rule
LT2ESWTR	Long-Term 2 Enhanced Surface Water Treatment Rule
LUFT	Leaking Underground Fuel Tank
MGD	million gallons per day
mg/l	milligrams per liter
MCL	Maximum Contaminant Level
ME-VR	Mass Emission Monitoring Station
M/DBP	Microbial/Disinfection Byproducts
ml	milliliter
MMM	Multimedia Mitigation
MOU	Memorandum of Understanding
MRDL	maximum residual disinfectant level
MS4	municipal separate storm sewer system
MTBE	Methyl Tertiary Butyl Ether
NA	No Action or Not Applicable
NDMA	N-nitrosodimethylamine
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NTU	nephelometric turbidity units
OES	Office of Emergency Services
OVSD	Ojai Valley Sanitary District
PCA	possible contaminant activity
PHG	Public Health Goal
POE	points of entry
ppm	parts per million

REFRW	referred to Regional Water Quality Control Board
REFOA	referred to other government agency
RR	Rural Residential
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
SMP	Ventura Countywide Stormwater Quality Management Plan
SWTR	Surface Water Treatment Rule
TC	Thatcher Creek
TCR	Total Coliform Rule
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TTHM	Total Trihalomethanes
WWTP	Wastewater Treatment Plant
UR	Urban Residential
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
UV	Ultraviolet light
VCEHD	Ventura County Environmental Health Department
VCFD	Ventura County Fire Department
VCWPD	Ventura County Watershed Protection District
VCSWQMP	Ventura County Stormwater Quality Management Program
Ventura Water	City of San Buenaventura Water Department
WWRB	Washwater Recovery Basin
WY	Water Year
µg/L	micrograms per Liter

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Executive Summary

The Surface Water Treatment Rule (SWTR), Section 64665, Watershed Sanitary Surveys, requires that all water systems subject to the SWTR shall conduct a sanitary survey of their watershed(s) at least every five years. The aim of the Sanitary Survey is to identify potential sources of contamination within the watershed, and to make recommendations on how to reduce the risks to water quality.

The first Watershed Sanitary Survey (1995 Report) for the City of San Buenaventura's Avenue Water Treatment Plant (Avenue WTP) was completed in October 1995. In 2005, the Report evaluated the 51,000-acre watershed area drained by the lower Ventura River and the tributary San Antonio Creek system. As part of the requirement for a 5-year update, the City of San Buenaventura Water Department (Ventura Water) completed the 2010 Update to the Sanitary Survey in April 2011.

This 2010 Update, describes the changes in the watershed since the 2005 Sanitary Survey, and confirms Ventura Water's ongoing commitment to protecting the water quality of the lower Ventura River water source.

Sources of Contaminants

The 2010 Sanitary Survey confirmed the previous sanitary survey concerns for horse manure, sewer overflows, septic tanks near Casitas Springs, illegal dumping, oil wells and tanks. One of the other major potential sources of contamination is the Ojai Valley Sanitation District sanitary sewer trunkline which is in a levee that requires improvement. Ventura Water is pursuing funding from the Federal Emergency Management Agency to repair the levee such that the sewer trunkline is protected against flood related damage. The 2005 Survey also identified new concerns for sediment transport with the planned removal of the Matilija Dam and the presence of gas utility pipelines near some of the creeks. These potential concerns remain but are not likely to pose a significant water quality risk in the near future as the Matilija Dam sediment removal is not likely to occur within the next five years and the threat of the gas utility pipelines is minimized by the contingency planning required of the utilities.

Compliance with Drinking Water Standards

Ventura Water is not using the surface water diversion, but has maintained the structures for possible use in the future. Ventura Water is using groundwater under the direct influence (GUDI) of surface water from the sub-surface diversion and shallow wells that fall under the SWTR and the need for Watershed Sanitary Surveys. The use of sub-surface diversions and shallow wells reduces water quality risks, especially for turbidity and pathogens, because of the natural filtration that is provided. The Avenue WTP with the associated improvements and Ventura Water monitoring programs are in compliance with the SWTR and related regulations.

Recommended Levels for Removal of Giardia and Other Viruses

The water source monitoring results show that Giardia, virus, and Cryptosporidium are less than detection limits. Removal rates for the 2005 sanitary survey were 3-log for Giardia, 4-log for virus, and 2-log for Cryptosporidium. The Avenue WTP improvements, which were completed in 2007, have resulted in removal rates to 6-log for Giardia, 4-log for Cryptosporidium, and greater than 9-log for virus.

Key Conclusions

Foster Park Intake Facilities and Avenue Water Treatment Plant

Ventura Water is not currently using the surface water diversion, but has maintained the structures for possible use in the future. The completed improvements at the Avenue WTP, the use of sub-surface diversions and shallow wells, and Ventura Water's monitoring programs are in compliance with the SWTR and related regulations.

Overall Water Quality

The 2009 Ventura County Storm Water Monitoring Mid-Year Sampling report provides a snapshot of the main water quality issues on the Ventura River that indicates that sample events in November 2008 – February 2009 showed exceedances of bacteriological water quality objectives. These wintertime bacteriological increases are consistent with winter storms in surface waters and are the reason that the Avenue WTP improvements were constructed.

Giardia and *Cryptosporidium* were below detection limits in Ventura Water's water sampling program during the 2005 to 2010 period. The Title 22 monitoring of general mineral, general physical, radionuclide, and inorganic chemicals stayed within the historical range.

Potential Contamination Sources

Continued watershed monitoring and reporting programs during the period of 2005 through 2010 by Ventura Water, the County of Ventura, the Ventura River Stream Team (Channel Keepers), and a number of interagency studies continued since 2005, provide a more thorough understanding of the watershed than was available for previous Sanitary Surveys.

There continues to be potential water quality hazards in the watershed that need to be monitored. The potential contamination issues in the study area are shown on Figure 6. There are increasing concerns with respect to water quality risks from downstream sediment transport as a result of the future Matilija Dam removal. Septic tanks and gas utility pipelines continue to be identified as potential contaminant sources but have existed in the watershed for decades. Potential impacts from septic tanks can be managed through drinking water treatment.

Actions over the last five years that have reduced the risk of contamination are:

New OVSD siphons that reduce the risk of spilling untreated wastewater,

Horse manure awareness program,

Successful operation of Household Hazardous Waste Collection Facility (HHWCF), and

Avenue WTP improvements.

Key Recommendations

Regulatory Compliance

Ventura Water will continue its review of water quality sampling for compliance with drinking water regulations and of treatment effectiveness of the Avenue WTP. A comparison of raw water and treated water parameters, as regularly occurs, will be particularly useful to evaluate treatment effectiveness.

Coordination of Watershed Water Quality Monitoring Programs

Coordination is needed to avoid duplication of effort and to maintain standards of multi-agency monitoring efforts in the study area. Ventura Water can continue to rely on the monitoring of the upper San Antonio Creek watershed by other programs such as Ventura County Stormwater monitoring, Ventura River Stream Team, and Agricultural Waiver (Ag Waiver) monitoring, because these other programs cover the same locations and constituents. Steps that Ventura Water may take include:

- Share data with others monitoring or studying the watershed.
- The Ventura County Watershed Protection NPDES Database may be the best place for combining electronic data from the multiple monitoring programs in the study area. It is recommended that Ventura Water become informed as to updates to the monitoring plans for the data collected for the NPDES Database and coordinate where necessary.
- Establish contact with the Ag Waiver monitoring group thru the Ventura Farm Bureau or the Ventura County Agricultural Water Quality Coalition to obtain information on the Ventura River from the existing monitoring programs.
- Update the water quality monitoring station GIS map (Figure 8) as changes are made. It is recommended to assign this to City of San Buenaventura GIS Department with coordination by staff from the various monitoring programs.
- Agree on naming of sampling sites to avoid duplication of site names between different monitoring programs.

Modified Watershed Monitoring Program

Based on the efforts of the other active monitoring programs, Ventura Water can continue to focus its watershed monitoring on the lower San Antonio Creek and Ventura River near Foster Park. It is recommended that Ventura Water confirm that the monitoring by the other organizations in the watershed conform to EPA requirements and reporting guidelines.

The recommendations for Ventura Water's watershed monitoring program are summarized in Table 8-1, which focuses on the lower portions of the contributing watersheds, is consistent, with Ventura Water's watershed monitoring needs, and avoids duplication of effort. The proposed watershed sampling reduces frequencies of monitoring where previous monitoring has shown low or non-detected constituents.

Septic Conversion and Monitoring

The source assessments for the Nye Wells show that the septic systems (On-site Wastewater Treatment Systems) in Casitas Springs and the Burnham Road corridor continue to pose some risk to the water supply for nitrates and pathogens that migrate in the alluvial groundwater and that could affect the shallow City wells. Ventura Water should support the County Environmental Health Division and other agencies to seek funding and develop incentives for home owners to convert to sewer systems, especially in the lower Ventura River area.

It is recommended that Ventura Water continue discussions with the Ventura County Storm Water Monitoring or the Stream Team to consider monitoring near the Arbolada and Siete Robles areas of Ojai where septic tanks are in areas that have high groundwater in wet years.

Participate in Matilija Dam Removal and Other Watershed Planning

The control, or lack of control, of the sediment transport from behind Matilija Dam is a water supply and water quality concern for all the wells and sub-surface diversions along the Ventura River. Ventura Water continues to participate in the planning and implementation process of the Matilija Dam removal and has provided suggestions for protecting the local water resources from the potential impacts to the Ventura River. Ventura Water has implemented a suggestion from the 2005 WSS to install two new wells in the Foster Park area prior to the removal phases of the dam as a hazard mitigation measure. It is recommended that Ventura Water continue to put forward ideas and share data with the participating agencies.

Other watershed planning activities that Ventura Water is participating in, and is recommended to continue participation include:

Integrated Regional Water Management Plan to obtain Department of Water Resources (DWR) Proposition 84 funding

Ventura River Habitat Conservation Plan

Public Outreach to Reduce Effects of Horse and Stock Manure

Ventura Water should continue to work with the Ventura County Stormwater Quality Management Program (VCSWQMP) to encourage distribution of information and to restart the educational program about the effects of horse or stock manure on water quality.

Coordination with the OVSD

Although OVSD's efforts have reduced the magnitude of sewage spills in the last five years, sewage spills continue to pose a significant potential impact on Ventura Water's Foster Park water sources, Ventura Water should continue working with the OVSD to improve coordination in case a sewer overflow occurs. This may be accomplished by the following:

- Continue to communicate and provide comments on the updates to any emergency planning or regulatory documents.
- Participate in a practice drill once a year for the emergency overflow manhole warning system.
- Encourage FEMA levee improvements in the vicinity of Foster Park to further protect the OVSD sanitary sewer trunk line from flood-related breakage

Section 1: Introduction

1.1 Background

Ventura Water owns and operates the 15 million gallon per day (MGD) Ventura Avenue Water Filtration Plant (Avenue WTP), which provides full conventional treatment with supplemental improvements to improve finished water quality that were completed in 2007. This plant processes lower Ventura River/San Antonio Creek water diverted at Ventura Water's Foster Park diversion facilities as well as Ventura River water provided by the Casitas Municipal Water District (CMWD). CMWD diverts its water from the upper Ventura River at the Robles Diversion, stores the diverted water in Lake Casitas and provides disinfection and pressure filtration before distributing the treated water to its wholesale and retail water customers. Ventura Water can take the treated Lake Casitas water directly into the Ventura water distribution system at two connections or re-treat the water at the Avenue WTP.

The Surface Water Treatment Rule (SWTR), Section 64665, Watershed Sanitary Surveys, requires that all water systems subject to the SWTR shall conduct a sanitary survey of their watershed(s) at least every five years. The goal of the Sanitary Survey is to identify potential sources of contamination and to recommend operational or watershed management steps to reduce risk of that contamination reaching the water supply.

The first Watershed Sanitary Survey (1995 Report) for Ventura Water's Avenue WTP was completed in October 1995. The 1995 Report evaluated the 51,000-acre watershed area drained by the lower Ventura River and the tributary San Antonio Creek system. To meet the requirement for a 5-year update, Ventura Water completed the 2005 Update to the Sanitary Survey in March 2006.

This 2010 Update Sanitary Survey, summarizes and updates the 2005 Sanitary Survey, and confirms Ventura Water's ongoing commitment to protecting the water quality of the lower Ventura River water source. Results from a number of recent studies on this watershed will be incorporated herein and, in turn, this report is designed to be usable for other water resource investigations. For example, this report documents that the National Marine Fisheries Service provided a biological opinion indicating that as proposed "is not likely to jeopardize the continued existence of the endangered southern California steelhead Distinct Population segment, or destroy or adversely modify critical habitat for this species." (NMFS, 2007 as found in Appendix A). This biological opinion with the prior Environmental Impact Statement (EIS) for the removal of the Matilija Dam indicates that water quality for steelhead habitat and domestic water supply will be protected.

1.2 Study Area Description

As shown on Figure 1, the sanitary survey study area is comprised of approximately 51,000 acres in the Ojai and Ventura River Valleys. The western portion of the study area drains directly to the Ventura River. The eastern area of the watershed is tributary to San Antonio Creek, which then also drains into the Ventura River south of the community of Oak View. About 80 percent of the time, there is no significant surface flow in the Ventura River above the confluence with San Antonio Creek. There is generally year-round flow in the lower reaches of San Antonio Creek.

The study area includes City of Ojai and the unincorporated areas of Casitas Springs, Live Oak Acres, Meiners Oaks, Mira Monte, and Oak View. The northern and eastern sections of the watershed are mountainous, including approximately 16,300 acres of the U.S. Forest Service Los Padres National Forest land. Areas east of City of Ojai are primarily agricultural with some farm animal grazing.

The Ojai Valley Sanitary District (OVSD) provides sewer service for City of Ojai and the unincorporated areas of Casitas Springs, Live Oak Acres, Meiners Oaks, Mira Monte, and Oak View. The OVSD also provides service outside its boundaries to community sewers in areas where private onsite sewage disposal problems may occur. OVSD annexation of these areas soon follows. The remainder of the watershed is on private sewage disposal systems and septic tanks.

Figure 1 shows the watershed boundary for the Upper and Lower Ventura River, the San Antonio Creek sub-basin, the study area boundary, and U.S. Forest Service lands. Also shown on Figure 1 are the locations of rainfall monitoring stations (rainfall and weather stations) and the location of the Avenue WTP.

Figure 2 shows in more detail the location of Ventura Water's diversion facilities and wells at Foster Park. Within the study area, sub-surface water diversions are made by Ventura Water at Foster Park (see Figure 2). The only other domestic water utility that diverts shallow subsurface water from the Ventura River is the Meiners Oaks County Water District. This is done with two shallow wells on the east side of the river and south of the Robles Diversion. Figure 2 includes information from a 2005 survey of the bank and stream channels (Fugro West, 2005).

There are other domestic water utilities in the watershed, but these pump from deeper groundwater wells. They are the Ventura River County Water District, the Southern California Water Company, Casitas Springs, Senior Canyon, and several smaller mutual water companies. CMWD supplies chloraminated and filtered surface water from Lake Casitas to its own retail customers, to the Avenue WTP for further treatment if taste and odors increase, and sometimes, directly to Ventura Water's water distribution system at two locations.

1.3 Report Organization

This 2010 Update summarizes significant changes in watershed conditions that affect the water quality of raw Ventura River water diverted at Foster Park since 2005. Available water quality data is provided for the 2005 to 2010 period. For information on watershed conditions that have not changed since 2005, the reader is referred to the 2005 Sanitary Survey.

1.3.1 Section Summary

- Section 1 – Introduces the 2010 Update, provides the background and study area descriptions, and presents the report organization.
- Section 2 – Presents the 2010 status of the 2005 Sanitary Survey recommendations.
- Section 3 – Provides updated information on the lower Ventura River/San Antonio Creek watershed characteristics and water supply components.
- Section 4 – Summarizes descriptions of the current potential contamination sources in the watershed and an evaluation of the potentially significant impacts which each contamination source could have on watershed water quality.

- Section 5 – Provides updated information on the watershed control and management practices. Contacts with agencies having jurisdiction throughout the watershed are documented. Land use policies, wastewater discharge requirements, storm water regulations, fire control management, and other policies that are enforced throughout the watershed are discussed. Each discussion includes examples of existing activities/facilities that are in place in the watershed.

- Section 6 – Provides an update on water treatment regulations.

- Section 7 – Presents the water quality monitoring programs that are active in the watershed and provides the watershed raw water quality data.

- Section 8 – Presents the 2010 Update conclusions and recommendations.

1.4 Conduct of Study

Ventura Water retained Kennedy/Jenks Consultants (Kennedy/Jenks) to prepare this sanitary survey update. Ventura Water authorized this study on October 29, 2010. Only the lower Ventura River/San Antonio Creek watershed is covered by this survey. The upper Ventura River watershed (as shown in Figure 1) above the Robles Diversion is included by reference because CMWD prepares a watershed sanitary survey for that area.

During preparation of this 2010 Update, Kennedy/Jenks contacted numerous agencies involved with water quality, land use and other information regarding activities that could significantly affect the water quality within the watershed. Field surveys were made by a combination of driving and walking throughout the watershed. City staff supplied Kennedy/Jenks with various water quality data during the project. Various Ventura County Departments and the OVSD also provided considerable input to the content of this report.

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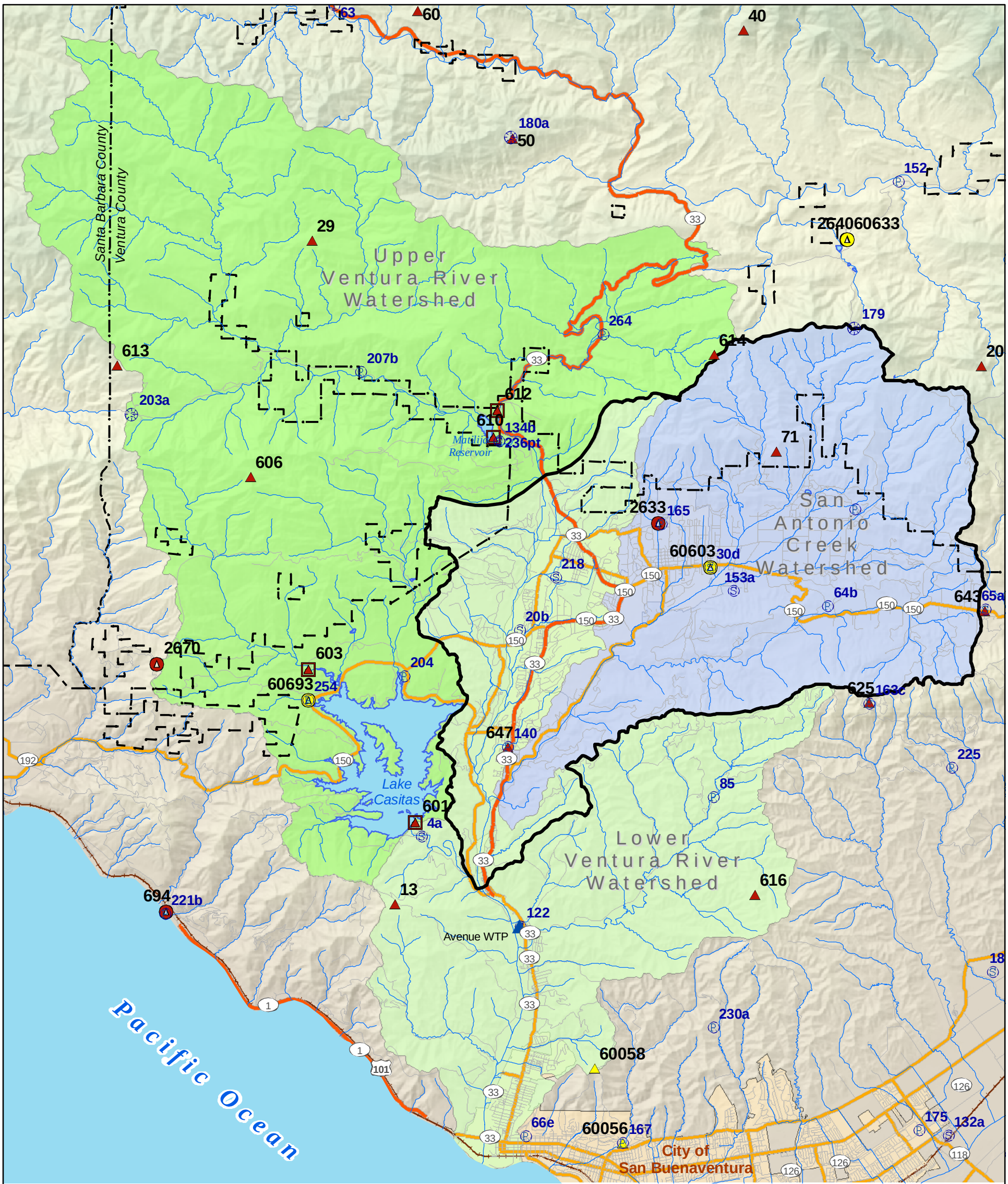

Gage Explanation

Active Rain Stations

- Punch Tape
- Recorder and Standard
- Recording
- Standard
- Storage Gage

GOES (Satellite) Stations

- Rain and Stream Gage (USGS or Calif. Dept. Water Res.)
- Remote Auto Weather Station (RAWS)
- Rain Gage

Automated Local Evaluation in Real Time (ALERT)

- Rain Gage
- Rain and Stream Gage
- Weather Station
- Wind and Precip

Explanation

- San Antonio Creek Watershed
- Lower Ventura River Watershed
- Upper Ventura River Watershed
- Study Area Boundary
- National Forest Boundary
- Urban Area Land Use
- Streams
- Highway
- Major Road
- Local Road

0 2 4 Miles

Kennedy/Jenks Consultants

City of San Buenaventura, California

Location Map and Hydrologic Monitoring Stations

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March 2006

Figure 1

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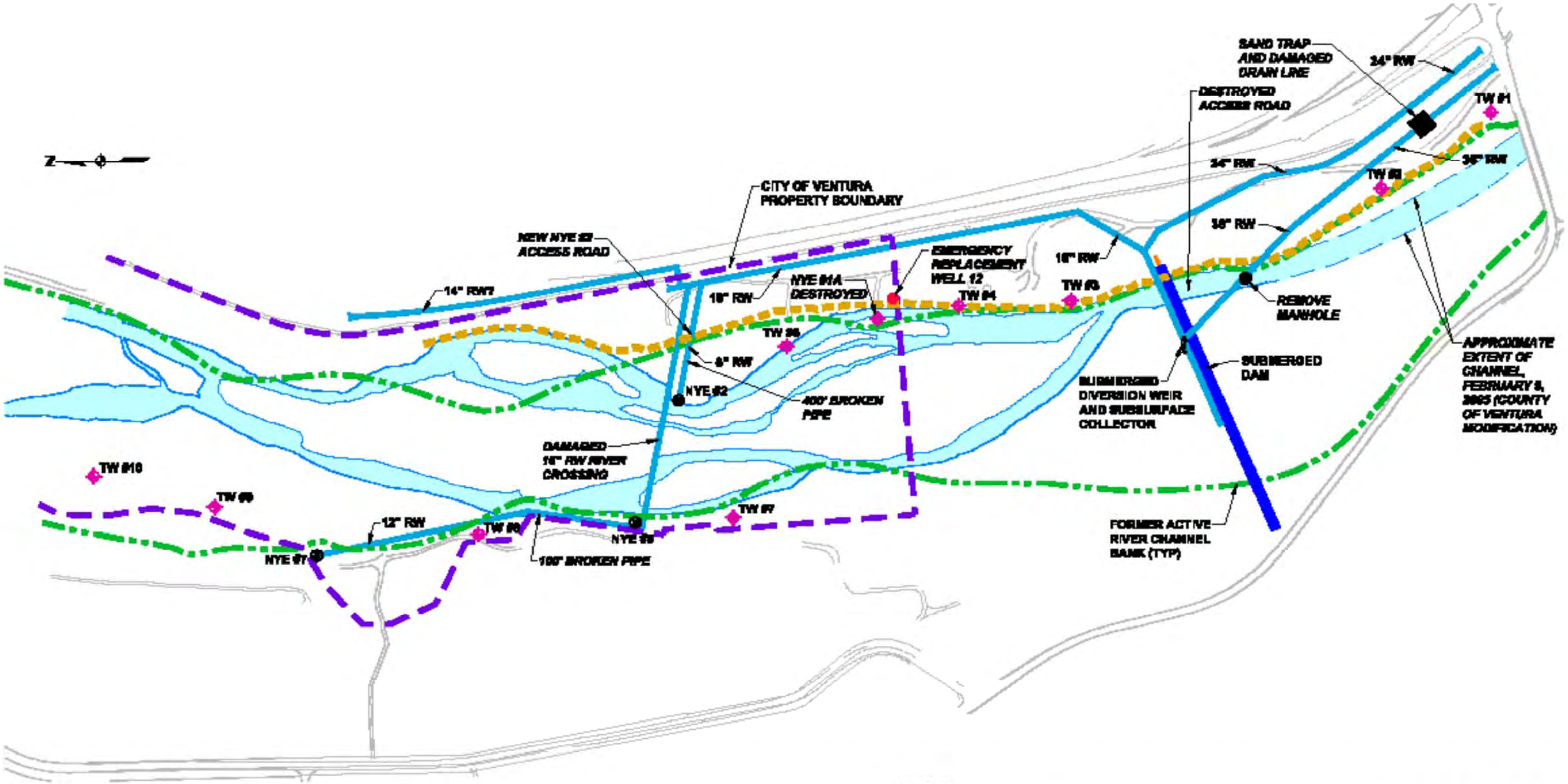
SAND TRAP AND DAMAGED DRAIN LINE
24" RW
DESTROYED ACCESS ROAD
TW #1
36" RW
24" RW
TW #2
36" RW
CITY OF VENTURA PROPERTY BOUNDARY
NEW NYE #2 ACCESS ROAD
EMERGENCY REPLACEMENT WELL 12
16" RW
14" RW?
18" RW
NYE #1A DESTROYED
TW #4
TW #3
REMOVE MANHOLE
TW #6
8" RW
NYE #2
400' BROKEN PIPE
SUBMERGED DAM
SUBMERGED DIVERSION WEIR AND SUBSURFACE COLLECTOR
APPROXIMATE EXTENT OF CHANNEL, FEBRUARY 8, 2005 (COUNTY OF VENTURA MODIFICATION)
DAMAGED 16" RW RIVER CROSSING
TW #10
TW #9
12" RW
TW #8
NYE #8
TW #7
NYE #7
100' BROKEN PIPE
FORMER ACTIVE RIVER CHANNEL BANK (TYP)
LEGEND
River bank, surveyed 1/29/2005
Stream channels, surveyed 1/2005
City of Ventura property boundary
Former active river channel bank
WELL Existing water supply well
TW Foster Park Improvement Project test well
RW Raw water to Avenue WTP
Kennedy/Jenks Consultants
City of San Buenaventura, California
Water Diversion Facilities Near Foster Park
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July 2011
Figure 2

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Section 2: 2010 Status of 2005 Sanitary Survey Recommendations

This section reproduces the year 2005 Update Sanitary Survey recommendations and summarizes the 2010 status of each recommendation.

2.1.1 Regulatory Compliance Monitoring and Studies

2.1.1.1 2005 Recommendation

It was recommended that Ventura Water conduct a review of water quality sampling for compliance with drinking water regulations and of treatment effectiveness of the Avenue WTP approximately six months after the modifications are completed and operational. This sampling was completed as part of start-up operation. The potential for additional pre-treatment with powdered activated charcoal for improving TOC removal and post-treatment using ultraviolet light for improving *Cryptosporidium* removal was to be considered. Minimizing TTHMs and HAA5s with additional treatment may be important once compliance with the Stage 2 DDBPR and the LT2ESWTR are enforced in the future.

Ventura Water submitted the Initial Distribution System Evaluation (IDSE) plan by October 1, 2006. IDSE monitoring was completed by September 30, 2008, and the final report was submitted by January 1, 2009. Ventura Water must begin Stage 2 DBPR compliance monitoring by April 1, 2012.

Regarding the LT2ESWTR, Ventura Water was to submit a sampling plan for the first round of source water monitoring for *Cryptosporidium*, *E. coli*, and turbidity (or notice of intent to use grandfathered data) prior to July 1, 2006, and begin source water monitoring by October 31, 2006. Ventura Water was to submit all data and required information for grandfathering by December 1, 2006. Ventura Water was to submit a *Cryptosporidium* treatment bin classification and supporting data for approval by April 1, 2009. Ventura Water must complete additional *Cryptosporidium* treatment requirements by April 1, 2012. Ventura Water must submit a sampling plan for the second round of source water monitoring by January 1, 2015, and start monitoring by April 1, 2015. Ventura Water must submit a *Cryptosporidium* treatment bin classification and supporting data from the second round for approval by October 1, 2017.

2.1.1.2 2010 Status

Ventura Water complies with all drinking water regulations. The Avenue WTP has switched to chloramines disinfection to reduce DBP formation and incorporated submerged UF membrane filtration to increase turbidity removal. An IDSE plan was completed by Ventura Water and submitted in September 2006. Current monitoring for Stage 2 DBPR is underway for completion in 2012.

2.1.2 Coordination of Watershed Water Quality Monitoring Programs

2.1.2.1 2005 Recommendation

It was reported that coordination was needed to avoid duplication of effort and to maintain standards of multi-agency monitoring efforts in the study area. Ventura Water will not need to continue monitoring in the upper San Antonio Creek watershed because of these other programs that cover the same locations and constituents (Ventura County Stormwater monitoring, Ventura River Stream Team, and Ag Waiver monitoring). Steps that Ventura Water could take include:

- Share data, including providing the Sanitary Survey and other water quality reports to others monitoring or studying the watershed.

- The Ventura County Watershed Protection NPDES Database may be the best place for combining electronic data from the multiple monitoring programs in the study area. It is recommended that Ventura Water obtain updates to the monitoring plans for the data collected for the NPDES Database and confirm the sampling locations, what constituents are tested for, frequency of sampling, sampling agency/staff, and other information so that Ventura Water can determine which locations are duplicative of Ventura Water's monitoring efforts.

- Assist the Ag Waiver monitoring group thru the Ventura Farm Bureau or the Ventura County Agricultural Water Quality Coalition to coordinate their new monitoring requirements with existing programs.

- Update the water quality monitoring station GIS map (Figure 8) as sites are changed. Continue to show stations that are discontinued because they would still have a data record that could be useful to others. It is recommended to assign this to City of San Buenaventura GIS Department with coordination by staff that does the water quality sampling.

- Agree on naming of sampling sites to avoid duplication of site names between different monitoring programs, and possible confusion about individual sites. Recommend keeping one site name per sampling site and have distinct program labels to avoid having multiple records for the same site label. Distinct names such as VR1 and VR11 are recommended rather than New VRI and Old VR1.

2.1.2.2 2010 Status

Although coordination between the agencies has continued, streamlining of monitoring locations is still underway. OVSD's new permit has reduced the number of monitoring locations in the watershed due to evidence that the additional monitoring stations showed that the water quality did not change. Further agreement on sampling locations would streamline the monitoring within the watershed and some coordination has occurred.

2.1.3 Modified Watershed Monitoring Program

2.1.3.1 2005 Recommendation

Based on the efforts of the other active monitoring programs, Ventura Water can focus its watershed monitoring on the lower San Antonio Creek and Ventura River near Foster Park. The upper portions of the watershed are currently monitored by multiple other groups. The Watershed Monitoring Program does not cover the Title 22 regulations by DPH, but covers the source waters and potential watershed contaminants. Title 22 monitors alkalinity, general minerals, general physical, inorganic, organic, radionuclides, and higher frequencies of coliform tests for DPH.

It is recommended that Ventura Water confirm that the monitoring by the other organizations in the watershed conform to EPA requirements and reporting guidelines. The recommendations for Ventura Water's watershed monitoring program were summarized in Table 8-1 in the 2005 WSS, which focused on the lower portions of the contributing watersheds. The proposed watershed sampling reduces frequencies of monitoring where previous monitoring has shown low or non-detected constituents. TKN was eliminated because of the low test results and the partially overlapping coverage of by the Ammonia test. The source water collection point, 27-Flume, had the most constituents monitored.

2.1.3.2 2010 Status

The recommended City watershed monitoring program is summarized in Table 8-1 and is essentially unchanged since 2005 except that TKN was not monitored because of the reasons mentioned above. It is not appropriate to further reduce monitoring at this time as no constituents were consistently non-detected over the five year period. Tests can be added at any time if there are some high results or emergencies. Sampling for TOC, bromide, and *Giardia/Cryptosporidium* may need to be adjusted once a monitoring plan is made for the Stage 2 DDBPR and the LT2ESWTR regulations as discussed in Section 2.1.1.1 and 2.1.1.2.

2.1.4 Septic Conversion and Monitoring

2.1.4.1 2005 Recommendation

The source assessments for the Nye Wells show that the septic systems (On-site Wastewater Treatment Systems) in Casitas Springs and the Burnham Road corridor pose some risk to the water supply for nitrates and pathogens that migrate in the alluvial groundwater and that could affect the shallow City wells. Ventura Water should work with the County Environmental Health Division and other agencies to seek funding and develop incentives for home owners to convert to sewer systems, especially in the lower Ventura River area.

It is recommended that Ventura Water initiate discussions with the Ventura County Storm Water Monitoring or the Stream Team to consider monitoring near the Arbolada and Siete Robles areas of Ojai where septic tanks are in areas that have high groundwater in wet years.

2.1.4.2 2010 Status

The OVSD reported sewering 53 homes that were previously unsewered within the watershed . However, the problem areas remain the same as reported in the 2005 Sanitary Survey as far as contamination potential from overflowing septic tanks in high groundwater areas.

2.1.5 Participate in Matilija Dam Removal and Other Watershed Planning

2.1.5.1 2005 Recommendation

The control, or lack of control, of the sediment transport from behind Matilija Dam is a water supply and water quality concern for all the wells and sub-surface diversions along the Ventura River. Ventura Water is participating in the planning and implementation process of the Matilija Dam removal and has provided suggestions for protecting the local water resources from the potential impacts to the Ventura River. Their suggestions have included a hazard mitigation measure to install two new wells in the Foster Park area prior to the removal phases of the dam. It is recommended that Ventura Water continue to put forward ideas and share data with the participating agencies.

Other watershed planning activities that Ventura Water is participating in, and is recommended to continue participation include:

Integrated Regional Water Management Plan to obtain DWR Proposition 50 funding

- Ventura River Habitat Conservation Plan

2.1.5.2 2010 Status

Ventura Water has become involved in the Matilija Dam removal and is aware of the consequences of the additional sediment that will be conveyed by the removal of the dam. In response to the planned removal Ventura Water has drilled two additional wells. Nye Wells No. 12 and 13 were drilled as part of the Matilija Dam removal mitigation but are not yet in service. Funding limitations have prevented moving forward with Matilija Dam removal.

2.1.6 Public Outreach to Reduce Effects of Horse and Stock Manure

2.1.6.1 2005 Recommendation

Ventura Water should continue to work with the VCSWQMP to encourage distribution of information and to restart the educational program about the effects of horse or stock manure on water quality.

2.1.6.2 2010 Status

A citizen group has been working to try to get a horse manure collection and biodigester project to a feasibility study stage and has kept Ventura Water informed. The County Watershed Protection District is sponsoring the feasibility study using DWR Proposition 84 grants. Additionally, in 2009 as part of the nutrient Total Maximum Daily Load (TMDL), a horse survey

was conducted and collection methods were discussed. Ventura Water also continues a public outreach program to provide information regarding the effected of manure on water quality.

2.1.7 Coordination with the OVSD

2.1.7.1 2005 Recommendation

Due to the significant potential impact of a sewer spill on Ventura Water's Foster Park water sources, Ventura Water should continue working with the OVSD to improve coordination and operations in case a sewer overflow occurs. Ways this may be accomplished include the following:

- Provide comments on the updates to any emergency planning or regulatory documents.
- Participate in a practice drill once a year for the emergency overflow manhole warning system in the spring or summer so that there is time to make changes before the next wet season.

2.1.7.2 2010 Status

Due the storms and damage in 2005, Ventura Water conducted the following upgrades to the wells below.

- Nye Well 1A – This well has been abandoned and destroyed.
- Nye Well No. 2 – Service access to Nye Well No. 2 has been completed but reconstruction of the connection lateral between the well and the 18-inch conveyance pipeline has not been completed.
- Nye Well No. 7 – The connection pipeline between Nye Well No. 7 and Nye Well No. 8 was destroyed yet again along with significant bank area. Ventura Water has since obtained new land to accommodate a new connection pipeline which has been constructed. The well is now operational and Ventura Water plans to upgrade it with a higher pressure pump and Variable Frequency Drive (VFD).
- Nye Well No. 8 – The previously damaged 16-inch west to east pipeline beneath the river between Nye Well No. 8 and the existing 18-inch conveyance pipeline on the East side of the river has been sliplined using 12-inch HDPE. This well is now operational. The well is now operational and Ventura Water plans to upgrade it with a higher pressure pump and Variable Frequency Drive (VFD).
- Nye Well No. 11 – This well is now operational in place of Well No. 1A.
- Nye Wells No. 12 & 13 – These wells have been drilled as part of the Matilija Dam removal mitigation but are not yet in service.

In addition, Ventura Water continues to work with FEMA to construct levee improvements that will protect the OVSD sanitary sewer trunk line from washout.

2.1.8 Design Standards Review

2.1.8.1 2005 Recommendation

Ventura Water should periodically review well and other water system design standards with the intent to minimize potential contamination sources to the Foster Park water supply.

2.1.8.2 2010 Status

The recent upgrades have allowed Ventura Water to review the well and other water system design standards.

Section 3: Watershed Characteristics and Water Supply System Components

3.1 Watershed Study Area

The watershed study area has remained the same as the previous watershed sanitary surveys and is shown on Figure 1.

3.2 Land Use

The major land uses within the lower Ventura River/San Antonio Creek watershed are agricultural, commercial, light industrial, and residential. These uses are outlined in the "Ojai Valley Area Plan" which was adopted by the Ventura County Board of Supervisors on July 18, 1995 and last amended on February 5, 2008 and is found in Appendix B.

Open space and residential uses account for over 99 percent of the watershed. Residential use is categorized by dwelling units (DU) per acre. Rural residential use, designated RR5 and RR2, represents 0.5 and 1.22 DU/acre, respectively. Urban residential use is designated UR, followed by the range of intensity as measured in dwelling units per acre. A designation of UR 2-4, for example, represents intensities of 2 to 4 DU/acre. Rural institutional use, designated RI, represents camps and educational facilities set in a rural environment. Other uses include commercial and light industrial. Table 3-1 is a list of these designations and the percentage of developed watershed area assigned to each land use:

Table 3-1
Ojai Valley Area Planning Area Land Use

Designation	Percentage of Developed Watershed
RI	14.4
RR5	30.4
RR2	22.4
UR 1-2	18.2
UR 2-4	5.2
UR 4-6	2.0
UR 6-10	4.0
UR 10-20	1.4
Commercial	1.5
Industrial	0.4

Development in the watershed has generally been limited to floodplain areas. Most of the land in the Ventura River valley is privately held.

Included in the watershed is the incorporated City of Ojai and several unincorporated population centers, including Casitas Springs, Live Oak Acres, Meiners Oaks, Mira Monte, and Oak View.

For incorporated cities, land use and land development is controlled by the policies of each city's General Plan and the regulations set forth in each city's zoning ordinance. The County's General Plan and zoning ordinance control land use and development in unincorporated areas. Use of land within the boundaries of the Los Padres National Forest is controlled by the U.S. Department of Agriculture (USDA) Forest Service.

Population data for the study area was provided by the US Census data from 2000, and shown in Table 3-2. Land uses within City of Ojai are included in the Ojai City Land Use Element. City of Ojai reported little development during the last five years, which is likely attributable to the City of San Buenaventura's stringent development code. The largest growth in population compared to the previous Sanitary Survey was the Oak View/Mira Monte area, increasing from 8,125 in 2000 to the current estimate of 11,209. These population data can be updated once 2010 census data are available.

Table 3-2

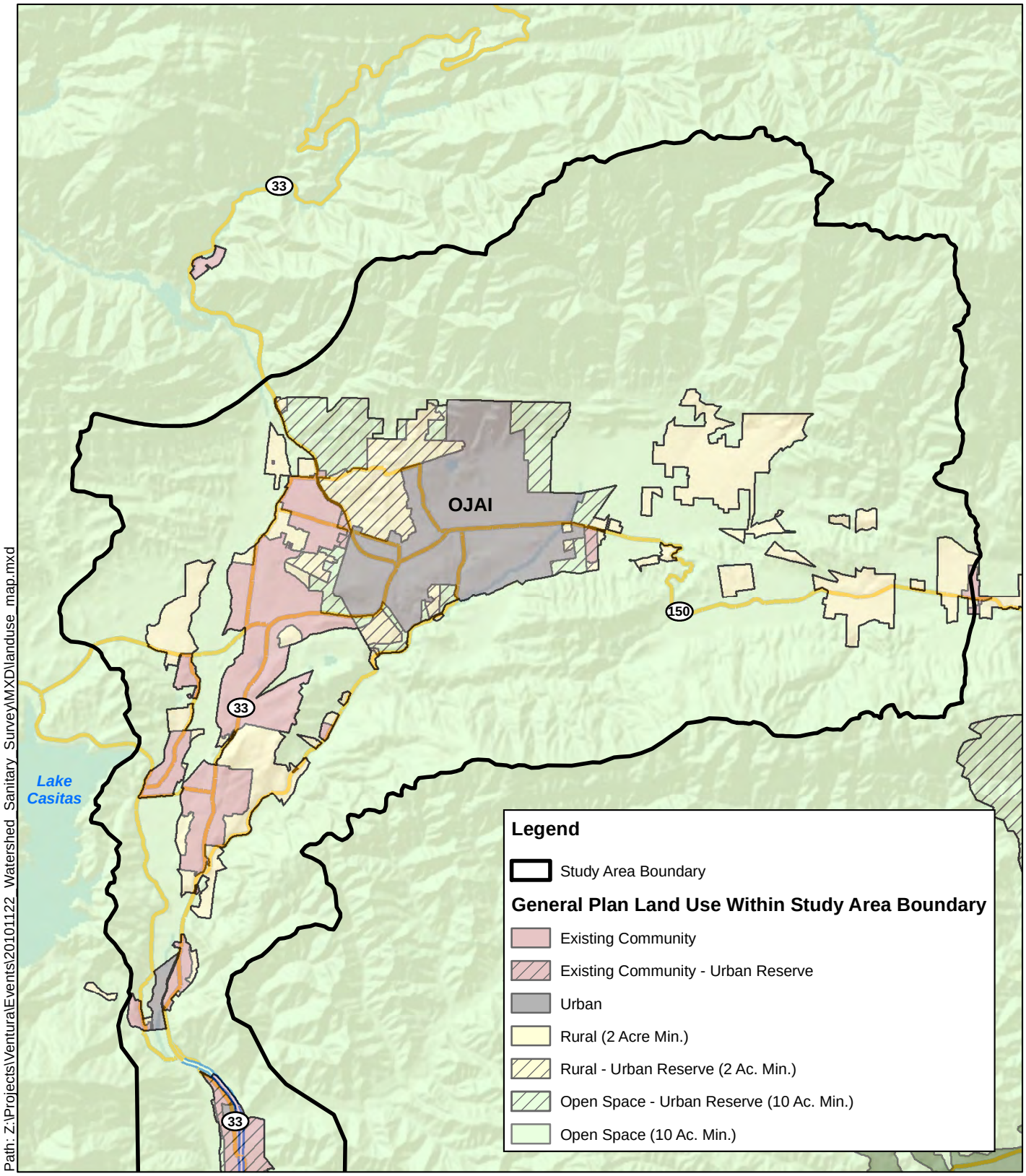
Study Area Population Estimate

City/Town	Population Estimate
Casitas Springs	1,121
Meiners Oaks	3,921
Mira Monte	6,915
Oak View	4,294
City of Ojai	7,862
Other Unincorporated Areas	774
Total Population in the Study Area	24,887

Source: Community populations from Maps Etc., 2004 and City of Ojai, Other areas from 2000 US Census

Figure 3 shows the latest available land use survey of the study area from the Ventura County General Plan (2010). As shown on the figure, most of the land is not developed within the study area.

Figure 4 compares the 2008 land use with 2004 land use to see where the changes have taken place over the last 4 years, some reduction in prime farmland areas have occurred. Categories of land use in Figures 4 are based on the Farmland Mapping and Monitoring Program of the California Division of Land Resource Protection, and are defined as:



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Feet

Kennedy/Jenks Consultants

Watershed Sanitary Survey Update
Ventura, California

General Plan Land Use Map

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July 2011

Figure 3

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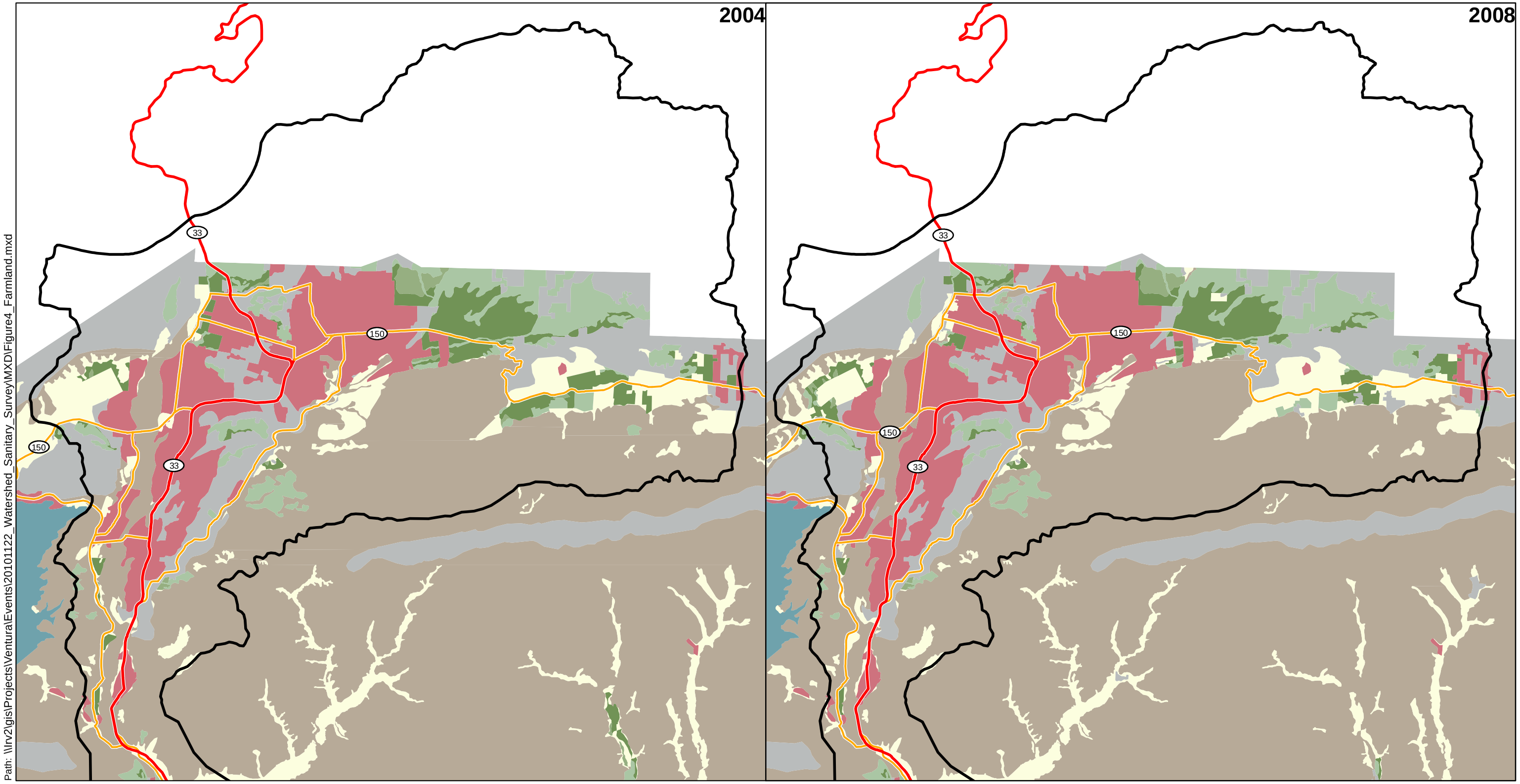

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Legend

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Grazing Land
- Urban and Built-Up Land
- Other Land
- Water
- Farmland of Local Potential
- Irrigated Farmland
- Nonirrigated Farmland
- Not Surveyed
- Study Area Boundary
- Highway
- Major Road

N

0 0.75 1.5
Miles

Kennedy/Jenks Consultants

Watershed Sanityary Survey Update
Ventura, California

Changes in Major Categories of Land Use from 2004 to 2008

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July 2011

Figure 4

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- Prime Farmland (P): Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date. Information on the soils qualifying for Prime Farmland can be downloaded from the embedded link. More general information on the definition of Prime Farmland is also available for download in the embedded link.

- Farmland of Statewide Importance (S): Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date. Download information on the soils qualifying for Farmland of Statewide Importance.

- Unique Farmland (U): Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

- Farmland of Local Importance (L): Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. Download a complete set of the Farmland of Local Importance definitions in PDF format from the embedded link.

- Grazing Land (G): Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

- Urban and Built-up Land (D): Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- Other Land (X): Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

3.3 Natural Setting

No known changes with respect to topography, geology, or wildlife have occurred since 2005. The 2004/05 winter brought the second wettest rain season on record in southern California with over twice the average rainfall, which caused a number of problems within the watershed relating to flooding, damage to roadways and monitoring locations, the destruction of some pipes and a well near Foster Park, and landslides in the watershed.

3.4 Existing Hydrologic Monitoring

Updated hydrological information was provided by the Ventura County Watershed Protection District (VCWPD). The County maintains numerous rain gauges at precipitation stations throughout the County. There are ten precipitation stations within the Ventura River/San Antonio Creek Watershed (see Figure 1). Station 59 – Ojai-Thacher School was not included in the data set because no rainfall data beyond WY 2005-2006 was available. Five of these gauges are standard-type gauges which record yearly data, while the remaining five are both standard-type and recorder-type gauges from which daily records are obtained. Rainfall data is collected for each gauging station by local residents and provided to the County for compilation. The average yearly rainfall for the past five years, from water year (WY)[1] 2004-2005 through WY 2008-2009 ranges from 20.74 inches at the driest station (Station 140, Oak View – County Fire Station) to 28.98 inches at the wettest station (Station 163c, Sulfur Mountain). January proved to be the wettest month at all rainfall stations. Rainfall data for WY 2004-2005 through WY 2008-2009 for the watershed is summarized in Table 3-3 that follows, and is provided in greater detail in Appendix C.

[1] A Water Year (WY) is defined by Ventura County as October 1 through September 30; so WY 2005 is from October 1, 2004 through September 30, 2005.

Table 3-3

AVERAGE ANNUAL RAINFALL (INCHES) FOR WY 2004-2005 THROUGH 2008-2009

Station	WY 2004-2005	WY 2005-2006	WY 2006-2007	WY 2007-2008	WY 2008-2009
Ojai Barrett Ranch	51.01	24.58	7.64	22.31	13.56
Oak View – County Fire Station	44.52	22.47	5.63	19.67	11.43
Sulphur Mountain	65.96	28.61	8.46	26.7	15.19
Ojai- Stewart Canyon	45.77	23.44	6.42	21.25	13.76
Lake Casitas-Upper	51.28	25.84	7.15	24.47	12.91
Ventura River County Water District	48.25	24.96	6.43	23.8	13.02
Meiners Oaks-County Fire Station	51.35	25.91	7.00	23.86	Not available
Ojai County fire Station	43.84	23.87	7.43	20.59	12.91
Upper Ojai-Happy Valley	54.93	24.91	7.07	25.87	13.65

Other hydrological characteristics of the watershed, such as stream flow characteristics, reservoir or lake characteristics, wetlands characteristics and groundwater recharge have not changed significantly over the last five years, except in response to the changes in precipitation.

A portion of Ventura Water's water supply is upper Ventura River water which CMWD diverts at the Robles Diversion, stores in Lake Casitas, and then pressure filters and disinfects before providing the treated water to its retail and wholesale customers, including Ventura Water.

One proposed project may create major changes in the movement of sediment in the Ventura River, the removal of Matilija Dam. This project is discussed in more detail in Section 5.13 Water Agency Coordination Measures.

3.5 City of San Buenaventura Water Supply System

The main water supply for the western portion of Ventura Water is served from the Ventura River, either from the Foster Park facilities or the CMWD facilities. This discussion focuses on the Foster Park facilities.

In October 2002, Ventura Water and Kennedy/Jenks completed the *Preliminary Design Report - Avenue Water Treatment Plant/Foster Park Facility Improvements Project*. In this report Ventura Water considered potential improvements to increase the yield from the Foster Park Well Field and Diversion Facilities and to improve the treated water quality, treatment capacity and reliability provided by the Avenue WTP. To support the Foster Park facilities improvements work, Fugro West completed a *Hydrogeologic Investigation - Avenue Water Treatment Plant/Foster Park Improvements Project* in July 2002.

Figure 2 shows the locations of Ventura Water's facilities near Foster Park.

3.5.1 Foster Park Well Field and Diversion and Conveyance Facilities

Prior to 2001, the Foster Park Well Field and Diversion Facilities consisted of the Ventura River surface diversion, a subsurface collector consisting of a perforated pipe upstream of a submerged dam and four active Nye wells, which pump groundwater under the direct influence of the river. Environmental constraints have resulted in the loss of the surface diversion, the loss of a well, multiple conveyance pipelines, and they have resulted in the construction of two additional wells, currently unused, as part of the Matilija Dam Removal Project.

3.5.2 Storm Damage and Repairs

From 2006 to 2009, a variety of storm events had flood runoff that damaged Ventura Water's Foster Park facilities. This section provides a summary of the major repairs to those facilities. Figure 2 presents a schematic of the Foster Park facility improvements.

- <u>Storms 2006 through 2009</u>: Ventura Water has made plans to or has already completed the following repairs:
    - Nye Well 1A – This well has been abandoned and destroyed.
    - Nye Well No. 2 – Service access to Nye Well No. 2 has been completed but reconstruction of the connection lateral between the well and the 18-inch conveyance pipeline has not been completed.
    - Nye Well No. 7 – The connection pipeline between Nye Well No. 7 and Nye Well No. 8 was destroyed yet again along with significant bank area. Ventura Water has since obtained new land to accommodate a new connection pipeline which has been constructed. The well is now operational and Ventura Water plans to upgrade it with a higher pressure pump and Variable Frequency Drive (VFD).

- Nye Well No. 8 – The previously damaged 16-inch west to east pipeline beneath the river between Nye Well No. 8 and the existing 18-inch conveyance pipeline on the East side of the river has been sliplined using 12-inch HDPE. This well is now operational. The well is now operational and Ventura Water plans to upgrade it with a higher pressure pump and Variable Frequency Drive (VFD).

- Nye Well No. 11 – This well is now operational in place of Well No. 1A.

- Nye Wells No. 12 & 13 – These wells have been drilled as part of the Matilija Dam removal mitigation but are not yet in service.

3.5.3 Foster Park Water Production

In 1996, Fugro West Inc. reported in its *Hydrogeologic Study for the Ventura Avenue Treatment Plant/Foster Park Master Plan* that the average production from the Foster Park facilities for the 1986 through 1995 period was 6,400 acre-feet (AFY). In Table 4-3 of the 2000 Report, it was shown that the water diversion from Foster Park from 1996 through 1999 declined to about 5,000 AF/year. This was noted to be due primarily to increased water purchases from CMWD rather than low water yields. The average production between the years 2000 and 2004 increased 6,260 AF/year but significant damage to Foster park facilities incurred during 2005 storm events lowered the average production between the years 2005 and 2009 to 2,250 AF/year (Table 3-4).

Table 3-4

2005 - 2009 Water Diversions from Foster Park (AF)

Source	2005	2006	2007	2008	2009	5-Year Total	5-Year %
Nye Wells	123	207	223	1,065	1,382	3,000	27%
Subsurface River Intake	1,144	2,026	1,777	1,646	1,655	8,248	73%
Surface River Intake	0	0	0	0	0	0	<1
Total	***1,267***	***2,233***	***2,000***	***2,711***	***3,037***	***11,248***	***100***

Source: City's Water Production Records

In their 1996 hydrogeologic study, Fugro West, Inc., concluded that the long-term potential yield of upgraded Foster Park facilities could be 7,000 additional AF/year for a total of 13,400 AF/year (Fugro West Inc., 1996). To achieve this yield would require improvements to the existing well field and diversion facilities.

In July 2002 Fugro West completed a study entitled, *Hydrogeologic Investigation - Avenue Water Treatment Plant/*Foster *Park Improvements Project.* In that study, Fugro West, Inc. conducted an evaluation of the river subsurface conditions based on test well drilling and short-

term pumping at ten (10) locations. The resulting data were used to select the sites for up to five new wells at 350 to 400-foot spacing.

3.5.4 Proposed Foster Park Well Field and Diversion Facilities Improvements

According to the 1999 *Avenue Treatment Plant/Foster Park Master Plan* (Kennedy/Jenks 1999), eliminating the need to maintain/restore/operate the surface diversion facility and constructing additional wells and/or a subsurface collection facility would have several advantages, including providing a more reliable water supply, better raw water quality, and improved ability to meet DPH requirements. Ventura Water's stated goal for Foster Park water production is 8,500 to 10,500 gpm for average and peak demand conditions. Opportunities for meeting this goal through improvement of existing facilities and development of new wells were assessed through the 2002 hydrogeologic investigation.

Conservatively estimating an average production rate for each well of 1,500 gpm, Ventura Water's water supply goals can be met by installing four new wells (including replacing Well No. 2 and the newly operable Well No. 11). A summary of the system yield with the existing, new and improved facilities is provided in the Table 3-5:

Table 3-5

Proposed Water Supply Yield at Foster Park

Water Supply Element	Instantaneous Yield		Cumulative Yield	
	GPM	MGD	GPM	MGD
Existing Well Field (Nye Well No.'s 7, 8, & 11)	2,450	3.53	2,450	3.53
Subsurface Collector	1,300	1.87	3,550	5.11
New Well Field (4 wells)	6,000	8.64	9,550	13.75
Improvement of Existing Facilities	400	0.58	9,950	14.33
Total Supply	10,150	14.62	25,500	36.73

Source: Provided by City of Ventura, 2010

Ventura Water's plans for permanent Foster Park facilities improvements have been postponed due to delays in approval of the associated Environmental Impact Report and negotiations required thereon. However, if successful, Ventura Water's plans for Foster Park in the next several years include:

- Replace Well No. 2 which is the active river channel with a new production well set back from the east river bank.
- Harden and upgrade the wellheads at Wells No.'s 7 and 8.

- Add two or three new production wells set back from the east river bank.

The plan is that all new wells would be setback from the riverbank by at least 50 feet, would have their motors, meters, valves and piping above the 100-year flood elevation and would have the well casings hardened for protection from flood carried debris should the river bank become scoured away.

3.5.5 Avenue Water Treatment Plant Improvements

During 2005 through 2006, as part of the Avenue WTP Membrane Filtration Project, Ventura Water completed major construction upgrades to the facility which at the time was over 70 years old. The objectives of the Filtration Project included:

- Improve reliable capacity
- Meet current and future regulations
- Provide high quality water from multiple sources
- Incorporate the shift to chloramine disinfection
- pH corrosion control
- Provide simplified and safe plant operations

Currently, the Avenue WTP treats groundwater under the influence of surface water from Ventura Water's Foster Park Nye well system. This source water from the Foster Park Facilities enters the Avenue WTP property at the northeast corner through parallel 24-inch and 36-inch pipelines and discharge into an Inlet Meter Vault. A 36-inch pipeline connects the Inlet Meter Vault to the Kingston Reservoir, which acts as a raw water flow equalization basin for the WTP. The Avenue WTP can also receive treated surface water from the Casitas Municipal Water District (CMWD) that can be sent directly into the Zone 210 and 400 distribution systems or directed to the Kingston Reservoir.

The Avenue WTP treatment process consists of oxidation and coagulation, filtration with submerged UF membrane filtration units (to remove turbidity and pathogens from the water), disinfection with free chlorine (to disinfect the filtered water prior to the Power Reservoir and Ventura Water's distribution system), followed by ammonia addition to produce chloramines (to minimize disinfection byproducts in the distribution system). Corrosion control chemicals are also added to the treated water. The treated water is stored in the Power Reservoir, which is a 15 million-gallon covered, concrete water storage facility. The Power Reservoir and Valley Vista booster pump stations deliver water from the reservoir to the Zone 210 and 400 distribution systems, respectively.

The Avenue WTP has a design capacity of up to 10 million gallons per day (MGD) of treated water and has the potential for expansion to 15 MGD. The Avenue WTP operating staff increase or decrease plant output based on system demands and water availability from Foster Park.

During the year since startup, the Avenue WTP has typically operated only seven to eight hours per day due to limited source water availability.

The Avenue WTP treatment system is fully automated and does not require continuously attended operation. An overall plant system supervisory control and data acquisition (SCADA) system communicates with and coordinates the membrane units and supporting plant equipment during plant operation. The Avenue WTP is normally operated from the SCADA Computer Workstation in an automatic or semi-automatic mode. The plant operator monitors plant parameters, responds to alarm conditions, and adjusts plant flow rate based on system demand. The plant SCADA system has a remote access system to permit remote monitoring and operation of the facility.

The Avenue WTP operating staff performs routine operation, maintenance, and basic water quality analysis to calibrate and verify online analysis equipment, and SCADA maintenance are supported by Ventura Water's Production Section personnel. The basic water quality analyses performed by the operating staff include turbidity, pH, temperature, and residual chlorine concentration. Other water quality analyses including bacteriological testing are sent to an offsite laboratory for analysis.

Data is collected from the operation of the Avenue WTP to monitor the facility performance and to verify compliance with State and Federal Regulations. Data is recorded from on-line instruments that record turbidity, temperature, pressure, pH, chlorine residual concentration, flow rates, and tank levels. Laboratory analysis is conducted periodically to calibrate and verify on-line analyzers in accordance with the SWTR.

Additional improvements at the Avenue WTP include: construction of new sludge drying beds and washwater recovery basins; construction of a new raw water reservoir outlet pipe and source water pump station, construction of a new Chemical Building with gas chlorine storage feed as well as coagulant, caustic soda and miscellaneous membrane cleaning chemical storage and feed systems; construction of a new Membrane Building with submerged ultrafiltration membrane filters and associated equipment, piping, valves, instrumentation and controls; and new site utilities and improvements, including site security work.

Table 3-6 presents the removal and inactivation credits that the Avenue WTP now achieves with the new membrane filtration system and free chlorine disinfection in Power Reservoir as compared to the treatment objectives of the LT2ESWTR. The new WTP can provide greater removal and inactivation than is required.

Table 3-6

Avenue WTP Removal and Inactivation Credits

Pathogen	Zenon 1000 UF Log Removal Credit[c]	Power Reservoir Free Chlorine Log Inactivation[a]	Total Avenue WTP Log Removal-Inactivation	LT2ESWTR Treatment Removal-Inactivation Objectives
Giardia	4	2	6	3.0[b]
Cryptosporidium	4	N/A	4	2.0
Virus	3.5	>6	>9	4.0[b]

Notes:
(a) Based on 0.5 mg/l chlorine residual, 15°C, pH 7 and 1.7 hrs of contact time at low level (206 feet) and max flow (15 MGD). Power Reservoir is assumed to have a T_{10} to hydraulic detention time ratio of 0.1 to 1.
(b) MF/UF membrane systems are required to provide at least 0.5 log *Giardia* inactivation or 2-log virus inactivation in addition to removal credits.
(c) DPH approved credits based upon previous testing

3.5.6 Casitas Municipal Water District Purchases

Ventura Water continues to take CMWD water through the CMWD No. 1 turnout, which sends the water to Kingston Reservoir. The Lake Casitas water mixes with the raw water diverted from Foster Park before entering the Avenue WTP for treatment or can be bypassed around the plant. The CMWD No. 2 connection feeds directly into Ventura Water's Hall Canyon Reservoir.

Under Ventura Water's water purchase agreement with CMWD dated June 28, 1995 which is still current, Ventura Water agreed to purchase at least 6,000 AF/year from CMWD. In October 1996 Casitas began operating its direct filtration water treatment plant. At that time the pipeline delivering water to Ventura was converted from a raw water pipeline to a treated water pipeline. This allowed Ventura Water to take Casitas water directly into Ventura Water's water distribution system through the CMWD No. 2 turnout without additional treatment at the Avenue WTP. Between the years 2000 and 2004, Ventura Water took an average of 2,883 AFY through CMWD No. 1 turnout and an average of 2,731 AFY through CMWD No. 2 turnout. Between the years of 2005 and 2009, Ventura Water has increased its average annual CMWD deliveries in the No. 1 turnout to 3,399 AFY but has decreased deliveries in the No. 2 turnout to an annual average of 2,255 AFY. Annual CMWD purchases during this time period are reflected in Table 3-7. During October and November when Lake Casitas turns over, Ventura customers have complained about the taste and odor of the CMWD water supply (Kennedy/Jenks 1999). To avoid this problem, Ventura Water maximizes its use of Casitas water during the July to September period and reduces CMWD water purchases during the fall or re-treats the CMWD water to lower taste and odor complaints from the public.

Table 3-7

Water Purchases from Casitas Municipal Water District (AF/Year)

Turnout	2005	2006	2007	2008	2009
CMWD No. 1	4,754	3,067	3,342	3,087	2,744
CMWD No. 2	1,806	1,842	2,999	2,301	2,326
Total	6,560	4,909	6,341	5,388	5,070

As recommended in the Master Plan (Kennedy/Jenks 1999), Ventura Water has completed the following system retrofits:

- Shift the primary delivery point to CMWD No. 2. This allows concurrent use of the Ventura River Foster Park supply and CMWD water.
- Connect the CMWD No. 1 turnout directly to the 400/260R Zone along Ventura Avenue at the Valley Vista Booster Pump Station.
- Add piping to allow taking CMWD No. 1 water directly into the distribution system (210 Zone).
- Add additional motor operated valves to allow remote control of the various delivery points.

Direct use of the CMWD water without additional treatment at the Avenue WTP requires additional monitoring of the CMWD water quality.

CMWD converted from traditional chlorination to chloramination disinfection. Consequently, Ventura Water in 2004 converted its system–wide disinfection system to chloramination. This should reduce the potential for creation of THMs in Ventura Water's drinking water as well as eliminating the potential for taste and odor complaints at the interface between chlorinated and chloraminated water in the distribution system.

3.6 Emergency Response Agencies/Responsibilities

The OVSD has upgraded its emergency notification equipment and response program. The updated Sewage Spill Prevention and Response Plan, dated October 2010 is included as Appendix D. OVSD maintains the manhole with an overflow sensor near the confluence of San Antonio Creek and the Ventura River and Ventura Water monitors the water level in the OVSD manhole through the Avenue WTP SCADA system.

Section 4: Potential Contamination Sources in the Watershed

4.1 Sanitary Survey Methods

Regulatory agencies contacted for the 2005 Sanitary Survey were again contacted regarding changes in land uses, operations, and policies and permitting procedures that would affect the watershed and ultimately water quality of the surface water streams. OVSD provided significant assistance to the sanitary survey team regarding their sewage collection facilities, water quality testing results, sewage spills, GIS data, and OVSD facility upgrades. Field survey inspections by driving and walking were conducted during April 2011. Photographs of some of the watershed features that affect water quality are provided in Appendix E. Some locations from the 2005 survey were no longer relevant (i.e. construction was completed) or could not be located because of overgrowth and were not photographed. Locations of the photographs taken on the field survey are shown on Figure 5.

4.2 Potential Contaminants

A map showing potential contaminants in the study area is presented in Figure 6. These contaminants were identified in the current and previous sanitary surveys. Only if there is evidence of a potential contamination being mitigated was it taken off the map, such as one of the golf courses or the Honor Farm.

4.2.1 Sediment from Matilija Dam

The USACE has developed proposals to remove the Matilija Dam that quickly filled with sediments since its construction in 1947. There is now only about 500 AF of storage capacity in what once was a reservoir designed for over 7,000 AF of storage. Of concern is the risk from sediment being carried over the dam with large floods if no other action is taken, or with a slurry and pipeline sediment removal project. The EIS for the removal of the dam (USACE 2004) discussed the potential sediment contamination and the effects of the sediment on the groundwater recharge downstream of the dam. With or without the Matilija Dam removal Project, sediment transfer to the recharge areas of the lower Ventura River and sediment effects on the riverbed aquifer are a concern for the following reasons:

- Extra sediment will fill pore spaces, may form a seal, and decrease the effective storage in the riverbed aquifer.
- Extra sediment may affect operation of the Los Robles diversion structure, impacting flow down the main channel.
- The sediment will affect the geomorphology of the river.

If the proposed slurry line and sediment removal take place, there will be impacts of that operation to consider.

4.2.2 Sewered versus Unsewered Areas

The unsewered areas within the watershed are essentially unchanged from 2005. Only minor additions have been made in the Arbolada area of Ojai and in the Casitas Springs area. The problem areas also remain the same as reported in the 2000 and 2005 Sanitary Surveys as far as contamination potential from overflowing septic tanks in high groundwater areas. However, some homes have converted from septic to community sewer as described in Section 4.2.4.4.

Siete Robles Tract. This area in eastern Ojai has high groundwater (8 to 10 feet to the water table) and artesian wells. During the rainy season, the septic tanks and leachfields are often within the water table increasing the potential for surfacing effluent. Many residents have their septic systems pumped to tanker trucks frequently during the rainy season that haulers take away to Santa Clara Sanitation for disposal.

Arbolada. This area north of the intersection of Highways 33 and 150 has a high water table and, in some areas, a shallow depth to bedrock. Some property owners have been denied permission to develop because of poor conditions for septic systems. In 2005, some of the residents constructed a sewer collection system in the lower lying southern portion of this neighborhood and have connected to OVSD.

Areas Southwest of Intersection of Highway 150 and Burnham Road (Los Encinos). Septic system problems in this area are caused mainly by clay soils that significantly reduce percolation rates. In 2003 OVSD connected a sewer line to the Montessori school on Highway 150 at the northern edge of this neighborhood.

Live Oak Acres. Septic system problems in this area are caused by the high water table.

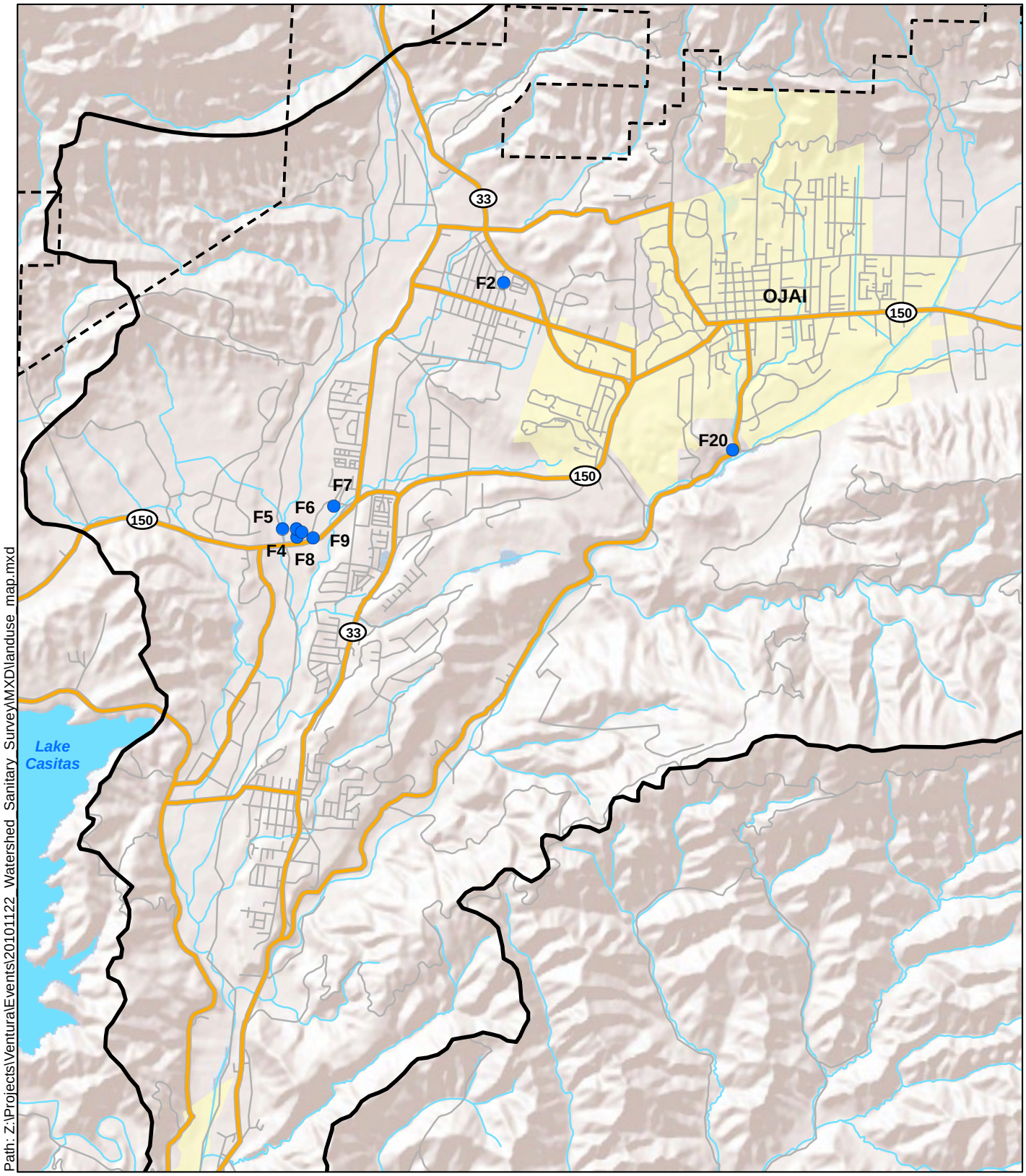
Santa Ana Road. The unsewered housing development along Santa Ana Road west of the Ventura River and just north of Foster Park has septic sewer problems due primarily to the high water table. This area is difficult to access by sewer line because of having to cross the Ventura River.

Casitas Springs within OVSD Boundary. The Casitas Springs area within the OVSD boundary is partially served by sewers and partially by septic systems as shown on Figure 6. Portions of Casitas Springs have good soils for septic systems; however, repairs at the older homes are often needed for failing septic systems. According to OVSD, new homeowners are beginning to connect to the sewage collection system. OVSD is working with a number of homeowners to repair their connections to the sewer system after the January and February 2005 mudslides.

Casitas Springs outside OVSD Boundary. Similar conditions exist for these older homes outside the OVSD boundaries as for the homes within the Sanitary District boundaries. They do not have the option to connect to the OVSD collection system unless they annex to the District.

4.2.3 Domestic Wastewater – Ojai Valley Sanitary District

OVSD is the governing agency for domestic wastewater collection, treatment, and disposal within the watershed. The OVSD service area has remained essentially unchanged since 2005 and is shown on Figure 7. OVSD's wastewater treatment plant provides tertiary level treatment with nutrient reduction treatment facilities. The OVSD WWTP location and discharge point



Path: Z:\Projects\Ventural\Events\20101122_Watershed_Sanitary_Survey\MXD\landuse_map.mxd

Image Source: © 2009 ESRI

Legend

- Field Photo Survey Points
- National Forest Boundary
- Study Area Boundary
- Lake
- Highway; Major Road
- Local Road
- Stream

N

0 2,500 5,000

Feet

Kennedy/Jenks Consultants

Watershed Sanitary Survey Update
Ventura, California

2010 Sanitary Survey Photograph Locations (Photographs in Appendix E)

K/J 1089061*00
July 2011

Figure 5

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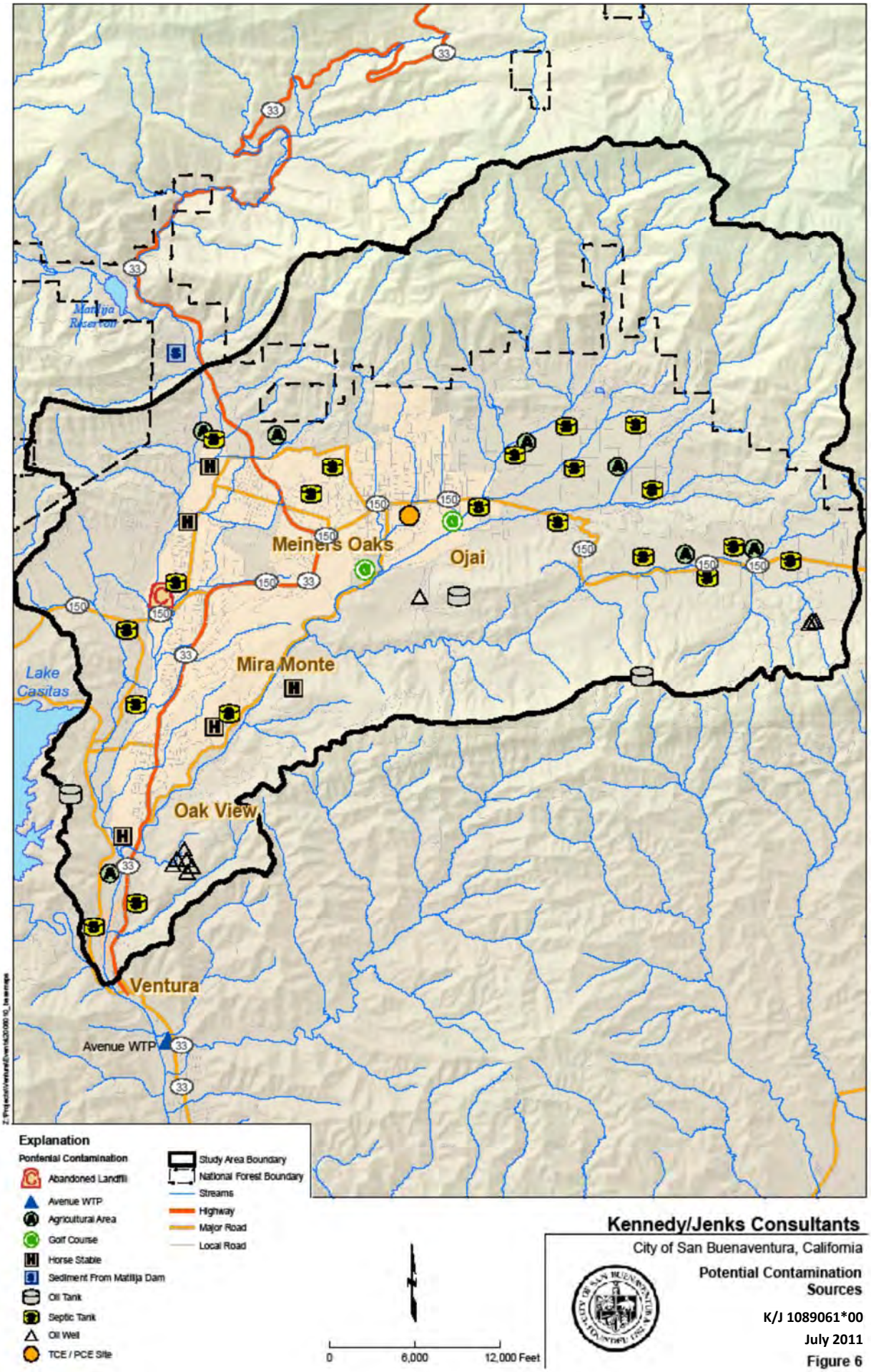

Kennedy/Jenks Consultants

City of San Buenaventura, California

Potential Contamination Sources

K/J 1089061*00

July 2011

Figure 6

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remain unchanged at a location along the Ventura River, which is outside and downstream from the watershed study area.

OVSD's 2008 NPDES Permit CA0053961 No. R4-2008-0039 for treated wastewater disposal is included as Appendix F.

4.2.4 OVSD Sewage Lift Stations in Watershed

Four of OVSD's six lift stations are still located within the study area. Their locations are shown on Figure 7. The pump stations are monitored 24 hours a day via a radio-based telemetry system connected directly into the OVSD Treatment Plant SCADA system. OVSD has installed its DCS telemetry system at its facilities throughout the District. This telemetry system transmits up to the minute operational information, flows, and alarms to the treatment plant's SCADA system. The SCADA system is equipped with a call out system that receives alarms and automatically contacts standby personnel during off-hours.

In addition, to prevent or reduce the impact of short-term power failures, the five largest pumping stations have been provided with emergency standby power capability. OVSD continued to maintain five (5) emergency generators, three of which are portables, which could be moved to run the OVSD headquarters if necessary. The Matilija Lift Station could be pumped periodically by vacuum truck during the emergency period.

Lift Station "Y" is located next to an out of business Ford dealership which used to be the sole contributor of sewage into the lift station. Currently, this lift station is out of service since there is no flow from the adjacent property.

OVSD upgraded the SCADA equipment during 2000 to 2005, and took over operation of a small 6th lift station at the Park and Ride at the Highway 33 and 150 intersections in Ojai. The District made another major automation software upgrade since 2005 which entailed conversion of their SCADA system from Transdyn to Rockwell Automation RS View32.

4.2.4.1 Sewer Line Crossings Under/Near Ventura River and Tributaries

The OVSD sewer lines which cross the Ventura River and its tributary creeks have continued to fail periodically because of damage during flood events, however, spill volumes for 2005 to 2009 as compared to 2000 to 2004 are much less due to the many system improvements by OVSD barring the lift station overflow and washed out trunk line. Spills are commonly related to blockages and the average spill amount due to blockages has decreased from 2,200 gal between 2000 and 2004 to 556 gal between 2005 and 2009. OVSD documents major line breaks in great detail including records of staff emergency response and repairs activities, estimates of the total volume of sewage spilled, and photographic documentation of the storm damage and repairs. A discussion of the system upgrades is provided below. A listing ofreported sewage spills of 200 gallons or more is provided in Table 4-1. None of the spills affected flowing water.

TABLE 4-1
OJAI VALLEY SANITARY DISTRICT SEWAGE SPILL SUMMARY (200 GAL. OR MORE)
REPORTING PERIOD 2005 TO 2009

Date	Problem	Spill Amount	Time Called	Time Arrived	Completed	Location	Reason for Spill
1/9/2005	Manhole Overflowing	N/A	1205	1220	1750	MH @ conflicting Ojai-OV trunks	Excess Flow
1/9/2005	Lift Station Overflow	0.94 MG	Onsite	1545	NA	SALS#1	Excess Flow
1/10/2005	Trunkline Washed Out	16.2 MG	1/10/2005	N/A	1/18/2005	Winery Siphon	Excess Flow
3/3/2006	Mainline - Blockage	230 gal	955	1005	1130	Sumac Drive	Roots-. from Lateral
4/19/2007	Manhole Overflowing	1,125 gal	1920	1945	2115	MH - Stewart Canyon	Roots
1/7/2008	Mainline - Blockage	1,200 gal	958	1010	1050	Descano Drive	Grease & Roots
3/1/2008	Mainline - Blockage	600 gal	937	1010	1100	Villanova Road	Roots
6/25/2009	Mainline - Blockage	450 gal	1327	1342	1407	Shady Ln/Hwy 150	Grease & Debris
8/30/2009	Mainline - Blockage	300 gal	1230	1250	1315	High Street	Debris

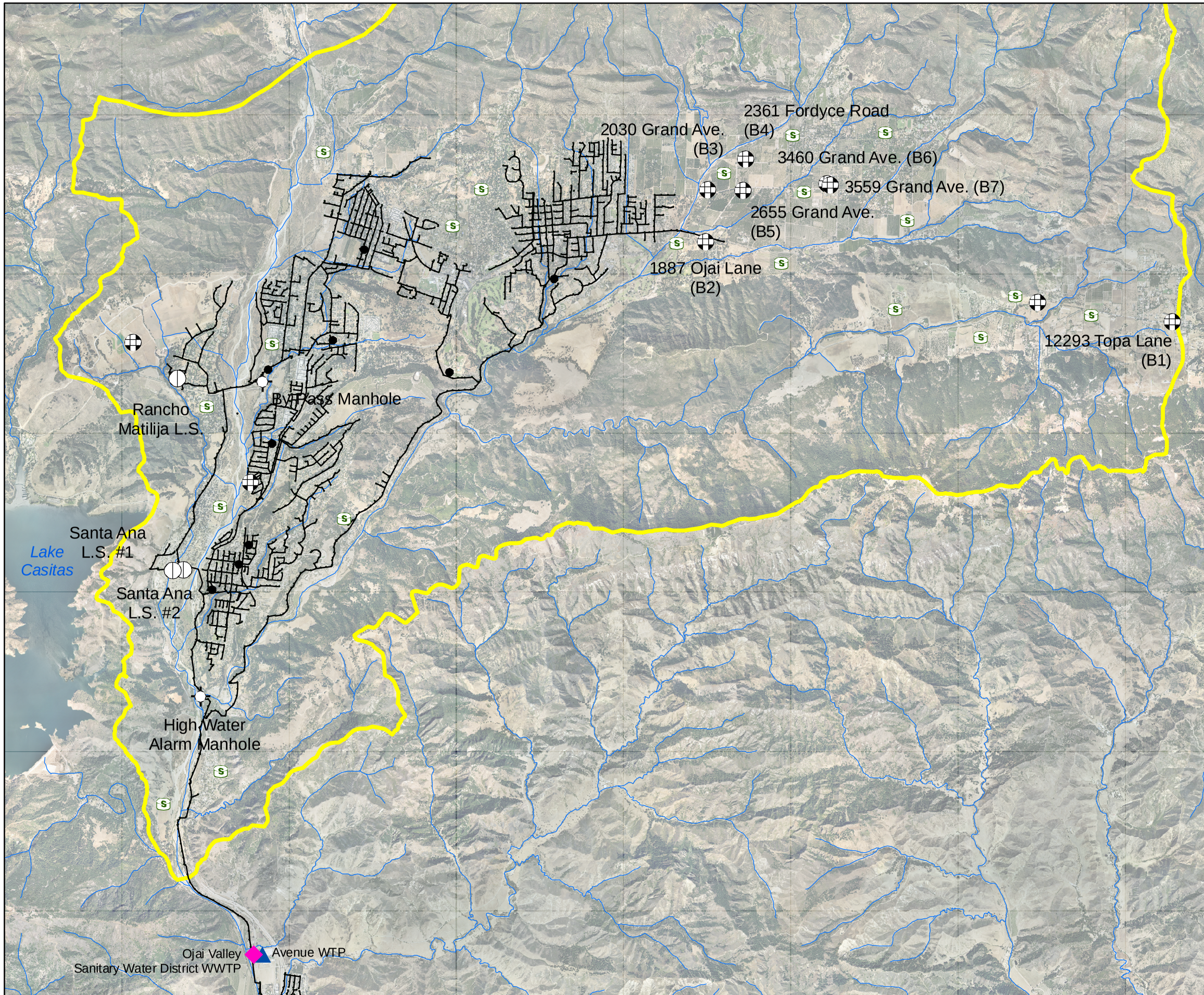
4.2.4.2 Ventura River and San Antonio Creek Crossings

The sewer line crossing the Ventura River at Highway 150 Bridge was replaced with a siphon to eliminate the potential for washout. The siphon with two 10-inch and one 12-inch diameter pipeline, was installed in 2003 using Horizontal Directional Drilling that placed the 3,100 foot siphon approximately 200 feet below the surface at its deepest point.

A similar double barrel siphon has been constructed to replace a trunk line that was washed out during the spring 2005 floods when the San Antonio Creek jumped its bank and flooded an agricultural field where the trunk line was located. This section of trunk line and adjoining short 100± foot siphon under the creek was replaced with a 1,800 foot, two-barrel, HDPE siphon in 2005. It is located further downstream and at a deeper invert elevation to minimize the risk of a second wash out in the event of additional severe flood events.

4.2.4.3 OVSD System Infrastructure Maintenance and Rehabilitation

During 2005-2009, OVSD took a number of preventative measures to further reduce the risk of system failures including routine maintenance, repairs, replacements, and equipment purchases.



Explanation

- Study Area Boundary
- Streams
- Septic Tank Areas

Sewer Crossings

- Sewage Lift Station
- Manhole
- Biosludge Disposal Area
- Sewage Spill Location
- Mainlines
- Structures

0 1 2 Miles

Kennedy/Jenks Consultants

City of San Buenaventura, California

Sewer Facility Locations in 2010

0589056
March 2006

Figure 7

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4.2.4.3.1 System Maintenance

1. Line Cleaning - During the period of January 2005 through December 2009, OVSD cleaned 1,044,186 LF of sewer line for routine maintenance based on a three year cleaning cycle, and 21,473 LF of enhanced cleaning line segments (Hot Spots).
2. CCTV Inspections - During the period of January 2005 through December 2009, OVSD conducted 336,342 LF of CCTV inspection for the purpose of performing a condition assessment of the entire collection system, post construction inspections, and locating Infiltration and Inflow (I&I) sources, and root assessment.
3. Root Control Program – During the period of January 2005 through December 2009, OVSD applied root inhibitor to 91,329 LF of mainline utilizing both in-house personnel and Duke's Root Control.

4.2.4.3.2 System Repairs and Rehabilitation

During the 2005 through 2009 wet weather seasons, OVSD conducted a rehabilitation program to reduce I&I into the sewer mains. Visual inspections inside manholes during rain events and flow monitors were employed as part of this program. ISCO and Flo-Dar open channel flow meters were implemented at strategic locations and CCTV inspections were conducted to quantify and isolate I&I flows. The use of ground monitoring wells in the Ojai area and five (5) rain gauges has also been incorporated into this effort.

This inspection program led to OVSD contracting with an outside vendor to grout 46 brick manholes providing high strength spun-on mortar with a two-part epoxy 100% solids coating. Subsequently, OVSD purchased a hand-operated grout injection system that they began using in 2009. Nine manholes were rehabilitated during the reporting period using the grout injection system.

4.2.4.3.3 System Replacement

During the period of January 2005 through December 2009, no pipe was replaced using open trench or pipe bursting methods nor was any pipe repaired using insituform technology. One manhole was replaced as well as 388 manhole rings and covers.
Zero point repairs were conducted during the reporting period.

Currently in construction (started June 2009) is the replacement of Ventura Avenue's two lift stations and associated force mains, which will eliminate one and replace the second lift station. The resulting configuration will provide a single 9,300 foot, ten-inch HPDE force main that will discharge directly into the Avenue Treatment Plant. The project is expected to be completed in early 2011.

See Section 4.2.4.2 for other aforementioned system replacements.

4.2.4.3.4 Equipment Purchases

OVSD purchased a track driven easement machine that increased the reach of the vactor unit hydraulic cleaning capability by 600 feet into areas of restricted access to improve pipeline cleaning capabilities and thereby reduce the risk of spills..
OVSD also purchased five new portable flow meters with radio frequency transmission capability, one permanently mounted flow meter, and a radio receiver unit to enhance flow data downloading. The hand-operated grout injection system was also purchased as mentioned in Section 4.2.4.3.2.

4.2.4.4 Septic System Upgrades

OVSD had 53 properties convert from septic systems to the District's sewer system between 2005 and 2009. OVSD does not plan or suggest that homes be converted, but rather they allow the homeowners to initiate the conversion process.

4.2.4.5 OVSD's Sewage Spill Prevention and Response Plans

In October 2010, OVSD updated its Sewage Spill Prevention and Response Plan. A copy of the 2010 Plan can be found in Appendix D.

A number of preventative measures are included in the 2010 Plan. The District's six pumping stations are monitored 24-hours a day via a radio-based telemetry system connected directly into the OVSD treatment plant SCADA system. This telemetry system transmits up-to-the-minute operation information. Additionally, to prevent or reduce the impact of short-term power failures, the five largest pumping stations have been provided with emergency standby power capability. To minimize sewage overflows and spills, OVSD schedules the cleaning of all main sewer lines over a three-year period, while line segments that have root, grease, or odor problems known as "hot spots" are cleaned more frequently.

Among the parties to be notified in an emergency, the October 2010 plan contains the following phone numbers for sewage spill notifications:

- State Office of Emergency Services (OES) at: 800-852-7550.

- Ventura County Environmental Health Department (VCEHD):
  - Business Hours (805) 654-2813
  - After Hours (805) 320-6244 or (805) 655-9181

Unless:

The spill is in or into the Ventura River and/or San Antonio Creek above Foster Park; then due to potential potable water contamination, first contact the Avenue WTP at:

- Business Hours (805) 652-4548 7 days/week 7am - 3:30pm, or (805) 652-4500 M-F 8am - 5pm
- After Hours (805) 339-4399, Police and Fire Dispatch

And then notify VCEHD next.

The City of San Buenaventura's central dispatch will report the incident and call Ventura Water standby personnel. The plan also contains phone numbers for the Los Angeles RWQCB and California Department of Fish and Game. The plan does not contain daytime and/or nighttime phone numbers for the DPH (Santa Barbara office), which is intimately involved in the regulation of drinking water quality.

4.2.5 Golf Courses

There are currently two existing golf courses in the watershed as shown on Figure 6; the Ojai Valley Inn Golf Course and Country Club, and the Soule Park Golf Course. These two golf courses border San Antonio Creek. The impacts on water quality in San Antonio Creek from the golf courses are not believed to be significant based on review of nitrate and pesticide data that may indicate over fertilization or treatment for insects.

4.2.6 Organized Recreational Facilities within Watershed

The Ventura River/San Antonio Creek watershed continues to offer a diverse array of outdoor activities. The watershed has parks, campgrounds, golf courses, ten miles of equestrian trails and retreat facilities. The Ventura County Parks and Recreation Department reported no significant changes in the operation of the recreational facilities within the watershed.

4.2.6.1 Ojai Valley Land Conservancy

The Ojai Valley Land Conservancy worked at developing the trails and trail heads for hiking and horseback riding along the Ventura River, in the area between the Los Robles Diversion and Highway 150. Other than providing a setting where small quantities of manure could potentially be washed into the watercourse, the Conservancy aims to protect both the Ventura River and San Antonio Creek Corridors through land acquisition and restoration.

4.2.6.2 Arnaz Program Center

The Arnaz Program Center is a camp privately owned and operated by the Girl Scouts of California's Central Coast. A portion of the property borders San Antonio Creek. A number of buildings are connected to the OVSD collection system and water is provided to the facility by CMWD. There have been no changes in the operation of this facility since 2005.

4.2.6.3 Foster Park

Foster Park is a historic park, first developed in 1906. The Ventura River flows through the park. Activities in the park include fishing and hiking. Family and group barbecue areas are also provided. Dogs are not allowed in the day use section. There are no known reported changes in operation of this facility.

4.2.6.4 Ojai Valley Bike Equestrian Trail

The Ojai Valley Trail parallels Highway 33 from Foster Park. Permitted activities along the trail include equestrian, bicycling, walking, and jogging. Dogs are permitted on leash only.

Construction of a new bridge over a section of dry creek bed is scheduled to commence in the first quarter of 2011. There are no additional reported changes in operation of this facility.

4.2.6.5 Camp Comfort

Camp Comfort is located within the Ojai Valley. The San Antonio Creek flows through the park. Activities in the park include campsite with full hookups including water and sewer utilities. Also provided are laundry facilities and indoor showers. Dogs are not allowed in the day use section. There are no known reported changes in operation of this facility.

4.2.6.6 Dennison Park

Dennison Park is located within the Ojai Valley. Activities within the park include family and group barbecue areas, individual campsites, and fire pits. There are no known reported changes in operation of this facility.

4.2.6.7 Soule Park

Soule Park, next to the Soule Park Golf Course, is the most frequently used Ventura County park. Activities in the park include tennis, an equestrian arena, softball field, and children's playgrounds. Family and group barbecue areas are located throughout the park. Dogs are not allowed. There are no known reported changes in operation of this facility.

4.2.6.8 Camp Ramah

Camp Ramah is a private, organized, sewered camping facility in McDonald Canyon, northeast of Meiners Oaks. In 2005, over 1,300 campers attended the summer month program at the camp. There are no known changes in the operation of this facility with respect to watershed contaminants.

4.2.7 Educational Facilities in the Watershed

There are no known changes to water runoff from the existing educational facilities in the study area.

4.2.8 Correctional Institutions in Watershed

The only correctional institution within the watershed was the County Sheriff's Honor Farm which closed in August 2003. In 2006, the Help of Ojai non-profit organization leased the property from the County of Ventura which is now called the Baldwin Road West Campus. The plan for West Campus is to provide expansion of existing programs and development of new programs to serve the citizens in need within the Ojai Valley.

4.2.9 Mine Runoff

The Ventura County Planning Department confirmed that there are currently no active or inactive mines within the Ventura River/San Antonio Creek watershed.

4.2.10 Recycled Water in Watershed

Currently there is no use of reclaimed water in the watershed study area. OVSD's wastewater treatment plant does provide for tertiary treatment, which is suitable for non-potable use of reclaimed water. One of the issues with delivering recycled water is the distance from the OVSD treatment plant to potential recycled water users and there is some discussion of satellite WWTPs in the mid to upper portions of the watershed.

The City of San Buenaventura owns the effluent from the OVSD and has evaluated ways to utilize recycled water. In September of 2007, they published a Feasibility Study that examined using treated water for agricultural irrigation and oilfield use which would subsequently offset their water demands. The treatment plant produces valuable water for the aquatic habitat of the watershed and thus no agreement has been reached on how to make use of the effluent.

4.2.11 Biosolids Applications on Lands within Watershed

During the dry season, biosolids within the OVSD service area are composted as manure and given away free to the public. However, during the wet season, all biosolids are trucked out of the watershed to Kern County.

4.2.12 Agricultural Crops Grown

According to the Ventura County Agricultural Commissioner's office, the principal crops grown within the watershed are citrus and avocados. Additionally, there are only small patches of field or row crops grown within the watershed.

4.2.13 Pesticide and Herbicide Use

Information on pesticide and herbicide use in California is available from the State Department of Pesticide Regulations. Pesticide use reports for Ventura County from 2005 to 2008 were available, indexed by commodity and chemical. A representative report for 2008 is provided in Appendix G. On a Countywide basis, from 2005 to 2008, the total amount of pesticides applied to agricultural crops has increased by 1.3 percent (approximately 85,438 pounds). Over the same time period, the total number of agricultural applications Countywide increased by 20.2 percent (approximately 13,462 applications). Statistics specific to the study area were not available.

4.2.14 Farm Animal Grazing Areas

The Ventura County Agricultural Commission was contacted for updated information on current animal grazing areas within the watershed. According to the office, the only reports of farm animal grazing are for cattle from the State Agricultural Office. The County office does not track horses in the watershed area. As the Sheriff's Honor Farm was closed in 2003, the Ventura County Agricultural Commissioner's Office no longer receives reports on swine.

There are no known large herds grazing areas within the watershed, although there are minor grazing leases upstream of the study area. There are no concentrated feedlot or slaughterhouse animal facilities that would affect water quality within the watershed.

There is the presence of horse stables and resulting manure directly adjacent to San Antonio Creek and along the Ventura River. Should horse manure be stockpiled or stored along and near creek banks, this presents a threat to water quality during rainy weather periods and rising floodwater events. The major potential concerns are that these manures may be adding parasitic cysts and bacteriological contamination to the creek. Also of concern is the addition of nitrate/phosphate nutrients to the river/creek system at these sites.

4.2.15 Wild Animals

There are no known changes in wild animal populations since 2005.

4.2.16 Oil and Gas Facilities

There were no reported changes in oil wells and oil storage tanks since 2005 in the study area. There are a number of gas pipelines that cross creeks in the Ojai area and have potential for spill to the waterways from flood, earthquake or traffic accidents. The 2005 field survey identified two such crossings; these locations could not be located in 2011 because of changed field conditions.

Oil and gas facilities are included on the BWT lists and are subject to a three-year review for spill prevention, control, and countermeasure (SPCC) plans. SPCC Plans are a cornerstone of EPA's strategy to prevent oil and gas spills from reaching the nation's waters. Unlike contingency plans that address cleanup measures after a spill has occurred, SPCC Plans ensure that containment facilities are put in place and other countermeasures that would prevent oil spills from reaching navigable waters. Transfer facilities, such as pipelines, are included in the SPCCs. (Vintage Petroleum, 2001)

4.2.17 Hazardous Waste Spills

Since 2005, Ventura County Environmental Health has reported many small sewage and petroleum spills within the Ojai area of the Ventura River watershed (see Table 4-2). Additional individual spill report data is available on their on-line data base at: http://www.vcenvhealth.org/prop/.

TABLE 4-2
ENVIRONMENTAL HEALTH
SPILL SUMMARY
REPORTING PERIOD 2006 TO 2010

Spill Control No.	Date of Incident	Incident Location	City	Substance	Quantity	Unit
98785	9/1/06	1072 Tico Road	Ojai	Untreated sewage	40-60	gal
98873	12/1/06	3468 Grand Ave	Ojai	Mineral oil	8	gal
98894	1/12/2007	1103 Creekside Way	Ojai	Mineral oil, UNK PCB by SCE	20	gal

Spill Control No.	Date of Incident	Incident Location	City	Substance	Quantity	Unit
98902	1/23/07	271 Fairview	Ojai	Sewage	15-20	gal
98909	1/29/07	1131 Rancho Road	Ojai	Petroleum	3	gal
99071	9/9/07	1400 Park Drive		Mineral oil, poss PCB by SCE	5	gal
99098	9/2/07	324 N. La Luna	Ojai	Mineral oil, unk PCB by SCE	Unk	Unk
99101	9/4/07	2276 Los Encinos	Ojai	Mineral Oil	10	gal
99375	7/14/08	616 E Ojai Ave	Ojai	Gasoline	<2	gal
99453	10/8/08	12720 Ojai Road	Ojai	Produced water	106	bbl
99537	2/16/09	12720 Ojai Road	Ojai	Produced water	6	bbl
99903	8/18/10	1124 Myers Road	Ojai	Diesel on road	5	gal.
99906	8/22/10	15501 Ojai Road	Unincorporated county area	Injection water	30	bbl.

Additionally, as part of the Ventura County Hazardous Materials Program, the County conducts annual facility inspections, is involved with hazardous materials emergency response, investigation of the illegal disposal of hazardous waste, public complaints, and storm water illicit discharge inspections. The Ventura County Environmental Health Division records the hazardous waste spills occurring within the watershed, and presents the information in a weekly report, entitled, “Hazardous Materials Discharge Summary Report.” These weekly reports can be viewed on the County’s Hazardous Materials Program web page.

4.2.18 Geologic Hazards

There have been no major geologic hazards such as earthquakes within the watershed over the last five years. Landslides and mudslides were associated with the larger rainfall and flood events, with damage to roadways and some houses in January and February 2005. Sediment from the mudslides affected turbidity in the creeks and Ventura River, and unknown debris from houses and properties washed into the waterways.

4.2.19 Wildfires

Between the dates of 12/28/2006 and 9/21/2010, thirty (30) fires were recorded by the Ventura County Fire Department within the Watershed. All 30 fires were deemed “Brush” and “Grass” fires by the County and size in acreage is not typically reported for each incident.

4.2.20 Unauthorized Activities

Aside from an unauthorized activity noted within the watershed reported in the 2000 Watershed Sanitary Survey concerning two parcels owned by Mr. Appel, who had a landscape and tree

trimming business that he conducted from both properties, no new unauthorized activities are currently reported or being pursued.

4.2.21 Abandoned Burn Dump and Waste Transfer Station

The Ojai Valley Organics Recycling Facility (OVORF) is located at the eastern side of the Highway 150 Bridge crossing of the Ventura River at the site of an abandoned burn dump that was closed in the 1960's. The County has obtained a conditional use permit to run this green waste facility via RWQCB Cleanup and Abatement Order No. 97-107. (see photographs in Appendix E). A monitoring program was established by the permit that requires groundwater monitoring to begin in 2006, and every three years thereafter. The 2009 Annual Groundwater Monitoring Report is attached in Appendix H.

There are no other known active or abandoned landfills or transfer stations in the study area.

4.2.22 Underground Tanks

Many individuals and businesses, including gas stations, within the watershed continue to use underground storage tanks. Information about underground storage tanks is available at the VCEHD's web site. A list of business plan holders, hazardous waste producers, and underground storage tank sites (BWT List[2]) in Ventura County was developed from information at the website.

The VCEHD also maintains a list of closed underground tank sites. This list included 82 inactive underground tank sites located within or in the vicinity of the watershed (see Table A in Appendix I). These sites have been categorized as closed sites, which indicates that they have been cleaned up or retrofitted according to applicable clean-up procedures as directed by the RWQCB or the County of Ventura.

The BWT list also included 13 locations within or in the vicinity of watershed as "permitted" underground tank sites (see Table B in Appendix I).

A list of leaking underground fuel tank sites (LUFT) was also accessed at the Ventura County Environmental Health Departments web site. Fifty-eight (58) sites within or in the vicinity of the watershed were included on this list. These tanks have been identified as having been contaminated and requiring site assessment. Farm tanks are exempt from County Agency review and are handled by the RWQCB. Once the County confirms that the sites have been contaminated, the business or property owner must furnish the County with a work plan for site clean up. The Ventura County Tank Regulatory Department is in charge of tank inspection and permitting of tank operation, abandonment, and installation/removal. The list characterizes these sites as currently undergoing preliminary site assessment, site characterization, remedial action, or as being closed. The majority of these tanks within the watershed are listed as closed (see Table C in Appendix I).

[2] BWT List: The Business Plan, Hazardous Waste Producers, and Operating Underground Tanks Site Address List indicates by site address whether EHD has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) Information.

4.2.23 Hazardous Waste and Business Plan

The VCEHD requires companies handling 55 gallons, 500 pounds, or 200 cubic feet or more of hazardous materials to obtain a special business plan. The business plan identifies how the hazardous materials are handled onsite, how much material is handled at any time, how it is stored, where storage is, and procedures to be used in case of emergencies. A listing of 81 business plan holders within or in the vicinity of the watershed was included on the BWT list (see Table D in Appendix I).

4.2.24 Hazardous Waste Generators

The current BWT list also includes 55 sites within or in the vicinity of the watershed considered hazardous waste generators. A hazardous waste generator is defined as any business generating materials that have been categorized as hazardous by the Title 22 Code of Regulations (see Table E in Appendix I). There is no information at this time to suggest that any of these hazardous waste generators have caused a surface water quality problem.

4.2.25 Solid, Liquid and Hazardous Waste Sites

A listing of the inactive hazardous material sites (BWT list) is provided in Table F in Appendix I. The permanent HHWCF in the watershed is still operable and discussed in Section 4.2.27.

4.2.26 Toxic Waste Sites

In 2007, the Department of Toxic Substances Control (DTSC) launched an enhanced environmental database, known as “EnviroStor,” that provides access to detailed information on hazardous waste permitted and corrective action facilities, as well as existing site cleanup information. EnviroStor allows one to search for information on investigation, cleanup, permitting, and/or corrective actions that are planned, being conducted or have been completed under DTSC’s oversight. The DTSC “EnviroStor” database was accessed to update the list of toxic waste sites in the watershed involving contaminated onsite soils or shallow groundwater contamination problems. The following sites listed in Table 4-3 lie within the watershed and are currently listed on the “EnviroStor” website:

TABLE 4-3
TOXIC WASTE SITES

CalSite Facility	Category[(a)]
Farmont Corporation, Off Hwy 150 at Rancho Matilija, Ojai	REFRW
Corpus Paving, 1370 South Rice Road, Ojai	REFOA
O.W. Stovall, 505 Prospect Street, Oak View	NFA
Nordoff High School Expansion, 1401 Maricopa Hwy, Ojai	NA
Ojai Valley Club, 905 Country Club Road, Ojai	INE

Note:
(a) REFRW – referred to Regional Water Quality Control Board
REFOA – referred to other government agency
NFA – no further action
NA – no action
INE – inactive - needs evaluation

4.2.27 Permanent Household Hazardous Waste Collection Facility (HHWCF)

The HHWCF which was put into operation in July of 2001 is located within the Ventura River watershed next to the Avenue WTP. The operation of the facility is limited to monthly deposits of household hazardous materials and appointments are requested so as to limit the potential for spills or misplacing the wastes. Since 2001, facility staff has collected and properly managed 1,045, 890 pounds of household hazardous waste.

There have been no changes in operations since 2005 for this facility; nor are there any spills or violations of significance to report (personal communication, Don Sheppard, Ventura County E&ERD).

4.2.28 Urban Area Runoff and Industrial Waste Discharges

Urban and industrial runoff is regulated under the NPDES. The RWQCB permit for Waste Discharge Requirements for Storm Water (Wet Weather) and Non-Storm Water (Dry Weather) Discharges from the Municipal Separate Storm Sewer Systems Within the Ventura County Watershed Protection District, County of Ventura and the Incorporated Cities Therein, NPDES Permit No. CAS004002 Order 09-0057 was adopted on May 7, 2009 and is attached as Appendix J. This permit expires on May 7, 2014.

4.3 Significance of Actual and Potential Contamination Sources

4.3.1 Significant Improvements in Actual and Potential Contamination Sources

During the 2005 to 2010 period, there were some significant changes that reduced the actual and potential contaminant sources within the Ventura River and San Antonio Creek watershed study area. Significant positive changes include:

- OVSD installing siphon crossings of the Ventura River (2003) and San Antonio Creek (2005-2006)
- 2010 Update to the OVSD Sewage Spill Prevention and Response Plan
- 53 Septic tank to OVSD sewer system conversions
- Successful completion of Avenue WTP Membrane Filtration Project and other associated plant improvements

4.3.2 Significant Actual and Potential Contamination Sources

Based on the information summarized above, it is the opinion of Kennedy/Jenks that the following potential contaminant sources the watershed may be significant from a water quality perspective:

<u>Actual Contamination Sources</u>

- Horse manure stockpiles
- Septic tanks in Casitas Springs and the Burnham Road corridor
- Illegal activities such as dumping in the river or storm drains

<u>Potential Contamination Sources</u>

- Sediments from Matilija Dam. The expected sediment, either from natural erosion during floods or the slurry pipeline project proposed by the USACE, poses a direct challenge to clogging the subsurface diversion, and the function of recharge and extraction by Ventura Water's Nye Wells, the wells of the Ventura River County Water District, and Meiners Oaks Water District.
- Oil wells and tanks. These have emergency plans to keep oil from waterways, so only if those fail and oil affect the water sources.
- Gas utility pipelines. These are also covered by emergency plans, so are only potential problems if the emergency plans fail. Also, as this is pressurized natural gas, it will likely vaporize quickly thus reducing the risk.

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Section 5: Watershed Control and Management Practices

This section summarizes updates since 2005 to the watershed management practices that are used by the private entities and public agencies that exercise any watershed controls within the Ventura River/San Antonio Creek watershed. Control measures discussed in this section are those that may impact the water quality of the watershed. The categories of watershed management programs and practices described in 2005 are included in the descriptions below. The changes are summarized and updates to those categories are discussed. The 2010 status of recommendations made in 2005 is discussed in Section 2.

This section focus on control and management practices that affect surface water supplies. The delayed but potential effects of groundwater from its interface with surface water have not been ignored. In this and the previous Sanitary Surveys, issues of groundwater contamination of hazardous materials, leaking underground tanks, septic tanks are discussed because they have the potential to affect what becomes surface flow at Foster Park

5.1 Watershed Management Practices and Programs

There are a number of different programs that monitor the water quality in the watershed. The active management practices and monitoring programs during 2005 through 2010 are described below and in more detail about the monitoring programs in Section 7. An overview of the existing monitoring data from these efforts is also in Section 7. A more regional view of watershed management is provided in the Los Angeles RWQCB 2007 Watershed Management Initiative report, an excerpt of which is provided as Appendix K.

5.1.1 Toxic Substances Monitoring Program

The State Toxic Substances Monitoring Program is a program to assess the quality of waters throughout the state. Fish, other organisms, and sediment are collected and analyzed for metals and organic chemicals (primarily pesticides). Recent sampling under this program has not occurred as the state is evaluating the program.

5.1.2 Ojai Valley Sanitary District

OVSD has taken steps to manage its operations and effects on the watershed. OVSD has implemented system maintenance and improvements, such as siphon crossings of the Ventura River and San Antonio Creek and Infiltration & Inflow management.

OVSD has a monitoring program for its system and outfall. A receiving water monitoring program is implemented by Ventura County Stormwater Monitoring and the Ventura River Stream team. The monitoring supports compliance evaluation, nonpoint source identification, and potential Total Maximum Daily Load (TMDL) development.

OVSD currently monitors for a broad array of conventional pollutants as well as bacterial indicators at three sites in the main stem, as well as the Ventura River just south of the Canada Larga confluence.

5.1.3 Casitas Municipal Water District

The CMWD produces an Annual Water Quality Report for their customers that provide water quality information about Lake Casitas and Mira Monte wells for general, bacteriological, organic chemicals, and radiological parameters.

The CMWD also monitors in the main reach of the Ventura River, Lake Casitas, and in tributaries leading into and out of the lake for total and fecal coliform as well as minerals. Methyl Tertiary Butyl Ether (MTBE) is also monitored in the lake.

5.1.4 Ventura County Watershed Protection District

The current Stormwater NPDES permit adopted in 2008 includes a monitoring and reporting program which requires monitoring at mass emissions stations in the County and more specifically requires bioassessment monitoring in the Ventura River. The mass emissions site was established on the Ventura River main reach at Foster Park west of Highway 33, on the south side of Casitas Vista Road, just west of Foster Park Bridge. The bioassessment program shall include an analysis of the community structure of the instream macroinvertebrate assemblages in urban runoff-impacted stream segments at experimental sites and is now conducted by the Southern California Coastal Water Research Program (SCCWRP). Many sites will overlap with water quality monitoring sites of the Ventura River Stream team sponsored by the Santa Barbara Channel Keeper.

5.1.5 City of San Buenaventura

City of San Buenaventura Planning and Public Works Departments actively participate in City water supply policy and planning, as well as in interagency studies of the watershed.

Ventura Water has multiple monitoring programs in and for the Ventura River supply:

Source water monitoring (Title 22): Includes water sources and the distribution system. These results are reported to DPH and the public in the Consumer Confidence Reports.

Watershed monitoring: developed after the 2000 and 2005 Sanitary Surveys, monitors locations in the watershed on a weekly, monthly, or annual basis; for conventional pollutants, minerals, coliform, and metals. The watershed program is meant to provide early warning of contamination plumes and provide baseline data for new treatment regulations described in Section 6.

Avenue WTP operations – monitoring of the process at various points to check the plant operations.

5.1.6 Ventura River Stream Team

The Santa Barbara Channel Keeper, in conjunction with the Regional Board, VCFCD, Ventura Water, and the OVSD, started a Ventura River Stream Team to conduct a watershed-wide water quality monitoring program which began in 2001. Fourteen sites are monitored for conventional pollutants and bacterial indicators under this program. The group is pursuing additional funding to continue the effort as well as conduct additional work relating to habitat conditions.

5.2 County General Plan Policies

Ventura County continues to have land use and building permit authority throughout the watershed, with the exception of the area designated as the Los Padres National Forest and City of Ojai. Other jurisdictions in the watershed include the Los Padres National Forest and the CMWD. Most of the unincorporated Ventura River/San Antonio Creek watershed is covered by the Ojai Valley Area Plan, which constitutes a portion of the Ventura County General Plan. The Ojai Valley Area Plan found in Appendix B and Ventura County General Plan have both been amended since 2005 as follows in Table 5-1: (see Appendix L for more detail on the Ventura County General Plan amended in 2010)

TABLE 5-1
OJAI VALLEY AREA PLAN AND VENTURA COUNTY GENERAL PLAN

Document Title	Date adopted or last amended
Ventura County General Plan	
Goals, Policies, and Programs	04-06-10
Resources Appendix	04-06-10
Hazards Appendix	05-08-07
Land Use Appendix	12-16-08
Public Facilities and Services Appendix	05-08-07
Ojai Valley Area Plan	02-05-08

Aspects of General Plan Policies with particular bearing on watershed management and control are land use/population, sewage disposal, storm water regulations, and transportation.

Regarding land use and population, the majority of the watershed is zoned open space, agricultural, or low density residential. Land use goals include limiting growth to already established urban and rural residential areas. Land use policies include provisions to minimize environmental degradation while providing developable land to serve the needs of valley residences in terms of residential, commercial, industrial, and open space land uses.

These plans and policies have not changed significantly since the 2005 Sanitary Survey.

5.3 Federal Agency Plans and Policies

No known major changes have occurred since September 2005 when the USDA issued a Land Management Plan for the Los Padres National Forest. The Plan focuses on community protection from wildland fire, restoration of forest health including discussion of fire regime, invasive species, managed recreation, improving watershed conditions through cooperative management, improving riparian conditions and ecological conditions, all of which benefit water quality within the watershed.

5.4 Wastewater Discharge Requirements

Effective August 2003, the RWQCB eliminated monitoring stations several monitoring stations from the OVSD's NPDES monitoring program because sufficient data was being collected by other programs such as: the Ventura Stream Team, and VCWQMP. To date three monitoring stations are now active as described in Section 7. A copy of OVSD's 2008 NPDES permit is included as Appendix F.

5.5 Storm Water Regulations

The Ventura River/San Antonio Creek Watershed is covered under the VCSWQMP and the most current reports can be found on the programs website.. Under this program, the County of Ventura, the VCWPD, and the cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buenaventura, Santa Paula, Simi Valley, and Thousand Oaks are jointly responsible as Co-Permittees under Order No. 09-0057 of NPDES Permit No. CAS004002 for the Waste Discharge Requirements for Stormwater Discharges from the Municipal Separate Storm Sewer System Within the Ventura County Watershed Protection District, County of Ventura and the Incorporated Cities Therein. Provisions of this permit are included in Appendix J. This permit was granted to the VCFCD in May 2009 with final corrections made and accepted on January 13, 2010.

5.6 Lease Agreements

The Ventura County General Services Administration reported that there are currently no lease agreements in the study area.

As discussed in the 2005 Survey, a determination was made to protect all roadless areas in Los Padres National Forest from oil and gas development (USDA Forest Service 2005). While the Watershed is not susceptible to leasing of oil and gas reserves, this decision does help to protect the overall water quality in the region from future development of such resources.

5.7 Recreational Activities and Policies

There have been only minor changes to recreational facilities and activities within the watershed since 2005. This information can be found in Section 4.2.6.

5.8 Erosion Control/Soil Management Policies

The Ventura County Resource Conservation District administers the County's Hillside Erosion Program (Program) under the County's Ordinance No. 3539 and No. 3683. The Public Works Agency enforces the ordinance. The Program establishes minimum standards and regulations for construction and maintenance of fill, excavation and grading within new developments. There are no known changes to erosion control/soil management policies related to the Program since 2005.

5.9 Fire Management

The only reported change during 2005-2010 was the closure of Ventura Fire Station No. 4 located at 8803 Telephone Road in Eastern Ventura. This closure was effective on 7/1/10 due to budget constraints but the station will remain available for reopening in the future.

5.10 Hazardous Waste

There have been no changes with regard to hazardous waste operations within the watershed from 2005 to 2010 (personal communication, Don Sheppard, Ventura County Integrated Waste Management Division);

5.11 Septic Tank Regulations

Currently the Ventura County Environmental Health Division has the authority to deny building permits for new construction or remodeling if there are not adequate conditions for septic systems.

Proposed changes in the statewide septic system regulations as specified in Legislation AB 885, also called "On-site Wastewater Treatment Systems" (OWTS), are being studied in an EIR process, and draft regulations are currently under review as the public comment period has been extended to spring 2011. The regulations in their current form would increase pretreatment requirements, groundwater monitoring, and setback distances required. The relative costs of a septic system will increase. The new regulations are aimed at protecting groundwater quality as well as surface water quality (SWRCB, 2011).

5.12 Agricultural Runoff

The Los Angeles Regional Water Board has been engaged in a lengthy process to develop a Conditional Ag Waiver for discharges from irrigated lands. On November 3, 2005, the Regional Board adopted the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region (Order No. R4-2005-0080). The waiver applies to all irrigated lands in Los Angeles and Ventura counties and will affect several thousand growers. Any grower who owns or conducts irrigation operations and from which a discharge occurs is covered by the waiver (note: the definition of a discharge is very broad and includes percolation to groundwater and stormwater runoff). Growers were required to register with the Regional Water Board by filing a notice by August 3, 2006.

However, few growers are expected to register for individual coverage since the obligations on a single grower will be extensive and expensive to implement. As a result, the Ventura Farm Bureau in cooperation with other agricultural organizations and individuals formed the Ventura County Agricultural Irrigated Lands Group. This group acts as a unified discharger representing agricultural land owners and growers. The monitoring plan dated 2009 has been prepared and submitted to the LARWQCB as found in Appendix M. Two sampling locations are along the Ventura River which represents a total of 6,003 acres drained comprised predominantly of citrus and avocado with row crops, nurseries, and other fruit trees minimally represented. The wavier established benchmarks for temperature, pH, dissolved oxygen, turbidity, biostimulatory substances, TSS, salt and nutrients, pesticides, and toxicity. In the 2008 sampling only, VRT_THACH had a single water quality exceedance based on the benchmarks of the conditional wavier. Of the four sampling events in 2006 and 2008, only 4,4-DDT was detected in a single wet event. In 2007, the sampling locations were dry therefore no samples were taken.

Watershed	Station ID	Station Location	Latitude	Longitude
Ventura River	VRT_THACH	Thatcher Creek at Ojai Avenue	34.446719	-119.210893
Ventura River	VRT_SANTO	San Antonio Creek at Grand Avenue	34.454455	-119.221723

5.13 Water Agency Coordination Measures

This split jurisdiction between Ventura Water and the planning agencies means that interagency coordination is necessary for this watershed. Ventura Water continues to be the only major water agency directly using surface water collected from the Ventura River Watershed between their Foster Park diversion and CMWD's Los Robles diversion. Ventura County has local planning jurisdiction over about fifty percent of the Foster Park diversion watershed. The northern portion of the watershed is under the jurisdiction of Los Padres National Forest. City of Ojai is the third entity with local planning jurisdiction.

Long-range plans for the Los Padres National Forest do not call for significantly altering the land use within the federally owned watershed. As stated above, the Los Padres National Forest intends to complete a comprehensive watershed analysis within their jurisdiction, on the upper Ventura River Watershed.

Overall there continues to be consistency among allowable land uses throughout the watershed (predominantly open space) and the goal of preserving water quality.

There were four major developments in interagency coordination since the 2005 Sanitary Survey:

Matilija Dam Ecosystem Restoration Project: The Feasibility Study (2004) and Environmental Impact Statement (2004) by the U.S. Corps of Engineers, VCWPD, and others created a forum to address many of the Ventura River water supply sediment,

and flooding issues. Matilija Dam Project objectives were to (1) improve aquatic and terrestrial habitat, to benefit fish and species along Matilija Creek and the Ventura River, (2) restoration of hydrologic and sediment transport regime in support of downstream coastal beach sand replenishment to pre-dam conditions, and (3) enhancement of recreational opportunities along Matilija Creek (including U.S. Forest Service land) and the downstream Ventura River system. Numerous study subcommittees were formed to support the Project, that continues to provide a wealth of information and understanding about the watershed.

City of Ojai Urban Watershed Assessment and Restoration Plan: In 2005, City of Ojai, with funding from the California Department of Fish and Game, prepared a comprehensive assessment and restoration plan for the watersheds that drain into City of San Buenaventura limits. The primary purpose of the Plan was to identify specific problems of the Ojai creeks relevant to Steelhead Trout, and to develop a plan to restore fish habitat and to address the land use issues that adversely affect the habitat and the ecological health of the watersheds (see 2005 WSS for more detail on the Plan). Table 31 of the UWARP details a series of potential stream habitat restoration actions to be taken by City of Ojai and various non-governmental organizations (NGOs). Actions that were identified in Table 31 and have been completed to date include:

- A-1 (Soule Park Golf Course creek crossing): Clear span bridges have been built at Soule Park Golf Course.

- B-1 (Eradicate invasive exotic plants): Ojai Valley Green Coalition successfully obtained a grant (with support from Ventura Water) during the last two years for Ojai Creek restoration efforts in Libbey Park. They removed palms and other invasive species, planted natives, and are now maintaining it.

- B-2 (Remove trash): City staff clean some creek areas and volunteers organize every September for Creek Clean up Day (Ojai Valley Green Coalition and other NGOs) that coincides with a county wide coastal clean up day.

- B-3 (Prevent fecal material and other pollutants from entering streams): A citizen group has been working to try to get a horse manure collection and biodigester project to a feasibility study stage and has kept City of San Buenaventura Public Works Department informed. The County Watershed Protection District is sponsoring the feasibility study using Prop 84 grants.

- D-1 (Conduct water quality monitoring in city streams): Stormwater samples were taken for the NPDES permit for City of San Buenaventura Yard, and City of San Buenaventura stormwater outfall near the Athletic Club is monitored by the Countywide NPDES Stormwater Permit.

- D-3b (Provide technical assistance to landowners to control nonpoint source pollution): In 2009 as part of the nutrient TMDL, a horse survey was conducted and collection methods were discussed.

- D-4 (Minimize impervious cover): City of San Buenaventura is in the process of passing a new landscaping ordinance to improve mitigation of impervious areas. The 2010 NPDES Stormwater Permit will require more LID and pervious cover on new and redevelopment projects.

Ventura River Habitat Conservation Plan (HCP): Eleven different agencies within the Ventura River watershed were previously involved in a HCP planning process to address adverse environmental impacts to native species listed within the Federal Endangered Species Act (FESA). The HCP was to include individual environmental impact analyses for each of the eleven member agencies that would determine what mitigation efforts and associated funding (as required per future Federal and State legislature), would be required by each entity.

The HCP has not progressed further than a 2004 Draft Report and was never released to the public. The latest revision to the Document was in 2006 when the VCWPD issued an amendment relating to the funding breakdown per agency. To this day, each member agency has expressed no interest to the Document and it is highly unlikely that it will be completed. (Personal Communication, Pam Lindsay VCWPD).

Ventura County Integrated Regional Watershed Planning: The Integrated Watershed Protection Plan (IWPP) was formed by VCWPD. This is long-range planning effort that has the following objectives: (1) to provide a systematic process for the inclusion of projects into the VCWPD's Capital Improvement Plan over its five-year planning period, and (2) to improve the long-range VCWPD planning process for the 20-year period subsequent to the Capital Improvement Plan by allocating projected revenues to identified projects. The IWPP also provides a Level-of-Service evaluation that identifies the need for additional project funding to achieve desired flooding mitigation goals. Elements of the IWPP have been implemented through a grant under Proposition 50 Integrated Regional Water Management Program with the Watersheds Coalition of Ventura County.

The VCWPD is broken up into four zones; Zone 1 follows the boundaries of the Ventura River watershed and is the relevant zone for this Sanitary Survey. Benefit assessment monies collected from each zone are dedicated to support activities within that zone.

Table 5-2 describes the status of the projects planned in the 2005 Study for the Ventura Rivers watershed Zone 1 (see 2005 WSS for more detail on the IWPP for Zone 1) (Personal Communication, Sergio Vargas, VCWPD). Many projects have been reduced in priority because of funding limitations and other higher priority activities occurring.

TABLE 5-2
IWPP VENTURA RIVER WATERSHED ZONE 1 PROJECTS

Project Name/Status	Location	Problem Description	Preliminary Solution
Canada Larga Channel Improvements/Not Completed	North of Ventura, Zone 1	The Creek shortcut Canada Larga Road during Jan. 2005 storm. Overbank flooding caused agriculture and property damages.	Make the short cut permanent. Excavate 1,500-foot long channel and/or build levees.
Coyoto Creek (Red Mountain Canyon) Debris Basin/Decreased in Priority	0.5 mile downstream of Casitas Dam, Zone 1	Excessive debris and sediments fill coyote creek and causing flooding to residents along the creek.	Routine maintenance to clean out debris bushes in the stream, enforce floodplain

Project Name/Status	Location	Problem Description	Preliminary Solution
			management regulations, build a debris basin at the mouth of Red Mountain Canyon to hold approximately 10,000 cubic yards sediment.
Coyote Creek Right-of-Way/Dropped in Priority	City of Ventura, from Santa Ana Road to Ventura River along Coyote Creek	Need right of way or easement to get adequate access for needed repairs and future maintenance.	Right of way acquisition.
Dron Creek Detention/Debris Basin/Decreased in Priority	City of Ojai	High Debris Bulking Factor (1.67), very high sediment yield fill existing channel and cause flooding.	Construct debris basin(s) in the canyon(s) north of Gridery Road. Additional feasibility study will be required to develop a detailed design concept and to determine the potential for causing erosion in the downstream channel.
Howard Ave. Drain/Decreased in Priority	Skyline Area in Oakview	No access road to maintain the earth channel.	Extend 36-inch pipe from Howard Ave. upstream 1,060 feet to Brandt Ave. within existing 12-foot wide easement.
Ojai Basin Safe Yield Study/Completed as part of Prop 50 IRWM Grant*	East Ojai, Zone 1	Increasing groundwater demand from City of Ojai and the removal of Matilija Dam, requires a better understanding of the resources.	Conduct a demand and supply study to determine the safe yield of the Ojai Basin along with the demands.
Other Thatcher Creek Flood Mitigation Projects/Decreased in Priority	East of Ojai	Thatcher Creek is, in general, inadequate in passing 100-year flood flows. Steep channels also bring down significant amounts of sediment.	Modeling study needs to be carried out, system deficiency be identified, and projects be implemented.
Fresno Canyon Flood Mitigation	Upstream of SR33	Provide 100 year level of flood protection for the Community of Casitas Springs	Construct a bypass reinforced concrete box conduit from upstream of SR33 to the Ventura

Project Name/Status	Location	Problem Description	Preliminary Solution
			River
Casitas Spring Levee Evaluation, Rehabilitation, and Certification	Ventura River	Communities need protection from flood	Conduct a feasibility study and update pre-design

*Other projects that are contained in the Proposition 50 IRWM Grant include preparation of the IWPP which is approximately 75% complete, water quality monitoring station construction and data collection, Ojai Basin groundwater monitoring, non-native plant removal in San Antonio Creek, and the Watershed Council Website.

Section 6: Water Treatment Regulations

One element of this watershed sanitary survey includes an assessment of Ventura Water's compliance with existing/future regulations as they relate to Ventura Water's Avenue WTP and the associated water distribution system. This assessment applies to the existing WTP and the proposed modified/improved plant. This assessment does not include operations of City wells, existing wellhead treatment facilities, or the purchase of fully treated surface water from CMWD. This section discusses the drinking water quality regulations relevant to Ventura Water's surface water supply. The section presents the current regulations, as well as regulations being developed. A listing of the current Federal and State water quality standards can also be found in Appendix N. In addition, this section will include a summary of Ventura Water's monitoring program.

6.1 Background

Ventura Water completed an in-depth evaluation of the Avenue WTP (Kennedy/Jenks 1999), which included issues other than treatment plant capacity/plant performance. These additional issues included source water improvements on the Ventura River such as discontinuing the surface intake and drilling more shallow wells. City of San Buenaventura Plan (1999) included numerous recommendations intended to improve the existing treatment plant in terms of both capacity and treatment efficiency.

6.2 Existing Treatment Plant

The existing Avenue WTP is a conventional filtration plant with a capacity of 15 MGD. The chemicals currently being used in the treatment process include chloramines, 48 percent liquid alum (approximately 4 mg/l), polymers, and blended polyphosphate for corrosion control. Corrosion control treatment is used at all times. The plant has been upgraded by the addition of submerged ultrafiltration membranes to decrease turbidity as detailed in Section 6.3.

Kingston Reservoir (an uncovered raw water storage facility) has a capacity of 10 MG. There are two flocculation basins, two sedimentation basins, and three rapid sand gravity filters at the Avenue WTP. Power Reservoir (a covered treated water storage reservoir that functions as a clearwell) and chlorine contact facility has a capacity of 16 MG. Chlorine can be applied at four different plant locations.

The pressure zones influenced by the Avenue WTP are as follows: Zones 210, 260, 400, 430, 466, 599 and 605. In the past, CMWD water has been discharged into Kingston Reservoir during low demand periods for re-treatment to prevent taste and odor or other water quality issues. During high demand periods, CMWD water is conveyed directly into Ventura Water's distribution system (zones 210, 260, and 400/260R). The CMWD chloraminates their water for disinfection by-product control. Ventura Water provides chloramination of their water to make the water sources compatible and to continue controlling excessive disinfection by-product formation in its own water sources and in the water purchased from CMWD.

6.3 Avenue WTP Improvements

Ventura Water initiated construction of the Avenue WTP improvements in June 2005 with completion in 2007. Improvements included constructing submerged ultra filtration. Ventura Water's new membrane filtration treatment process removed suspended solids from the source water through a physical straining process using Zenon 1000 series submerged membranes. The ultrafiltration process produces a higher quality of filtered water than the conventional treatment process with fewer chemicals. The improvements to the Avenue WTP also included filtration and disinfection of the recycled filter backwash water to meet the objectives of the California Cryptosporidium Action Plan (CAP) and the Filter Backwash Rule. The improvements to the Avenue WTP increased the reliability of the system to provide safe drinking water.

Abandonment of the river's surface water intake and using only shallow subsurface river flow resulted in a raw water influent flow containing a turbidity of less than 10 NTU at all times and provided raw water with much lower coliform bacteria densities, thus reducing the overall treatment requirements.

Ultrafiltration membranes use a vacuum driven (immersed type) membrane separation process that separates particulate matter from the source by physical straining. Approximately every 45 minutes to 60 minutes, the membranes will perform an automatic backwash cycle for a period of 1 to 2 minutes to discharge captured solids. Chemical coagulation will not be required for turbidity and particulate removal, therefore the spent washwater will typically contain only concentrated solids removed from the source water.

Spent washwater, containing water and solids (e.g., silts from the Ventura River), will be captured in washwater recovery basins (WWRB). At an average source water turbidity of 0.2 NTU, the spent washwater turbidity will be approximately 2 NTU, and at the maximum source water turbidity of 1 NTU, the spent washwater turbidity will be approximately 15 NTU. Small amounts of sodium hypochlorite (5 to 10 mg/l) and/or citric acid or caustic soda may be added periodically to the washwater supply to the membranes to suppress bio-fouling and possible scaling.

6.4 Current Regulations

This section provides a summary of the current rules and regulations governing drinking water quality. Those discussed include the following:

- Total Coliform Rule
- Lead and Copper Rule
- Information Collection Rule
- Surface Water Treatment Rule
- Cryptosporidium Action Plan
- Stage 1 Disinfectants and Disinfection By-Products Rule
- Interim Enhanced Surface Water Treatment Rule
- Long Term 1 Enhanced Surface Water Treatment Rule
- Stage 2 - Disinfectants and Disinfection Byproducts Rule

- Long-Term 2 Enhanced Surface Water Treatment Rule

6.4.1 Total Coliform Rule

The Total Coliform Rule (TCR) requires stringent control and/or reduction of pathogenic bacteria in distributed water (Federal Register, 1989). Coliforms are found in human and animal wastes, as well as in soils. The presence of coliforms, which may not necessarily be disease causing, serve as indicators for the presence of infectious organisms. Therefore, coliforms are used as a surrogate for all potentially pathogenic bacteria because of prevalence, survival, and relative ease of monitoring. The TCR established monitoring and sanitary survey requirements for surface water systems and monitoring for groundwater systems. Current regulations require that suppliers monitor water quality in the distribution system through a routine sampling program approved by DPH.

Ventura Water conducts daily in-house bacteriological testing using the presence/absence method at City of San Buenaventura's WWTP lab and weekly testing by a certified laboratory (on Mondays). The unfiltered surface water sources are sampled weekly at Sampling Station 27 (the "flume"). At this location the river water is already mixed with the Nye well water and is still unchlorinated. There is also monthly bacteriological sampling of the individual Nye wells for total and fecal coliform bacteria.

In July 2010, the US EPA proposed the Revised Total Coliform Rule (RTCR) which will requires a system to correct any defects that may result in a sanitary vulnerability, public notification with treatment technique violations or *E. coli* violation of MCL and increased monitoring for high risk systems. The US EPA had yet to adopt the rule during the preparation of this document and comments continued to be accepted through November 30, 2010.

Ventura Water provides adequate disinfection of the filtered water based on data from the plant effluent and distribution system. Ventura Water achieves compliance with the TCR. A summary of City water quality data is provided in Appendix O.

6.4.2 Lead and Copper Rule

The Lead and Copper Rule (LCR) regulates excessive corrosion leaching of these toxic metals from pipe materials, including service piping and customers' on-site piping. (Federal Register, 1991) The LCR establishes action levels (AL) for lead and copper in treated water collected from likely customer taps in first-draw samples following overnight stagnation.

Lead solder and copper tubing are common materials used in household plumbing and/or customer service connection pipe. Lead and copper are soluble in water and can be leached from pipe, solder and/or fixtures under corrosive water quality conditions. The presence of these metals in drinking water, especially lead, can cause adverse impacts on health, particularly in children. Lead is associated with retarding physical development and interfering with mental development.

The U.S. Environmental Protection Agency's (EPA's) Lead and Copper Rule is intended to protect the public not just from the water delivered to the consumers' service pipe connection, but also after it has flowed through the consumers' plumbing to the tap. The

LCR establishes action levels to be lower than 0.015 mg/l for lead and 1.3 mg/l for copper in at least 90 percent of the most likely consumer tap samples in first draw samples after overnight stagnation. Sampling must also be conducted at points of entry (POE) to the distribution system to verify that lead and copper in the source of supply do not exceed the USEPA criteria.

Ventura Water's consumer tap sampling program conducted to date achieves compliance with the 90th percentile action levels for copper (1.3 mg/l) and lead (0.015 mg/l). A summary of City water quality data is provided in Appendix O.

6.4.3 Information Collection Rule

The Information Collection Rule (ICR) was a key element in the USEPA's Microbial/Disinfection Byproducts (M/DBP) Regulatory Negotiation (Reg-Neg) process and was intended to provide more definitive information on specific source water quality, microorganism contaminants and treatment process performance including disinfection by-product generation. (Federal Register, 1996) This federal regulation required most public water systems serving more than 100,000 people to collect data on their source and treated water and provides these data to the USEPA for evaluation. The data were collected between July 1997 and December 1998.

Ventura Water was not required to participate in this data collection program because at the time the water system served less than 100,000 persons.

6.4.4 Surface Water Treatment Rule

The Surface Water Treatment Rule (SWTR) was implemented to provide protection against Giardia cysts and pathogenic enteric viruses. The federal SWTR requires that the water treatment process achieve a minimum of 99.9 percent (3-log) removal and/or inactivation of Giardia cysts and 99.99 percent (4-log) removal and/or inactivation of enteric viruses. This must be accomplished through a combination of physical removal and disinfection. The DPH generally requires that the water treatment process provide the minimum removal and/or inactivation requirements for Giardia and viruses in the federal SWTR (99.9 percent (3-log) for Giardia cysts and 99.99 percent (4-log) for viruses).

A well-designed and operated "conventional filtration treatment plant," can receive credit for at least 99.7 percent (2.5-log) removal of Giardia cysts and 99 percent (2-log) removal of enteric viruses. These removal credits currently require that the filtered water turbidity be less than or equal to 0.5 NTU for at least 95 percent of the measurements taken each month. Disinfection must be used to achieve the rest of the combined removal-inactivation requirement. This requires providing 68 percent (0.5-log) inactivation of Giardia cysts and 99 percent (2-log) inactivation of enteric viruses via disinfection.

The DPH, with regulatory primacy in California, regulations include a daily average filtered water turbidity requirement of 0.2 NTU for water treatment plants that were new or upgraded after 5 June 1991. The SWTR also requires that systems demonstrate, by monitoring and recording, that they continuously maintain a disinfectant residual of at least 0.2 mg/l in water delivered to the distribution system.

Raw, in-plant, and filtered water turbidities are monitored at Avenue WTP as required. Maximum allowable gravity filtration rates (up to 6.0 gpm/ft^2) are complied with, as are the Maximum Contaminant Levels (MCLs) for filter performance of water being conveyed from the filters into Power Reservoir.

Each of the three filter units, and the blended filter water, is equipped with a continuous analyzer. A particle counter is provided in the plant. The final turbidity analyzer is equipped with a 0.3-NTU alarm set point. When Kingston Reservoir effluent turbidities are high (over 10 NTU), the river water is not used.

After filter backwashing, each filter is automatically wasted for 10 minutes or until the effluent has a turbidity of not more than 0.1 NTU. Until this turbidity level is achieved, the filtered water is not allowed to enter the clearwell (Power Reservoir).

The filter backwash water is recovered. Sedimentation is the only treatment provided at this time for this recovered water. In the past, DPH has noted that the returned filter backwash water has averaged 4 to 5 NTU in turbidity and that this turbidity level exceeds their 2 NTU guideline. This finding, however, does not appear to have significantly impacted filtration plant performance.

Ventura Water achieves compliance with the SWTR. A summary of City water quality data is provided in Appendix O and Section 7.

6.4.5 Cryptosporidium Action Plan

The DPH developed the Cryptosporidium Action Plan (CAP) in response to increased public health concern regarding the protozoan pathogen *Cryptosporidium* parvum. The return of spent filter backwash water and sedimentation basin waste solids has been shown in several studies to contain significantly higher particle concentrations than many source water supplies. Blending these high-risk recycle streams with the source water stream is a particular concern.

The CAP established new turbidity goals for settled water, filtered water, and return water. The settled (clarified) water turbidity goal includes settled water turbidity between 1 and 2 NTU at all times. The filtered water turbidity goals include a 0.1 NTU goal for both individual filters beginning 4 hours after a filter backwash and for the combined filtered water from all the filters at all times, and a 0.3 NTU goal for individual filters within 4 hours following a filter backwash. The CAP also includes a return (recycle) water turbidity goal set at 2.0 NTU.

To comply with the goals of this plan, Ventura Water will limit the recycled water return rate to no more than 5 percent of the raw water flow rate and to improve the treatment provided for the recycled water to achieve a turbidity of not more than 2.0 NTU. The return point will be moved upstream of Kingston Reservoir to take advantage of the additional disinfection and settling benefits. These changes will be included in the Avenue WTP improvements currently under construction.

Ventura Water has performed raw water sampling for *Giardia* and *Cryptosporidium* at numerous raw water and treated water locations. The data obtained do not indicate detectable levels of *Giardia* and *Cryptosporidium* cysts. However during the period of March through May 2010 detection of *Cryptosporidium* occurred in San Antonio Creek

with a maximum of 4 oocysts recorded in April 2010. Since May 2010, no oocysts have been detected in San Antonio Creek.

Ventura Water achieves compliance with the CAP. A summary of City water quality data is provided in Appendix O.

6.4.6 Stage I Disinfectants/Disinfection By-Product Rule

The Stage 1 Disinfectants and Disinfection By-Products Rule (DBPR) was published in the Federal Register on 16 December 1998. The Stage 1 DBPR set new MCLs for selected disinfection by-products, and established maximum residual disinfectant levels (MRDLs) and treatment techniques for control of DBP precursors (DBPPs). The Stage 1 DBPR regulated both oxidants that are used for disinfection and the chemical compounds formed when the oxidants used to disinfect microbial contaminants in drinking water react with organic and inorganic compounds in the source water. Disinfectants include ozone, chlorine dioxide, chlorine, chloramines, and ultraviolet light (UV) radiation. Surface water systems supplying more than 10,000 people were required to comply with this rule beginning 2 January 2002.

The Stage 1 DBPR revised the THM MCL, created a new MCL for HAA5, and also included MCLs for bromate and chlorite as part of the new regulations. The Total THM (TTHM) MCL was reduced from 0.1 mg/l (100 µg/l) to 0.080 mg/l (80 µg/l). The HAA5 MCL was set at 0.060 mg/l (60 µg/l). The bromate MCL was set at 0.010 mg/l (10 µg/l) and the chlorite MCL was set at 1.0 mg/l. In addition, the Stage 1 DBPR included maximum contaminant level goals and MRDLs for chlorine, chloramines and chlorine dioxide.

Based on the TOC quality of the raw water, the filtration plant may be exempted from the enhanced coagulation requirements contained in the Stage I rule. The TOC of the raw water is generally less than 2 mg/l; however, Ventura Water should review TOC sampling and analysis since a few treated water samples exceeded 2 mg/l over the last 5 years. This increased TOC level may be due to the elevated TOC from CMWD which reports TOCs of >3 mg/L with a max value of 4.97 within the last 5 years. In addition, Ventura Water implemented a treatment plant influent/effluent TOC sampling program. Sampling indicated values generally less than 2 mg/l for the plant influent and effluent.

Ventura Water provides chloramination disinfection of the treated effluent. Water purchased from the CMWD is also treated with chloramines. Chloramines reduce TTHM/HAA5 formation in Ventura Water distribution system and storage reservoirs. Chloramination treatment may require the maintenance of much higher total chlorine residuals. Use of chloramines may require the water system to be monitored much more extensively and frequently and require the overall water system and all of its components to be kept as clean and sanitary as possible. All of the above are necessary for maintaining a sanitary water distribution system free of significant nitrification-related problems. Several utilities already using chloramines to limit disinfection by-product formation have experienced serious bacteriological and physical water quality problems, mainly because they did not have a nitrification control plan. Ventura Water has developed a comprehensive nitrification control plan for the operations and facilities of the entire water system, including a careful review of the inlet/outlet arrangement of all major reservoirs. The rule also has maximum residual disinfectant level (MRDL) for chloramines of 4.0 mg/l. Ventura Water's plant did not

exceed these levels based on the CCRs. Ventura Water achieves compliance with the Stage 1 DBPR.

This rule has an MCL for bromate of 10 µg/L. Ventura Water should consider requesting DPH to reduce bromine sampling of source waters since most samples were less than detection limits.

A summary of City water quality data is provided in Appendix O.

6.4.7 Interim Enhanced Surface Water Treatment Rule and Long-Term 1 Enhanced Surface Water Treatment Rule

The Interim Enhanced Surface Water Treatment Rule (IESWTR), published in the Federal Register on 16 December 1998, required utilities to conduct raw water bacteriological sampling. This rule requires meeting lower treated water turbidity MCL of 0.3 NTU (from 0.5 NTU) 95 percent of the time. The Long Term 1 Enhanced Surface Water Treatment Rule (LT1-ESWTR) was published on 14 January 2002. The intent of the LT1ESWTR was to improve public health protection through the control of microbial contaminants, particularly *Cryptosporidium*, for public water systems that use surface water, or ground water under the influence of surface water, and serve fewer than 10,000 people. The intent of the Filter Backwash Rule (FBR) was to reduce the risk that contaminants removed in the pretreatment and filtration processes are not returned in the recycle water flow. The FBR, published in the Federal Register 8 June 2001, required large in-plant recycle streams to be blended with source water "prior to the point of primary coagulant addition." Ventura Water complies with the California CAP (see Section 7.2.5) which is more stringent than the FBR.

In general, Ventura Water's raw surface water samples (Station SC1) contains a total coliform bacteria level of less than 100 MPN/100 ml, though one sample did exceed 1,000 MPN/100 ml during December. Fecal coliform testing indicated samples were generally less than 1 MPN/100 ml, with levels exceeding 5 only twice. Also, it is very important for Ventura Water to continue providing disinfection of the raw water as part of the treatment process, considering the fluctuating bacteriological quality of the river water. As previously discussed, Ventura Water's surface water diversion is not planned to be restored to service which should reduce raw water turbidity and coliform spikes. Total coliform bacteria levels at the sampling location following blending of the river water and water from the Nye wells (Kingston Reservoir) were much lower than at the river intake, perhaps due to dilution with the water from Nye wells.

Through the improvements at the Avenue WTP, Ventura Water achieves the turbidity standard of 0.3 NTU (95 percent of the time) and the filter spiking allowances of less than 2.0 NTU, less than 1.0 NTU, and less than 0.3 NTU. This membrane filtration means that the Avenue WTP qualifies for the 4-log *Cryptosporidium* cyst removal credit, which exceeds the 2-long removal credit required of the IESWTR. .

This rule requires that Ventura Water maintain minimum (measurable) chloramine residual in all parts of the surface water impacted distribution system. Ventura Water maintains minimum chloramine residuals of 4 mg/l within all parts of the system.

Ventura Water achieves compliance with the IESWTR and LT1ESWTR. A summary of City water quality data is provided in Appendix O.

6.4.8 Stage 2 - Disinfectants and Disinfection Byproducts Rule

The Stage 2 - Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) was published in the Federal Register on January 4, 2006. The Stage 2 DBPR builds upon the Stage 1 DBPR (see Section 7.2.6) to address higher risk public water systems for protection measures beyond those required for existing regulation. The THM and HAA5 MCLs will be 80 µg/l and 60 µg/l, respectively. Compliance with the maximum contaminant levels for both TTHM and HAA5 will be calculated for each monitoring location in the distribution system. This approach, referred to as the locational running annual average (LRAA), differs from current requirements, which determine compliance by calculating the running annual average of samples from all monitoring locations across the system.

In addition, Ventura Water will be required to conduct an “Initial Distribution System Evaluation” (IDSE) to identify the locations with high disinfection byproduct concentrations. There are four IDSE options: (1) standard monitoring, (2) conducting a system specific study and modeling requirements, (3) obtaining a 40/30 waiver, and (4) obtaining a very small system waiver. The IDSE will include sampling for THMs and HAA5 at locations of highest potential for disinfection byproduct formation. The IDSE results will not be used for compliance purposes.

Systems with a population between 50,000 and 249,999 using chloramines for oxidation and disinfection must collect samples at 16 locations during the IDSE. The 16 locations must include the following: 3 near the entry (connection) to the distribution system, 4 with an average residence time, 5 locations representing the highest TTHM concentrations, and 4 representing the highest HAA5 concentrations. These locations may be used by the systems as the sampling sites for future compliance monitoring with the approval of DPH.

The Stage 2 DBPR also requires each system to determine if they have exceeded an operational evaluation level, which is identified using their compliance monitoring results. The operational evaluation level provides an early warning of possible future MCL violations, which allows the system to take proactive steps to remain in compliance. A system that exceeds an operational evaluation level is required to review their operational practices and submit a report to their state that identifies actions that may be taken to mitigate future high DBP levels, particularly those that may jeopardize their compliance with the DBP MCLs. The operational evaluation includes an examination of system treatment and distribution operational practices, including changes in sources or source water quality, storage tank operations, and excess storage capacity, which may contribute to high TTHM and HAA5 formation.

Ventura Water submitted their IDSE plan on September 7, 2006. Ventura Water must begin Stage 2 DBPR compliance monitoring by April 1, 2012. Monitoring is planned to commence on schedule.

6.4.9 Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)

The Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) was published in the Federal Register on January 5, 2006. The LT2ESWTR builds upon earlier rules to address higher risk public water systems for protection measures beyond those required for existing regulations. The purpose of LT2ESWTR is to reduce illness linked with the contaminant *Cryptosporidium* and other pathogenic microorganisms in drinking water. The LT2ESWTR will supplement existing regulations by targeting additional *Cryptosporidium* treatment requirements to higher risk systems. Current regulations require filtered water systems to reduce source water *Cryptosporidium* levels by 2-log (99 percent). Recent data on *Cryptosporidium* infectivity and occurrence indicate that this treatment requirement is sufficient for most systems, but additional treatment is necessary for certain higher risk systems. These higher risk systems include filtered water systems with high levels of *Cryptosporidium* in their water sources and all unfiltered water systems, which do not treat for *Cryptosporidium*. This rule also contains provisions to reduce risks from uncovered finished water reservoirs and provisions to ensure that systems maintain microbial protection when they take steps to decrease the formation of disinfection byproducts that result from chemical water treatment.

Filtered systems serving at least 10,000 people must sample their source water for *Cryptosporidium*, *E*. *coli*, and turbidity at least monthly for 24 months. Systems may use previously collected (grandfathered) data in lieu of conducting new monitoring, and systems are not required to monitor if they provide the maximum level of treatment required under the rule. Systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

Filtered water systems will be classified in one of four treatment categories (or bins) based on their monitoring results. For calculating bin placement, a total of at least 48 samples need to have been collected; the bin concentration is equal to the arithmetic mean of all sample concentrations. For a total of at least 24 samples, but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected. Systems classified in higher treatment bins must provide 1.0 to 2.5-log additional treatment for *Cryptosporidium*. Systems will select from a wide range of treatment and management strategies in the "microbial toolbox" to meet their additional treatment requirements. Systems classified in Bin 3 and Bin 4 must achieve at least 1 log of additional treatment using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV light.

Ventura Water was required to submit a sampling plan for the first round of source water monitoring for *Cryptosporidium*, *E*. coli, and turbidity (or notice of intent to use grandfathered data) prior to July 1, 2006, and begin source water monitoring by October 31, 2006. Ventura Water began sampling for Giardia and Cryptosporidium in July 2006 and continues to monitor for these organisms in San Antonio Creek and Kingston Reservoir. Ventura Water submitted a *Cryptosporidium* treatment bin classification . Ventura Water must complete additional *Cryptosporidium* treatment requirements by April 1, 2012. Ventura Water must submit a sampling plan for the second round of source water monitoring by January 1, 2015, and start monitoring by April 1, 2015.

Ventura Water must submit a *Cryptosporidium* treatment bin classification and supporting data from the second round for approval by October 1, 2017.

6.5 Other Regulations

6.5.1 Ground Water Rule

USEPA's Science Advisory Board concluded in 1990 that exposure to microbial contaminants such as bacteria, viruses, and protozoa (e.g., *Giardia* lamblia and *Cryptosporidium*) was likely the greatest remaining health risk management challenge for drinking water suppliers. The final Ground Water Rule (GWR) requires that all public water systems using groundwater supplies or systems distributing mixed surface and groundwater that is untreated to protect against infectious microbial contaminants particularly viruses (Federal Register, 2006). The GWR provides four elements that target risks to the system. The rule requires regular sanitary surveys, source water monitoring when a positive sample occurs its TCR monitoring, corrective actions upon evidence of fecal contamination, and compliance monitoring.

By December 1, 2009, all groundwater suppliers must have begun compliance monitoring if they achieve the required 4-log virus inactivation, removal, or combined technology approved by the state. Alternatively, a triggered source water monitoring is required when a 4-log virus inactivation, removal, or combined treatment technology has not been achieved and the supplier has received a positive total coliform notice from the state based on the Total Coliform Rule. However, if the groundwater supplier has a significant deficiency as identified by the state and has tested positive for fecal coliforms, the supplier must comply with the treatment technique requirements.

6.5.2 Radon Rule

The proposed Radon Rule was scheduled to be promulgated in 2001, but has not been finalized yet as of 2010. Radon is a naturally occurring radioactive gas that may cause cancer, and may be found in drinking water and indoor air. Radon-222 is an inert, noble gas formed from the radioactive decay of radium-226, as part of the uranium-238 decay series. The proposed Radon Rule includes a radon MCL of 300 pCi/l. A higher alternative MCL (AMCL) at 4,000 pCi/l is possible if the primacy agency or a public water purveyor implement a Multimedia Mitigation (MMM) Program focused on reducing the risk of radon exposure in indoor air environments. The USEPA has not released a revised schedule for a final rule.

6.5.3 Regulations for Other Compounds

DPH established in 2000 an MCL of 13 micrograms per liter (µg/l) for the gasoline additive methyl tertiary butyl ether (MTBE). A secondary MCL of 5 µg/l, established in 1999, addressed taste and odor concerns. Limited MTBE sampling involving the Ventura River water sources indicated that MTBE was not detected.

DPH established an Action Level of 20 µg/l for the disinfection by-product known as N-nitrosodimethylamine (NDMA). City sampling indicated that samples were significantly less than the AL.

Glyphosate is a herbicide used in the watershed to control Giant Reed (*Arundo donax*). This compound has a primary MCL of 700 ppb (0.7 mg/L) from the US EPA. A breakdown product due to microbial metabolism, Aminomethylphosphonic acid, does not currently have a regulatory limit.

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Section 7: Surface Water Quality Monitoring Programs

There are several surface water quality monitoring programs in the study area. The active programs during 2005 to 2010 are described in this section. Results of these monitoring programs are presented in Appendix O.

7.1 City of Ventura

As previously mentioned, Ventura Water owns and operates a full-scale, state-certified laboratory to test water quality. Ventura Water routinely collects samples in its distribution system and reports these in the Consumer Confidence Reports (Appendix P). Sampling points in the distribution system are shown in Table 7-1.

In addition to the water quality monitoring of the intake facilities, Avenue WTP, and four Nye wells, Ventura Water collects water quality samples at 11 sites located throughout the watershed; seven of which were added after the 2000 Report. Figure 8 shows the locations of Ventura Water's monitoring stations and Appendix D-1 has photographs of each monitoring site. Since 2002, Ventura Water has monitored water quality along the Ventura River and San Antonio Creek at these sites for *Cryptosporidium*, *Giardia*, bacteria, nutrients, bromide, TOC, chloride, and conductivity. Details on the frequency and constituent type sampled at each location are provided in Table 7-1. Results of the sampling are in Appendix O Table O-1A.

A summary of Ventura Water's overall water quality delivered to its customers in 2005 through 2010 can be found in the Consumer Confidence Report (CCR) located in Appendix P. The pressure zones influenced by the Avenue WTP are as follows: Zones 210, 260, 400, 430, 466, 599, and 605.

TABLE 7-1
DISTRIBUTION SYSTEM SAMPLING LOCATIONS

Zone No.	Sampling Station No.	Sampling Station Name
210	22	Harbor Boulevard
260	31	McKinley and Katherine
400	34	Seneca Street and Montalvo
430	1	Hospital and Foothill
466	30	Hillcrest and Catalina
599	32	Breaker Drive and Breaker Court
605	3	Victoria and Foothill

Additionally, as a water supplier, Ventura Water must complete an evaluation of its drinking water supply with respect to Public Health Goals (PHG) every three years. The goals are not mandatory limits and are based solely on public health risk factors. The CCRs in this 2010 report indicate that individual samples exceed the MCL for gross alpha particles however, on average the MCL is met. Gross alpha particles are naturally occurring radioactive isotopes that typically occur in the drinking water by the erosion of natural deposits and are considered carcinogenic. Noncarcinogenic effects of

uranium on the kidneys and the liver, and radium to cause tumors have been documented.

Total dissolved solids, specific conductance, and sulfate do not currently meet the secondary MCLs which represent the aesthetic quality of water and not necessary present a public health risk. Copper and lead can be found in water as a result of the corrosion of plumbing fixtures used in most homes. Ventura Water has conducted tests to optimize its treatment with corrosion inhibitors in an effort to further reduce lead and copper levels. High levels of lead can result in kidney problems or high blood pressure, and delays in physical and mental development in children. High levels of copper are known to cause gastrointestinal disturbance and kidney damage.

7.2 Ojai Valley Sanitary District

As part of the NPDES permit for the OVSD WWTP to discharge treatment plant effluent, an NPDES monitoring program is required to monitor the Ventura River upstream and downstream from the point of plant effluent river discharge. In June 2003, OVSD's NPDES monitoring program changed with the elimination of 6 sampling sites. The current sites are listed below in Table 7-2.

TABLE 7-2
OVSD VENTURA RIVER WATER SAMPLING STATIONS

Station Name	Location	Status	Latitude	Longitude
R3	Just north of treatment plant	Active	34.34542	119.300100
R4	Just south of treatment plant	Active	34.34302	119.299500
R5	Ventura River immediately south of Canada Larga Creek confluence	Active	34.38013	119.305640

The numbering of the monitoring stations remained the same to avoid the potential for future data being misinterpreted due to "like" station numbers, but at different locations. The RWQCB eliminated the above monitoring stations as other monitoring programs were collecting sufficient data. The OVSD staff assists the Ventura County/Storm Water personnel when they are performing the annual bio-assessment and nutrient sampling that is included with the information prepared for this Update.

The OVSD Water Quality Data is provided in Appendix O of this report. This includes:

- Table O-2A: Monthly Effluent & River Stations Sampling Results
- Table O-2B: Toxicity Data
- Table O-2C: Annual River Priority Pollutants Results
- Table O-3B: Nutrient Data for the Annual In-stream Bioassessment of the Ventura River Watershed

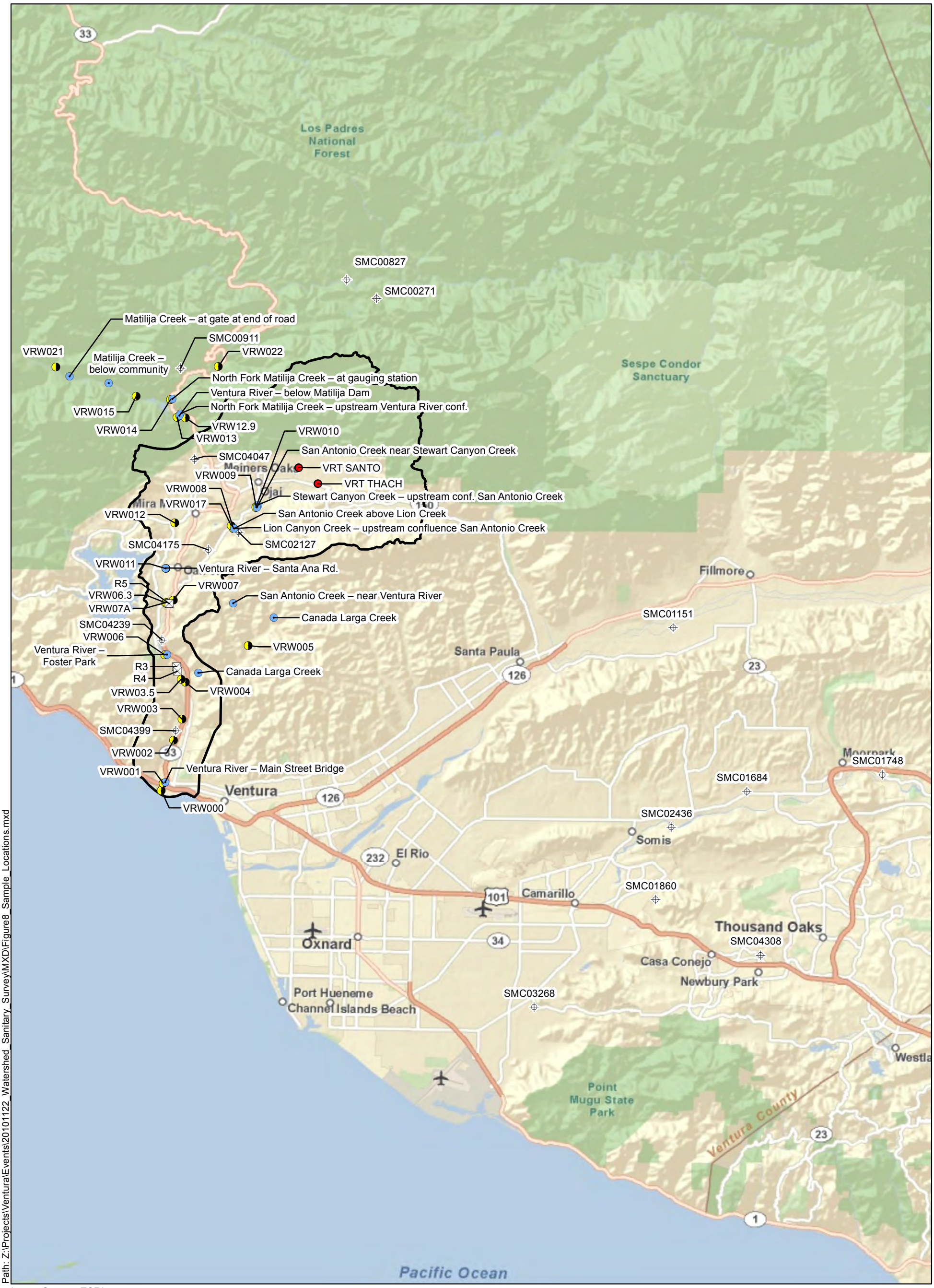

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Image Source: ESRI

Legend

- Ventura County Stormwater Program
- Ojai Valley Sanitary District Program
- SCCWRP
- Ventura River Stream Team
- VCAILG
- Study Area Boundary

N

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Miles

Kennedy/Jenks Consultants

Watershed Sanitary Survey Update
Ventura, California

Sampling Locations for Water Quality Monitoring Programs

K/J 1089061*00
July 2011

Figure 8

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7.3 Ventura County Watershed Protection District.

The Ventura County Watershed Protection District (VCWPD) removed giant reed (*Arundo donax*) from the upper San Antonio Creek Watershed. The reed is a non-native invasive species displacing native habitat. The reeds are cut and glyphosate (herbicide) is applied to the freshly cut reed. Giant reed eradication and control is only conducted when no surface water is present and VCWPD routinely monitors for glyphosate and periodically monitors for aminomethylphosphonic acid (AMPA), a breakdown product in the waters. The project began on June 8, 2010 and is expected to conclude in October 2011. As of September 2010, no glyphosate has been detected at any of the four sampling locations. The current MCL for glyphosate is 700 ppb.

7.3.1 Ventura County Storm Water Monitoring Program

As part of the countywide Municipal NPDES Permit (Permit No. CAS004002), the VCWQMP must implement a Monitoring and Reporting Program, Ventura Countywide Stormwater Quality Urban Impact Mitigation Plan, and Ventura Countywide Stormwater Quality Management Plan (SMP). There are two pertinent parts of the VCWQMP that are of particular interest for the Ventura River watershed:

Bioassessment Monitoring

- Mass Emission Monitoring

Locations of these stations are shown in Figure 8.

7.3.2 Bioassessment Monitoring

Biological assessments (bioassessments) of water resources integrate the effects of water quality over time and are capable of simultaneously evaluating multiple aspects of water and habitat quality. When integrated with physical and chemical assessments, bioassessments help to further define the effects of point and non-point source discharges of pollutants and provide a more appropriate means for evaluating impacts of non-chemical substances, such as sedimentation and habitat destruction. A work plan for in-stream bioassessment monitoring in the Ventura River watershed was developed and submitted in January 2001 to the RWQCB as part of the revised SMP. For four (4) years, starting in 2001, bioassessment monitoring has been conducted once a year in the fall to establish baseline data. Bioassessment monitoring is conducted during the fall because it is the time period during which flows are most consistent and macroinvertebrates are most productive and diverse. The fall season provides a consistent, stable environment for sampling that allows for macroinvertebrate comparability from year to year.

As part of the new stormwater NPDES permit approved in 2008, bioassessment monitoring has changed and no monitoring in the 2008-2009 year was conducted. Past bioassessment monitoring was reported in the previous Watershed Sanitary Survey (2005). Beginning in spring 2010, bioassessment monitoring will be conducted and the report of the first results is expected but reported after the completion of this Sanitary Survey for 2010 however the data was made available for this report. The new

bioassessment program consists of a regional monitoring program that will be conducted by the Southern California Coastal Water Research Project (SCCWRP) annually in the spring. A greater number of sites in multiple watersheds (Ventura River, Santa Clara River and Calleguas Creek watersheds), as well as a larger number of water quality constituents and other physical measurements of riparian corridor health will be evaluated.

For six years, starting in 2001, Ventura River watershed bioassessment monitoring was conducted once a year in the fall to compile a baseline data set. With the approval of a new permit, the latest bioassessment data for the watershed was conducted in 2006. Table 7-3 shows the sampling sites for that year with 14 of the 15 stations sampled.

TABLE 7-3
2006 VENTURA RIVER WATERSHED BIOASSESSMENT MONITORING SAMPLING LOCATIONS

Sta. ID	Name	Description and Comments	BMI rating 2006	Latitude (D.M.S.)	Longitude (D.M.S.)	Elev.
0	Ventura River – Main Street Bridge	Mainstem Ventura River, first site above estuary with fresh water.	Poor	34 16 54.23	119 18 24.09	19
2	Canada Larga Creek	Canada Larga Creek, downstream of grazing.	Poor	34 20 31.7	119 17 08.2	293
3	Canada Larga Creek	Canada Larga Creek, above main area of grazing impact.	Fair	34 22 23.3	119 14 8.8	334
4	Ventura River – Foster Park	Mainstem Ventura River. Closest downstream site to confluence with San Antonio Creek. Station is also mass emission station. Bioassessment downstream from Foster Park Bridge	Poor	34 21 07.9	119 18 23.7	200
5	San Antonio Creek – near Ventura River	San Antonio Creek, first upstream site from confluence with Ventura River.	Fair	34 22 50.9	119 15 46.8	347
6	Ventura River – Santa Ana Rd.	Mainstem Ventura River		34 23 59.1	119 18 29.7	403
7	Lion Canyon Creek – upstream confluence	Lion Canyon Creek (tributary to San Antonio Creek) First upstream	Fair	34 25 19.3	119 15 46.8	623

Sta. ID	Name	Description and Comments	BMI rating 2006	Latitude (D.M.S.)	Longitude (D.M.S.)	Elev.
	San Antonio Creek	location from confluence. Site with heavy sediment load and influence by nearby stables and grazing.				
8	Stewart Canyon Creek – upstream conf. San Antonio Creek	Stewart Creek (tributary to San Antonio Creek) First upstream location from confluence. Within close proximity to City of Ojai and less densely developed residential lots.	Fair	34 26 07.1	119 14 49.3	685
9	San Antonio Creek near Stewart Canyon Creek	San Antonio Creek. Within close proximity to City of Ojai and less densely developed residential lots.	Fair	34 26 1.8	119 14 52.7	650
10	North Fork Matilija Creek – upstream Ventura River conf.	North Fork Matilija Creek above influence of Matilija Dam and below rock quarry.	Fair	34 29 06.0	119 17 59.4	978
11	North Fork Matilija Creek – at gauging station	North Fork Matilija Creek above influence of Matilija Dam and above rock quarry.	Fair/good	34 29 35.1	119 18 18.6	1,360
12	Ventura River – below Matilija Dam	Matilija Creek. First station above urban influence.	No sample	34 29 2.4	119 18 1.7	1020
13	Matilija Creek – below community	Matilija Creek above dam and below community. Site has excessive amount of algae.	Fair	34 30 04.5	119 20 51.7	1,355
14	Matilija Creek – at gate at end of road	Matilija Creek. Above dam and above community. Dry – Not Sampled	Fair/good	34 30 16.9	119 22 26.3	1,553
15	San Antonio Creek above Lion Creek	San Antonio Creek above Lion Creek	Poor	34 25 19.3	119 15 46.8	623

The August 2007 report for the 2006 year showed that the aquatic health of the Ventura River Watershed ranged from poor to good in 2006, based on the results of the southern California IBI. Stations 0 and 4 each scored in the poor range, indicating that the BMI communities found there were impaired. Possible causes of low water quality in this reach include a reinforced levee present on the east bank, a large transient human population that use the streambed for shelter and possibly the location in relation to the Ojai Valley Sanitation District wastewater treatment plant. The potential water quality impacts of transient persons may be worthy of additional evaluation.

The Canada Larga Creek drainage is impacted by grazing in its lower reaches which resulted in low ratings for the sampling sites at these locations. The three stations located on the main stem of San Antonio Creek (5, 15 and 9), and on its tributaries at Lion Canyon and Stewart Canyon Creeks (7 and 8, respectively), all scored in the fair range for the IBI score, except for Station 15 which scored in the poor range. Four stations were located in the upper watershed: Stations 10 and 11 on the North Fork of Matilija Creek and Stations 13 and 14 located on Matilija Creek above Matilija Dam. All sites are used as recreational swimming areas. Station 13 is located downstream of a small residential community and Station 14 is located upstream. Stations 11 and 14 are located at the highest elevations in the watershed (over 1,300 ft) and had the best IBI scores in the watershed, which attaining the fair range and good range (Table 7-4).

TABLE 7-4
2009 VENTURA RIVER WATERSHED BIOASSESSMENT MONITORING SAMPLING LOCATIONS

Station Code	Station	Latitude	Longitude	Sample Date	SC-IBI Score (Adjusted)	Impaired	Condition
SMC00271	SMC00271	34.55	-119.17	04/Jun/2009	57.8	No	Fair
SMC00827	SMC00827	34.56	-119.19	15/Jun/2009	57.8	No	Fair
SMC00911	SMC00911	34.51	-119.30	04/Jun/2009	52.1	No	Fair
SMC01151	SMC01151	34.37	-118.97	17/Jun/2009	20.7	Yes	Poor
SMC01684	SMC01684	34.28	-118.92	03/Jun/2009	16.4	Yes	Very poor
SMC01748	SMC01748	34.29	-118.83	03/Jun/2009	22.1	Yes	Poor
SMC01860	SMC01860	34.22	-118.98	28/May/2009	20.7	Yes	Poor
SMC02127	SMC02127	34.42	-119.26	04/Jun/2009	30.7	Yes	Poor
SMC02436	SMC02436	34.26	-118.97	28/May/2009	17.8	Yes	Very poor
SMC03268	SMC03268	34.16	-119.06	28/May/2009	27.8	Yes	Poor
SMC04047	SMC04047	34.46	-119.29	14/May/2009	17.8	Yes	Very poor
SMC04175	SMC04175	34.41	-119.28	11/Jun/2009	43.6	No	Fair
SMC04239	SMC04239	34.36	-119.31	11/Jun/2009	35	Yes	Poor
SMC04308	SMC04308	34.19	-118.91	17/Jun/2009	20.7	Yes	Poor
SMC04399	SMC04399	34.31	-119.30	11/Jun/2009	33.5	Yes	Poor

7.3.3 Mass Emission Monitoring

The purpose of mass emission monitoring is to identify pollutant loads to the ocean and identify long- term trends in pollutant concentrations. Mass Emission sites are located in the lower reaches of major watersheds. Through water quality monitoring at these sites, the Ventura County Stormwater Monitoring Program (SMP) is intended to evaluate the cumulative effects of stormwater and other surface water discharges on beneficial uses in the watershed prior to discharge to the ocean. Both Mass Emission and Receiving Water stations measure water quality parameter concentrations in a surface water body,

whereas Land Use monitoring stations permit the water quality characterization of discharges to surface water bodies. Mass Emission monitoring stations measure water quality parameter concentrations resulting from discharges throughout an entire watershed. The Mass Emission drainage area is much larger than the drainage area for the Receiving Water sites and includes other sources of discharge, such as wastewater treatment plants, non-point sources, and groundwater discharges.

Mass Emission stations are located in the three major Ventura County watersheds: Calleguas Creek, Ventura River, and Santa Clara River. However, the monitoring location for the Ventura River Watershed was relocated in 2005. The Ventura River NPDES Mass Emission Monitoring Station (ME-VR) which was formerly located on Casitas Vista Road at Foster Park was determined to be unsafe due to land slide activities observed during the heavy rainfalls of January and February 2005.

Safety concerns with the station's location at Foster Park prompted the SMP to relocate the ME-VR station to the OVSD's WWTP (located at 6363 North Ventura Avenue, Ventura, CA). The new ME-VR station (ME-VR2) is located approximately one mile downstream of the station's former location. The new monitoring site is a safer location on the Ventura River than the previous sites due to the presence of a levee on the east side and bedrock on the west side of the site. The new location also provides an improved ability to secure monitoring equipment. Monitoring in ME-VR2 station was initiated in May 2005.

In 2009, monitoring locations experienced elevated levels above the California Toxics Rule and California Ocean Plan. All sites showed elevated levels during wet weather events and only mass emission sites showed an occasional elevated level during dry weather events. The table below summarizes all compounds that were detected above the water quality objectives of the California Toxics Rule and California Ocean Plan (Table 7-5).

The full report of the Mass Emission Monitoring and data for the constituents monitored from 2008 to 2009 can be accessed through VCWQMP: Ventura Countywide Stormwater Quality Annual Monitoring Reports in Appendix Q.

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Table 7-5

Summary Results Of Mass Emission Monitoring Sites- Constituents in Excess of California Toxics Rule and California Ocean Plan

Site	Monitoring location	Anion	Bacterio-logical	Conven-tional	Metal	Nutrient	Organic	Pesticide
Mass emission	ME-CC	Chloride	E. coli, Enterococcus, Fecal Coliform, Total Coliform	Total Dissolved Solids	Aluminum, Chromium, Copper, Lead, Nickel, Zinc	Nitrate as N	Bis(2-ethylhexyl)phthalate, Total PAH Compounds	4,4'-DDD, 4,4'-DDE, Total Chlordane Compounds, Total DDT Compounds, Toxaphene
	ME-VR2		E. coli, Enterococcus, Fecal Coliform, Total Coliform					
	ME-SCR		E. coli, Enterococcus, Fecal Coliform, Total Coliform		Aluminum, Chromium, Copper, Lead, Mercury, Nickel, Selenium	Ammonia as N	Bis(2-ethylhexyl)phthalate, Total PAH Compounds	Toxaphene

Site	Monitoring location	Anion	Bacterio-logical	Conven-tional	Metal	Nutrient	Organic	Pesticide
Receiving Waters	W-3		E. coli, Enterococcus, Total Coliform		Aluminum, Copper, Lead, Zinc		Total PAH Compounds	4,4'-DDD, 4,4'-DDE, Total DDT Compounds, Toxaphene
	W-4		E. coli, Enterococcus, Fecal Coliform, Total Coliform	Total Dissolved Solids	Aluminum, Copper	Nitrate as N	Total PAH Compounds	4,4'-DDD, 4,4'-DDE, Total Chlordane compounds, Total DDT Compounds, Toxaphene
Land Use	A-1		E. coli, Enterococcus, Fecal Coliform, Total Coliform	Total Dissolved Solids	Aluminum, Copper	Nitrate as N	Total PAH Compounds	4,4'-DDD, 4,4'-DDE, Total Chlordane Compounds, Total DDT compounds, Toxaphene

7.4 Ventura Stream Team

The Ventura River Watershed Monitoring Program "Stream Team" is a volunteer-based water quality monitoring program established jointly by the Santa Barbara Channel Keepers in conjunction with the Regional Board, VCFCD, Ventura Water, and the OVSD. Their goals are to develop and implement regular and precise testing of standard water quality parameters that will establish baseline information on a watershed level, establish a trained volunteer monitoring base, and locate previously unidentified point sources of pollution.

There are 15 sites chosen for this monitoring program. There are four Lower Ventura River sites, two Canada Larga sites, four San Antonio Creek sites, and four Upper Ventura River sites of which four represent four distinct reaches or sub-watersheds. Site selection is based on:

Sites that are representative of a certain reach or sub-watershed

Sites that are accessible, especially during high water events

History of monitoring at that site

Even spacing throughout watershed

Area of special interest

- Sites that are representative of diverse range of land uses

Table 7-6 identifies the locations of the 22 active monitoring sites chosen for this Watershed Monitoring Program, and their locations are shown in Figure 8.

The Ventura Stream Team conducted monthly on-site testing at the designated location on the Ventura River. They measure physical and chemical parameter in the field using portable, hand-held instruments. On-site data collected includes dissolved oxygen, turbidity, conductivity, pH, temperature and flow. Water samples, collected at each site, are processed in Channel Keeper's laboratory for three Public Health bacterial indicators: Total coliform*, E. coli*, and Enterococcus, using approved standard methodology as Colilert-18 and Enterolert-24 by Idexx Laboratories. Parameters such as ammonium, nitrite plus nitrate, orthophosphate, total dissolved nitrogen and particulate carbon, nitrogen and phosphorus are measured and analyzed through the cooperation of the Santa Barbara Channel – Long Term Ecological Research Project at the University of California, Santa Barbara. Occasional tests for other ions and contaminants are also done. In addition, site characteristics such as vegetation and aquatic life are also being assessed and recorded during sample collection on standardized forms.

Data collected by Ventura Stream Team is summarized and available in Appendix O. The State of the Ventura River Report, provided in Appendix P covers the review of the Ventura River watershed from January 2001 to the end of the 2006.

TABLE 7-6
VENTURA STREAM TEAM WATER SAMPLING SITES

Station Name	Location	Sampling Frequency
VRW000	Ventura River Estuary	Year Round
VRW001	Ventura River at Main Street Bridge	Year Round
VRW002	Ventura River at Canada Larga Confluence	Historic
VRW003	Ventura River at Shell Road	Historic
VRW004	Lower Canada Larga Creek	Seasonal
VRW005	Upper Canada Larga Creek	Seasonal
VRW006	Ventura River at Foster Park	Year Round
VRW007	San Antonio Creek at Old Creek Road	Year Round
VRW008	Lion Canyon	Seasonal
VRW009	Stewart/Fox Creek	Year Round
VRW010	San Antonio Creek above confluence with VR09	Year Round
VRW011	Ventura River at Santa Ana Road bridge	Seasonal
VRW012	Ventura River at Highway 150	Seasonal
VRW013	Matilija Creek	Historic
VRW014	North Fork Matilija Creek	Year Round
VRW015	Upper Matilija Creek	Year Round
VRW017	San Antonio Creek at Lion Canyon	Year Round
VRW018	Field QAQC Blank	Year Round
VRW021	Upper N. Fork Matilija Creek	Intermittent
VRW022	N. Fork Matilija at Wheeler Gorge	Intermittent
VRW03.5	Ventura River at Canada Larga	Year Round

Station Name	Location	Sampling Frequency
VRW06.3	Ventura River at San Antonio Creek Confluence	Year Round
VRW07A	San Antonio Creek above confluence with Ventura River	Year Round
VRW12.9	Ventura River at Camino Cielo	Year Round

7.5 DPH Drinking Water Source Assessments

DPH's Division of Drinking Water and Environmental Management established the California Drinking Water Source Assessment and Protection (DWSAP) Program to provide information to communities wanting to develop local programs to protect their sources of drinking water. The DWSAP Program addresses both groundwater and surface water sources. The assessments typically include: a delineation of the area around a drinking water source through which contaminants might move and reach that drinking water supply; an inventory of possible contaminating activities (PCAs) that might lead to the release of microbiological or chemical contaminants within the delineated area; and a determination of the PCAs to which the drinking water source is most vulnerable.

A Summary of the DPH Drinking Water Source Assessments (DWSA) for the four Nye Wells (Nos. 1A, 2, 7, and 8) for 2002 and/or 2003 is summarized in Table 7-7 indicate that there have been no contaminants detected in these wells. Additional DWSA were conducted in 2005 on Nye Well 11 (see Appendix S) and the Saticoy County Yard Well (see Appendix T). However, the sources are still considered vulnerable to PCA's located near the drinking water source.

TABLE 7-7
SUMMARY OF DPH SOURCE WATER ASSESSMENTS FOR THE SIX WELLS

Water Source	Assessment Date	Identified Vulnerabilities (PCAs)
Nye Well No. 1A	Mar-03	Automobile – Repair Shops Grazing (> 5 large animals or equivalent per acre)
Nye Well No. 2	Apr -02	
Nye Well No. 7	Apr-02	
Nye Well No. 8	Apr-02	Illegal activities/unauthorized dumping Junk/scrap/salvage yards Machine shops Septic systems – low density (< 1 acre) Sewer collection systems
Saticoy County Yard Well	Apr-05	Automobile-Gas Station

Nye Well No. 11	Sept-05	Agricultural Drainage Automobile - Repair shops Farm machinery repair Junk/scrap/salvage yards Machine shops NPDES/WDR permitted discharges Recreational area - surface water source Septic systems - low density [<1/acre] Sewer collection systems Utility stations - maintenance areas Wells - Agricultural/ Irrigation Historic gas stations

7.6 Water Sampling by Others in Study Area

7.6.1 Los Angeles Regional Water Quality Control Board

The Los Angeles RWQCB had a previous monitoring program for the Ventura River Watershed that was discussed in the 2005 Sanitary Survey. Another program, the Surface Water Ambient Monitoring Program (SWAMP) administered by the State Water Resources Control Board, was introduced in 2001. SWAMP is a statewide monitoring effort designed to assess the conditions of surface waters throughout the state of California. Responsibility for implementation of monitoring activities resides with the nine RWQCBs that have jurisdiction over their specific geographical areas of the state. Monitoring is conducted in SWAMP through the Department of Fish and Game and US Geological Survey master contracts and local RWQCBs monitoring contracts.

On November 3, 2005, the Regional Board adopted the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region (Order No. R4-2005-0080). The waiver applies to all irrigated lands in Los Angeles and Ventura counties and will affect several thousand growers. Any grower who owns or conducts irrigation operations and from which a discharge occurs is covered by the waiver (note: the definition of a discharge is very broad and includes percolation to groundwater and stormwater runoff). Growers, or growers groups, should have registered with the Regional Water Board by filing a notice by August 3, 2006. The Ventura County Agricultural Irrigated Lands proposed monitoring plan is found in Appendix M and has been submitted to the RWQCB for review as of 2008.

7.6.2 Ventura River County Water District

This District has four wells and an agreement with CMWD for purchase of water when drought reduces the ability of the agency' wells to meet demand. VRCWD conducts ground water quality sampling and provides CCR's to its customers. The 2009 CCR is attached in Appendix P. These wells are not under the direct influence of surface water.

7.6.3 Meiners Oaks County Water District

The Meiners Oaks County Water District has four wells, of which two are shallow wells located adjacent to the Ventura River, downstream of the Robles Diversion. The District, in July 1995, began treating its river well supply through a pressure filter system. Since then, the District has not conducted any additional *Giardia* or *Cryptosporidium* testing.

In 2009, Meiners Oaks County Water District CCR identified their sources of water for supply as four groundwater wells drilled 100 to 400 feet into underground aquifers and one connection to receive surface water from Lake Casitas. They can meet their demand using groundwater. The surface water system connection is only used for emergency supply during repairs of their groundwater wells or when demand is higher than usual. On those occasions, a blend of surface and ground water is delivered throughout their system.

Because this water source is considered under the influence of surface water, a copy of MOCWD 2009 CCR is included in Appendix P

7.6.4 City of Ojai

City of Ojai, in coordination with the CDFG, prepared an assessment of the Ojai Urban Watershed and Restoration Plan (David Magney Environmental Consulting 2005) which can be reviewed in the 2005 Sanitary Survey. No update has been prepared of Ojai's Restoration Plan.

7.6.5 Casitas Municipal Water District

The CMWD provides a separate Sanitary Survey for the monitoring program in the Upper Ventura River Watershed.

7.6.6 Groundwater Monitoring

The groundwater purveyors in the study area all monitor their drinking water wells per DPH regulations for groundwater supplies. A review of the groundwater monitoring reported in 2008 annual report by the Ojai Groundwater Management Agency showed instances of wells on the East end of Ojai showed high TDS and sulfate. Because of the distance and travel times to the lower Ventura River from the Ojai area, it is not considered a potential threat to surface water quality at this time.

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Section 8: Conclusions and Recommendations

8.1 Conclusions

8.1.1 Changes in Water Quality

As in the 2005 Report, there have not been significant changes in water quality in the watershed in the 2005 – 2010 period. As would be expected high runoff events in the wintertime would contribute mainly high suspended solids while metals, organics and pesticides may be more associated with urban runoff first flush events. As described in Table 7-6, exceedances mass emissions of the California Toxics Rule and California Ocean Plan constituents of chloride, coliform, nutrients some metals, and some organics and pesticides have occurred from the watershed.

Giardia and *Cryptosporidium* were generally below detection limits in Ventura Water's water sampling program during the 2005 to 2010 period with detection of *Cryptosporidium* at 4 oocysts in April 2010 in San Antonio Creek. Since May 2010, no oocysts have been detected. The Title 22 monitoring of general mineral, general physical and inorganic chemicals stayed within the historical range, and radionuclide's had no exceedances.

There were a few occasions of high Total Coliform (greater than 24,000 MPN) in Ventura Water's watershed monitoring. This is likely an indicator of ineffective septic tanks, bird excrement, or animal manure. The influent of the Avenue WTP did not show the high Total Coliform because of the use of subsurface intake and wells.

The use of subsurface intake and wells and operation of the Avenue WTP reduces the risks of most contaminants

8.1.2 Foster Park Intake Facilities and Avenue Water Treatment Plant

Ventura Water is not currently using the surface water diversion, but has maintained the structures for possible use in the future. Ventura Water is however, using the groundwater that is under the direct influence (GUDI) of surface water from the sub-surface diversion and from shallow wells that meet the requirements of the SWTR and the need for Watershed Sanitary Surveys by DPH.

The completed improvements at the Avenue WTP and Ventura Water's monitoring programs are in compliance with the SWTR and related regulations.

8.1.3 Potential Contamination Sources

8.1.3.1 Survey of Watershed

The continuation of watershed monitoring and reporting programs developed during the period of 2005 through 2010 by Ventura Water, the County of Ventura, the Ventura River Stream Team

(Channel Keepers), and a number of interagency studies initiated, continue to provide valuable information to understand the watershed.

8.1.3.2 Primary Sites of Potential Contamination

There continues to be potential water quality hazards in the watershed that need to be monitored. The potential contamination issues in the study area are shown in Figure 6.

Actions over the last five years that have reduced the risk of contamination are:

New OVSD siphons that reduce the risk of spilling untreated wastewater,

2010 Update to the OVSD Sewage Spill Prevention and Response Plan,

53 septic tank to OVSD sewer system conversions, and

- Successful completion of Avenue WTP Membrane Filtration Project and other associated plant improvements.

There are continuing concerns with the potential failure of a levee that protects one of OVSD's sanitary sewer trunk lines and increasing concerns with respect to water quality risks from downstream sediment transport as a result of the future Matilija Dam removal. Septic tanks and gas utility pipelines were recognized in this 2005 Sanitary Survey Update, but these have existed in the watershed for decades.

8.1.4 Watershed Control and Management

8.1.4.1 Interagency Watershed Studies

The many active watershed level studies demonstrate the importance of water resources and water quality to the stakeholders in the watershed. Furthermore, the level of activity also demonstrates the benefit of interagency cooperation in providing for the understanding and planning for use of the limited resources in the watershed.

8.1.4.2 Monitoring Programs

Water quality monitoring of the Ventura River and San Antonio Creek has continued in its activity during the 2005 to 2010 period. The watershed monitoring programs by Ventura Water, the OVSD, the Ventura River Stream Team by Channel Keepers, the County Storm Water Monitoring all have continued and improved over the last five years. Additionally, the Agricultural Waiver Program has initiated plans to monitor agricultural runoff. Ventura Water's experience and the increase in other monitoring programs since the 2005 Sanitary Survey continues to target specific sampling stations.

8.2 2010 Recommendations

This section provides various recommendations for water quality monitoring and for specific actions that Ventura Water can take to improve watershed water quality.

8.2.1 Regulatory Compliance Monitoring and Studies

Two elements of regulatory compliance are underway by Ventura Water as they relate to the Stage 2 DBPR and the LT2ESWTR compliance. Ventura Water is targeting Stage 2 DBPR compliance monitoring for completion in 2012.

Regarding the LT2ESWTR, with the completion of the Avenue WTP, Ventura Water completed additional *Cryptosporidium* treatment requirements by April 1, 2012. Ventura Water is on track to submit a sampling plan for the second round of source water monitoring by January 1, 2015, and start monitoring by April 1, 2015. Ventura Water plans to submit a *Cryptosporidium* treatment bin classification and supporting data from the second round for approval by October 1, 2017.

Ventura Water complies with drinking water regulations.

8.2.2 Coordination of Watershed Water Quality Monitoring Programs

Although coordination between the agencies has continued, streamlining of monitoring locations is still underway. OVSD's new permit has reduced the number of monitoring locations in the watershed due to evidence that the additional monitoring stations showed that the water quality did not change. Further agreement on sampling locations would streamline the monitoring within the watershed and some coordination has occurred.

8.2.3 Modified Watershed Monitoring Program

The recommended City watershed monitoring program is summarized in Table 8-1 and is essentially unchanged since 2005 except that TKN was not monitored because of non-detection. It is not appropriate to further reduce monitoring at this time as no constituents were consistently non-detected over the five year period. Tests can be added at any time if there are some high results or emergencies. Sampling for TOC, bromide, and *Giardia/Cryptosporidium* may need to be adjusted once a monitoring plan is made for the Stage 2 DDBPR and the LT2ESWTR regulations as discussed in Section 2.1.1.1 and 2.1.1.2.

8.2.4 Septic Conversion and Monitoring

The OVSD reported sewering 53 homes that were previously unsewered within the watershed . However, the problem areas remain the same as reported in the 2005 Sanitary Survey as far as contamination potential from overflowing septic tanks in high groundwater areas. It is recommended that Ventura Water initiate discussions with the Ventura County Storm Water Monitoring or the Stream Team to consider monitoring near the Arbolada and Siete Robles areas of Ojai where septic tanks are in areas that have high groundwater in wet years.

Ventura Water should continue to work with the County Environmental Health Division and other agencies to seek funding and develop incentives for home owners to convert to sewer systems, especially in the lower Ventura River area.

8.2.5 Participate in Matilija Dam Removal and Other Watershed Planning

Ventura Water should continue its involvement in the Matilija Dam removal and to continue to raise awareness of the consequences of the additional sediment that will be conveyed by the removal of the dam. Ventura Water is prepared, if needed, to use Nye Wells No. 12 and 13 that were drilled as part of the Matilija Dam removal mitigation but are not yet in service.

8.2.6 Public Outreach to Reduce Effects of Horse and Stock Manure

Ventura Water should continue to work with the VCSWQMP to encourage distribution of information and to continue the public outreach program about the effects of horse or stock manure on water quality.

8.2.7 Coordination with the OVSD

Due to the significant potential impact of a sewer spill on Ventura Water's Foster Park water sources, Ventura Water should continue working with the OVSD to improve coordination and operations in case a sewer overflow occurs. Ways this may be accomplished include the following:

- Participate in a practice drill once a year for the emergency overflow manhole warning system in the spring or summer so that there is time to make changes before the next wet season.

8.2.8 Design Standards Review

Ventura Water should periodically review well and other water system design standards to minimize potential contamination sources to the Foster Park water supply.

References

Personal Communications

Ron Sheets, Operations Superintendent, Ojai Valley Sanitary District

Arnold Moser, Water Production Supervisor, City of San Buenaventura

Raphael Mazor, Scientist, SCCWRP

Sergio Vargas, Deputy Director, Ventura County Watershed Protection District.

Don Sheppard, Ventura County E&ERD and IWMD

Pam Lindsay Ventura County Watershed Protection District.

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Appendices

The following appendices are found on the attached CD-Rom

Appendix A:	National Marine Fisheries Service Biological Opinion for Removal of Matilija Dam
Appendix B:	Ojai Valley Area Plan 2008 Amendment
Appendix C:	Ventura County Watershed Protection District, Annual Rainfall Data
Appendix D:	Ojai Valley Sanitary District Sewage Spill Prevention and Response Plans
Appendix E:	Project Photographs
Appendix F:	Ojai Valley Sanitary District 2008 NPDES Permit
Appendix G:	2008 Annual Pesticide Use Reports, Ventura County, Indexed by Commodity
Appendix H:	OVORF 2009 Groundwater Monitoring Report
Appendix I:	Business Plan, Hazardous Waste Generator & Underground Storage Tank Sites (BWT) Tables
Appendix J:	Ventura County Municipal Storm Water NPDES Permit
Appendix K:	RWQCB 2007 Watershed Management Initiative Excerpt
Appendix L:	Ventura County General Plan 2010 Excerpt
Appendix M:	Ventura County Agricultural Irrigated Lands Group 2008 Water Quality Monitoring Plan
Appendix N:	Federal Primary and Secondary Drinking Water Standards
Appendix O:	Water Quality Data
Appendix P:	Consumer Confidence Reports (CCR)
Appendix Q:	2008-09 Annual Report, Ventura Countywide Stormwater Quality Management Program
Appendix R:	Ventura Stream Team 2006 Annual Report
Appendix S:	2005 DPH Drinking Water Source Assessments for Nye Well No.11
Appendix T:	2005 DPH Drinking Water Source Assessments for Saticoy County Yard Well

Appendix A

National Marine Fisheries Service Biological Opinion for Removal of Matilija Dam

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

MAR 29 2007

In reply refer to:
SWR/2002/01708:APS

Ruth Villalobos
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, California 90053-2325

Dear Ms. Villalobos

Enclosed with this letter is NOAA's National Marine Fisheries Service's (NMFS) biological opinion for the Army Corps of Engineers' Matilija Dam Removal Project. This biological opinion addresses the effects of the proposed action on the Southern California Distinct Population Segment (DPS) of endangered steelhead (*Oncorhynchus mykiss*) and critical habitat for this species in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

The biological opinion concludes that the proposed action is not likely to jeopardize the continued existence of the endangered Southern California steelhead DPS, or destroy or adversely modify critical habitat for this species. NMFS believes the proposed action is likely to result in take of steelhead, and therefore an incidental take statement is attached to the biological opinion. The incidental take statement includes reasonable and prudent measures that NMFS believes are necessary and appropriate to minimize and monitor incidental take of steelhead. Please contact Anthony Spina at (562) 980-4045 if you have any questions concerning the biological opinion or if you would like additional information.

Sincerely,

Rodney R McInnis

Rodney R. McInnis
Regional Administrator

Enclosure

BIOLOGICAL OPINION

AGENCY: U.S. Army Corps of Engineers

ACTION: Matilija Dam Removal and Ecosystem Restoration Project on Matilija Creek, Ventura County, California

CONSULTATION CONDUCTED BY: National Marine Fisheries Service, Southwest Region

TRACKING NUMBER: SWR/2002/01708

DATE ISSUED: MAR 29 2007

I. CONSULTATION HISTORY

On July 15, 2004, NOAA's National Marine Fisheries Service (NMFS) received a letter requesting formal consultation with the U. S. Army Corps of Engineers' (Corps) planning branch in the Los Angeles district office. The request concerned the Matilija Dam Ecosystem Restoration Project proposed for the Ventura River watershed. When the Corps requested the formal consultation, important features about the proposed action had not been defined or were in the early phases of planning and design. Consequently, how the action would affect the Southern California Distinct Population Segment (DPS) of endangered steelhead (*Oncorhynchus mykiss*) and critical habitat for this species could not be adequately evaluated. Therefore, NMFS was unable to initiate formal consultation, and instead requested additional clarification and information of the Corps by letter dated December 8, 2004. NMFS' letter indicated support for the proposed action and identified the specific information needed to initiate formal consultation. In May 2006, NMFS met with the Corps to reaffirm the information needs to undertake a formal consultation and to discuss measures for minimizing adverse effects of the proposed action (including uncertainties) on steelhead and their critical habitat. Additional meetings and letter exchanges followed, and on August 15, 2006, NMFS concluded it had received sufficient information to initiate formal consultation. Accordingly, NMFS prepared a biological opinion for the proposed action. A preliminary draft biological opinion was provided to the Corps at the end of January 2007, and the Corps provided NMFS with comments on the draft shortly thereafter. Following a February 26, 2007, meeting between the Corps and NMFS to discuss the comments, and after NMFS received additional information from the Corps (Corps 2007), NMFS prepared this final biological opinion. This biological opinion is based on the best scientific and commercial data available, including descriptions of the proposed action (Corps 2004a, b, c, d, Corps 2006a, b, Corps 2007), NMFS' observations of the river system, expected effects of the proposed action on endangered steelhead, and the relevant ecological literature. A complete administrative record for this consultation is maintained on file at NMFS' Southwest Regional Office (501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802).

The U. S. Endangered Species Act (ESA) requires NMFS to reach conclusions based on the best scientific and commercial data available. There is only partial information available at this time for our analysis of the effects of the proposed action on endangered steelhead and their critical habitat. This is due to the ongoing nature of the complex planning, design, and implementation

process for the proposed action and to the limited information available on the effects of large-scale dam removals. As part of the proposed action, the Corps has included measures and objectives that are intended to avoid, minimize or mitigate the potential effects of the action on endangered steelhead and designated critical habitat for this species, but the empirical basis currently available to NMFS for concluding that the measures and objectives will be effective at avoiding or reducing the adverse effects of the action is limited. To address the uncertainties remaining in the potential effects of the proposed action, NMFS has developed a series of key assumptions for assessing effects of the proposed action on endangered steelhead and critical habitat. These assumptions derive from (1) discussions with, and written correspondence from, the Corps, (2) NMFS' understanding of the proposed action, and (3) NMFS' experience evaluating effects of projects on steelhead, and developing measures for minimizing such effects.

NMFS has proceeded to write this biological opinion with the understanding that more information would be forthcoming during the next phase of the project planning and design. NMFS and the Corps will continue to collaborate on the proposed action, including after issuance of this biological opinion. In this regard, NMFS expects to continue to provide input, review design drawings, and participate in the development of monitoring and mitigation procedures for the purpose of ensuring that the final design and implementation of various project elements are executed in a manner that will not jeopardize the endangered Southern California DPS of steelhead or destroy or adversely modify critical habitat for this species, and to make certain the goals and objectives of the proposed action are met. As project designs and plans develop, or if key assumptions are found to be invalid, NMFS and the Corps may need to re-initiate section 7 consultation to incorporate new information and re-assess project effects.

II. DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

The Corps proposes to remove Matilija Dam (dam) on Matilija Creek, a major tributary to the Ventura River (Figure 1) for the purpose of (1) promoting ecosystem restoration of terrestrial and aquatic habitat to benefit native fish and wildlife (including the endangered steelhead) in the Ventura River watershed, (2) improving the natural hydrologic and sediment transport regime to restore and sustain local coastal beach sand replenishment, and (3) enhance recreational opportunities along Matilija Creek (including U. S. Forest Service land) and the downstream Ventura River system consistent with ecosystem recovery objectives. The recommended restoration alternative to be carried out by the Corps is known as the "Recommended Plan" (Corps 2004a). The specific features of this alternative form the basis of this biological opinion and are summarized on Page 4 (a generalized schedule for the individual project elements can be found in Appendix B). Readers wishing additional information about the proposed action are referred to the supporting documents (Corps 2004a, b, c, d, Corps 2006a, b, Corps 2007).

The action area involves a portion of Matilija Creek (a tributary to the Ventura River), the mainstem Ventura River, and the Ventura River estuary. Within Matilija Creek, the action area begins about 1.5 miles upstream of the dam and extends 0.6 miles downstream to the confluence with the Ventura River. Within the Ventura River, the action area extends from the confluence with the North Fork Matilija Creek downstream for approximately 15.5 miles within and along the mainstem of the Ventura River to the Pacific Ocean, including the estuary. The action area includes a freshwater rearing, spawning, and migration sites, and an estuarine area, for adult and juvenile steelhead, and designated critical habitat for the Southern California DPS of endangered steelhead (Figures 1-40 in Appendix A).

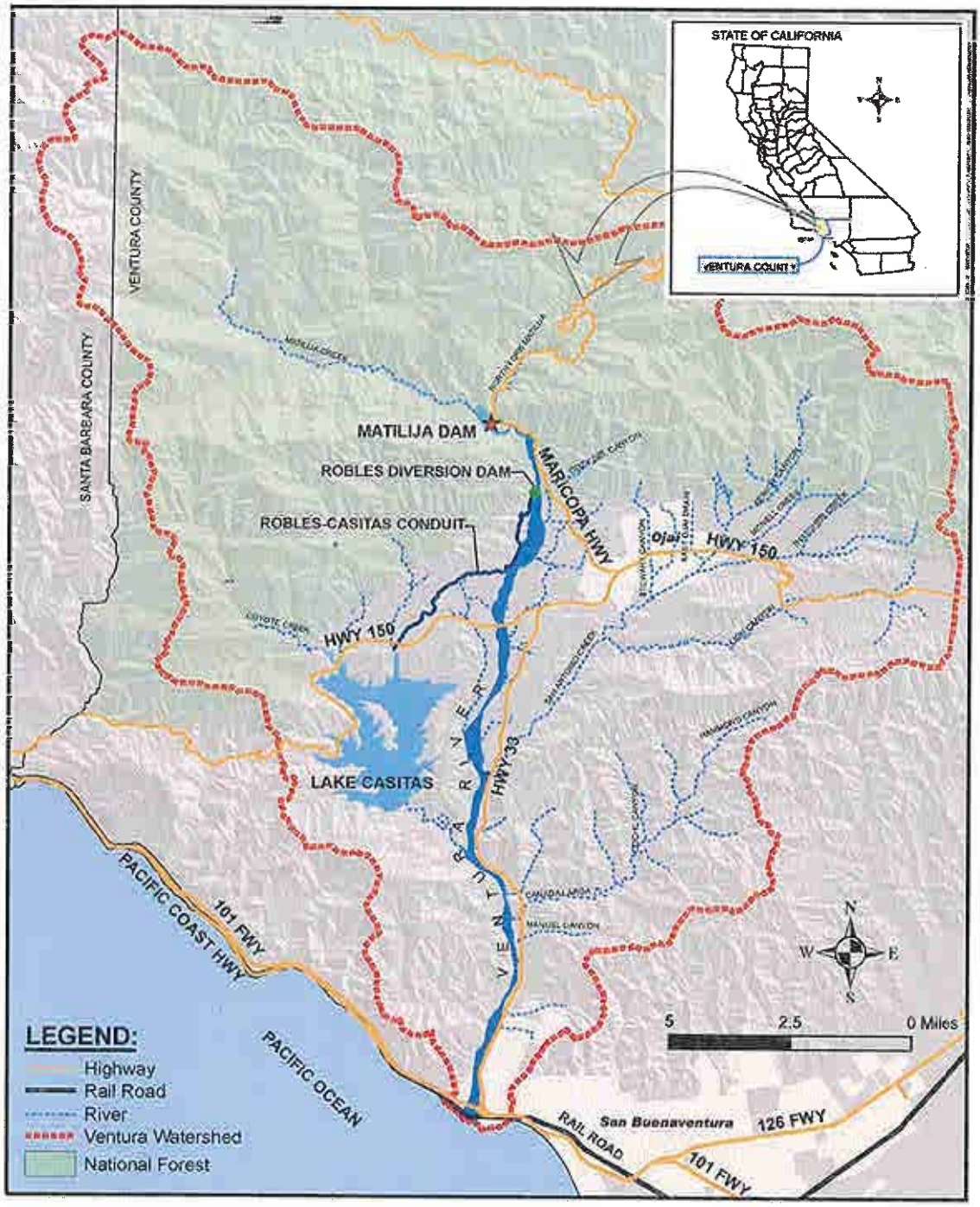

Figure 1.—Map of the action area showing the Ventura River Watershed and location of Matilija Dam.

A. Removal of Fine Sediments from the Reservoir Area

Demolition of Matilija Dam will begin with removal of sediment from the reservoir. Two 12-inch cutter-head suction dredges working 24 hours a day, 7 days a week (for about 9 months) will remove the 2.1 million cubic yards of fine sediment within the existing lake behind Matilija Dam. The extracted slurry will be transported by pipeline downstream to disposal areas (either a single or multiple disposal sites) near the Highway 150 (Baldwin Road) Bridge. The potential sites, comprising about 118 acres in the floodplain, are both upstream and downstream of the bridge and are 3.6 to 6.3 miles downstream of Matilija Dam. Earthen containment dikes (10 to 20 feet in height) will be constructed to contain the slurry. The dikes will be constructed of sands and gravels obtained from the on-site excavation and grading performed as part of the overall project. Interior dikes will be constructed during slurry placement to enhance stability and separation of the fines from water. The disposal areas will be cleared of vegetation to enhance percolation. For the upstream-most slurry disposal site located just north of the Highway 150 Bridge, rock-slope protection will be required to protect the site from periodic high flows. The three other disposal areas, downstream of the bridge, are located on low floodplain terraces and would be subjected to less frequent flows. Rock protection for these areas will likely consist of boulders obtained during construction of the containment dikes. Slope protection at the slurry disposal site will consist of willows planted on the outside slopes of the basin to provide additional soil stabilization during large storm events. Additional revegetation of the fine-sediment disposal site(s) using native plants will be developed for the plan (Figures 7-9 in Appendix A).

B. Dam Demolition and Removal

Demolition of the dam will occur in one phase and is expected to take about 36 months (while crews are not expected to work within the creek and lake bed during the winter, some work will continually occur in the area behind the dam during the 3-year period.). Following dredging of the reservoir area, the dam structure will be slowly removed in sections by controlled blasting in approximately 15-foot vertical increments. Concrete rubble will be reduced and processed in designated areas behind the dam and transported to a commercial concrete recycling plant. Heavy equipment to be used for dam demolition, deconstruction, and concrete hauling, as well as other activities includes cranes, front end loaders, dump trucks, scrapers, bulldozers, graders, backhoe, hoe-rams, water trucks, excavators, and rollers (Figure 10 in Appendix A).

The reach of Matilija Creek extending 500 to 1000 feet downstream of the dam will be dewatered to allow workers and equipment to remove fallen debris and concrete footings, and to align and reconnect the upstream and downstream portions of the creek channel to their historical configuration. Because planning and design is not complete for this phase, this dewatering is assumed for the third season of construction and will be complete before the following winter. Prior to dewatering the creek, qualified fishery biologists will inspect the area for steelhead and relocate individuals to suitable habitats upstream or downstream of the water-diversion outlet. Inspections and relocations will continue during, and after the water diversion process to minimize impacts to steelhead. Impacts to the riparian zone will be monitored, and some revegetation of the riparian zone may be needed to supplement the natural recolonization of riparian vegetation.

C. Temporary Stabilization of Remaining Sediments

The remaining reservoir sediments will be stabilized once fine sediment removal activities (and dewatering activities) allow workers to access the lake bed. Each year, following the spring runoff, the affected portion of Matilija Creek upstream of the dam will be placed in a 36-inch diameter corrugated pipe and then released at a designated point in Matilija Creek downstream of the dam. A new creek channel (about 100-feet wide) will be excavated in the sediment remaining behind (upstream of) the dam, and the excavated material will be placed in several storage sites within the reservoir basin (or alternate sites as necessary). The storage sites will be located adjacent to the newly engineered creek channel and some, but not all, will be stabilized with soil cement (using on-site aggregate), which is expected to allow the sites to erode "naturally" downstream during higher flow events into the Ventura River (in the case of upstream storage sites consisting of mostly coarse-grained sediments) or flood events (mid-basin storage sites with mid-grain sediment). With regard to the excavated channel, certain segments of the channel within the lower half of the reservoir basin will be protected with soil cement bank revetment. The revetment will facilitate gradual erosion of the remaining delta area sediments whenever the revetment is overtopped and (or) eroded by larger flows. The height of the revetment will extend 7 feet above the engineered channel invert and 5 feet below the invert to prevent undermining of the structure. The revetment height is designed to be overtopped by flows exceeding a 10-year storm event (estimated at 12,500 cfs). Unstabilized sediments above the revetment will be placed at a slope similar to the revetment to reduce the likelihood of steelhead becoming stranded when high flows overtop the revetments. All soil cement revetment would be removed from the site following sufficient evacuation of stored sediment from within the original reservoir limits. The removal will occur in stages, and will be dependent on criteria established in the Monitoring and Adaptive Management Plan (MAMP, discussed further on page 8), though complete removal of the sediments and a return to sediment supply equilibrium is expected to occur only after 10 to 20 years (Figure 9 Appendix A).

D. Foster Park Groundwater Wells

Two groundwater wells will be constructed in the vicinity of the City of Ventura's (City) Foster Park well-field facility about 5 miles upstream from the river mouth. These wells will be drilled into the shallow Ventura River alluvium and then operated by the City and only as a substitute water source when surface diversions are not possible due to high turbidity (owing to the release of sediments from the removal of the dam and related activities). Consequently, these new wells will not operate when surface water is diverted (Corps 2004a). While the design and operation for the wells have not been fully defined, preliminary information indicates the wells would be placed approximately 1000-1500 feet from the active channel, and would extend about 50 feet deep into the shallow aquifer. This shallow aquifer provides rising groundwater during low-flow periods in the vicinity of Casitas Springs and Foster Park. The two wells would have a combined capacity of 3 cfs. In addition to the restriction on surface-water diversion noted above, the Corps proposes the following specific provision to guide well operation: "the operation of the new wells at Foster Park will not begin until flows measured at Foster Park gauging station (USGS gauge No. 11118500) equal or exceed 15 cfs" (Corps 2007). This provision applies only to the two new wells and does not extend to the City's existing wells (currently operable or inoperable), existing surface water diversion, and subsurface water diversion (i.e., the subsurface perforated pipe, or "Ranney Collector") (Figures 35-37 in Appendix A).

E. Downstream Flood Control Protection Improvements

Existing public road, utility, and flood-control structures will be improved or modified to compensate for the temporarily increased sediment loads and aggradation of river reaches resulting from the removal of the dam and the release of stored sediments. Improvements involve raising the elevation of two existing levees several feet along the Ventura River in the communities of Live Oak Acres and Casitas Springs, the construction of one new levee (approximately 5000 feet long and 10 to 17 feet high) near Meiners Oaks, the removal and relocation of the Camino Cielo bridge and construction of a new (wider) bridge to replace the existing Santa Ana Road Bridge. If work in or around flowing water is necessary for any of the improvements, steelhead surveys will be performed, and any steelhead found within construction areas will be captured and relocated to the nearest suitable habitat. Best management practices (BMPs), including water diversions and sediment control devices, will be followed where work in flowing water cannot be avoided (Figures 15, 29, 30, 33, 34 in Appendix A).

F. High-Flow Sediment Bypass

A high-flow sediment bypass is proposed for construction on the east side of the existing sediment basin overflow timber weir (which is currently buried underneath river rock), about 300 feet to the east of the Robles Diversion (Appendix C). The purpose of the bypass is to direct sediment-laden flow away from the diversion intakes, thereby reducing the amount of potential sediment deposition in, and impacts on, the forebay. While the high-flow sediment bypass has not been fully designed, existing designs indicate the bypass would be a radial gate structure (140-ft wide) with four gates, a concrete spillway and downstream concrete apron, and a bypass capacity of 10,000 cfs. The current sluice gate structure (three radial gates) adjacent to the Robles Diversion and Fish Passage Facility would remain in place and would continue to operate consistent with the terms and conditions of the biological opinion issued for the facility (NMFS 2003). Construction of a fishway, or a design and operational program, to allow for migrating steelhead is currently being considered (e.g., fish ladders, rock ramp, at-grade passage, etc), but has not yet been fully designed. The Corps proposes that "the high-flow sediment bypass would be operated in a manner that would not interfere with steelhead migration" (Corps 2006b), and will seek input from NMFS steelhead biologists and fish-passage engineers on the design and operation of this project feature during the upcoming detailed design phase of the dam removal. Additionally, "design and construction of fish passage capability or feasibility will be incorporated into the project feature" (Corps 2007) (Figures 17-24 in Appendix A).

G. Desilting Basin

This basin will be constructed within the Robles Diversion canal, which delivers water to Lake Casitas. The desilting basin will be an off-line structure to the Robles-Casitas canal (i.e., not within the existing canal), and will filter sediment from water diverted from the Ventura River prior to delivery to Lake Casitas. The proposed basin will be off the mainstem river and will not affect flows or habitat in the Ventura River. For this reason, NMFS determined this specific project element is unlikely to affect steelhead or critical habitat for this species. Accordingly, this element is not considered further in this biological opinion.

H. Arundo Removal Plan.

Invasive exotic plants, primarily Arundo (*Arundo donax*) (hereafter *giant reed*), will be removed from the reservoir area and upstream reaches in Matilija Creek behind the dam and from areas in lower Matilija Creek and the mainstem of the Ventura River downstream of the dam. Current estimates of the extent of giant reed infestation throughout the action area are about 250 acres, with the highest concentrations of giant reed in the areas behind Matilija Dam (but with substantial amounts also in the mainstem of the lower Ventura River). Because steelhead and critical habitat for this species are not currently present in areas upstream of the dam, only the giant reed removal proposed for reaches downstream of the dam (where steelhead and critical habitat are currently present) is considered in this biological opinion. The giant reed removal plan is scheduled to begin in fall 2007, and will be accomplished using an EPA-approved foliar herbicide (i.e., glyphosate) or similar compound, such as Aquamaster™, sprayed over the selected areas, as well as mechanical equipment or hand crews in some locations. Exclusive use of herbicides is not expected. Treated plants may be removed with mechanical equipment or hand crews. Periodic follow-up treatment will be required for at least five years, and additional monitoring and eradication efforts will be necessary to prevent reestablishment and reinfestation (Figures 5, 6, 11 in Appendix A).

I. Recreation Plan and Components

A conceptual recreation plan, comprising interpretive areas, trails and rest stops located near the dam removal site on upper Matilija Creek, is planned as part of the proposed action. The location for the recreational facilities is based on access requirements, suitability of staging areas, safety of access routes, and connectivity with existing recreational areas. The alignments for slurry pipelines and freshwater lines as well as any haul roads and other access routes will be considered for future recreation potential. Recreation facilities outside the immediate project area will be considered if such areas would connect to and enhance other regional recreation resources. The plan would include a network of trails and interpretive areas and would greatly enhance the public educational and recreational value of the project. Two trails, one on an existing access road, and three interpretive areas are proposed for the project site (Corps 2004a). Based on NMFS' current understanding of the conceptual recreation plan, the recreation elements (trails and interpretative areas) are not expected to create conditions that adversely affect endangered steelhead or critical habitat for this species. Therefore, the conceptual recreation plan is not considered further in this biological opinion, though NMFS expects to be involved in the development of the interpretative material for this component of the proposed action, particularly the material relating to endangered steelhead.

J. Monitoring and Adaptive Management Plan

The MAMP will be implemented to manage contingencies, to evaluate the effectiveness of the project's implemented restoration measures and to make adaptive changes, if necessary, to achieve overall project objectives (Corps 2006b). A group of experts from the Corps, County of Ventura (i.e., Ventura County Watershed Protection District), City of Ventura, NMFS, U. S. Fish and Wildlife Service, California Department of Fish and Game, and other appropriate agencies or organizations, would be assembled to aid in the development and implementation of the MAMP and to address project-related uncertainties. The plan would identify and address project

uncertainties related to potential effects to steelhead and critical habitat for this species as a result of project implementation, as well as identify a monitoring program (Corps 2006b). The MAMP, once implemented would provide the necessary information to answer questions for resolving the identified uncertainties, and would also define a protocol that will respond to new information or changing conditions detected through the monitoring program (Corps 2006b). Additional objectives of the MAMP include:

1) Monitor deposition and erosion in the riverine system and at the estuary and to take necessary actions to reduce any adverse impacts including blockage to fish passage, spawning and rearing habitat, and increase to flooding risks;

2) Monitor erosion of trapped sediment from the reservoir basin, performance of the soil cement protection, and plan and execute staged removal of soil cement;

3) Monitor turbidity levels and suspended sediment concentrations with the intent to minimize impacts to water supply;

4) Monitor water quality for regulated substances potentially transferred to the water by trapped sediments associated with Matilija Dam, and negotiate any necessary mitigation measures in accordance with consultations with the Regional Water Quality Control Board; and,

5) Monitor the effects of sediment bypass to sediment deposition and diversion operations at the Robles Diversion Facility, and monitor the effects to the fish passage facility function and operation, with the intent to minimize any impacts to current operating criteria of the diversion facility, and to ensure that the fish passage facility functions as designed.

The Corps in conjunction with local agencies will be responsible for collecting monitoring data and preparing annual monitoring reports for a 10-year monitoring period, but the MAMP is not limited to 10 years[1]. A technical committee consisting of, at least, U.S. Fish and Wildlife Service, NMFS, California Department of Fish and Game, and possibly other agencies or organizations, will assist in collection of monitoring data, review monitoring data results, and provide recommendations of possible adaptive management measures. The technical committee will recommend adaptive management measures to the existing project designs should the project components not achieve the identified goal and objectives. For example, if designed revegetation species compositions are not achieved, replanting, additional irrigation, and/or removal of vegetation (especially exotics) may be necessary. Annual monitoring reports and any adaptive management measures recommended by the technical committee will be forwarded to an executive committee that will consist of, at least, a representative of the County of Ventura, the Corps, the California Department of Fish and Game, and NMFS. The executive committee (consisting of representatives of the County of Ventura and NMFS) will decide whether to adopt adaptive management measures recommended by the technical committee.

[1] The Corps and Ventura County Watershed Protection District (VCWPD) is responsible for the MAMP for the first 10 years after initial construction, thereafter the MAMP becomes the responsibility of the VCWPD. With regard to sediment-related effects due to removal of the dam, no time limit for the MAMP is specified. The time horizon for the MAMP is at the discretion of the executive committee, which will make decisions based on recommendations of the technical committee (i.e., USFWS, NMFS, and California Department of Fish and Game) (Kayama 2007).

III. STATUS OF THE SPECIES AND CRITICAL HABITAT

Because this biological opinion considers effects of the proposed action on the Southern California steelhead DPS and critical habitat for this species, the status of the DPS and steelhead critical habitat is described as follows.

A. Description of the Species and Critical Habitat

Steelhead are a short-lived species native to Pacific Coast streams extending from Alaska south to northwestern Mexico (Moyle 2002, NMFS 1997, Good *et al.* 2005). Like other steelhead populations, the Southern California steelhead DPS reproduce, spawn, and rear in freshwater coastal streams along the southern California coast. The geographic range of this coastal steelhead DPS was determined to extend from the Santa Maria River, near Santa Maria, California, to the U.S.–Mexico border (NMFS 1997, 2002). Adult steelhead have been known to spawn in river mainstem and upstream reaches (including tributaries) within coastal watersheds, and the progeny rear in freshwater or estuary for a period of one to three years prior to emigrating to sea where they reach maturity before returning to natal streams for spawning. The species exhibits a polymorphic life history with some individuals not returning to the ocean before maturing and reproducing, and some individuals residing, maturing and reproducing entirely in freshwater (or an estuary), giving rise to progeny that resume an anadromous reproductive cycle.

Critical habitat for the Southern California steelhead DPS was designated on September 2, 2005 (NMFS 2005). The designation identifies primary constituent elements that include sites necessary to support one or more steelhead life stages and, in turn, these sites contain the physical or biological features essential for conservation of the DPS. Specific sites include freshwater spawning sites, freshwater rearing sites, freshwater migration corridors, and estuarine areas. The physical or biological features that characterize these sites include water quality, quantity, depth, and velocity, shelter/cover, living space, and passage conditions. Activities with the potential to affect critical habitat for the Southern California steelhead DPS include: (1) forestry, (2) grazing and related rangeland activities, (3) agriculture and associated water withdrawals for agriculture, (4) road building or maintenance, (5) modifications of the creek channel or bank, (6) urbanization, (7) sand and gravel mining, (8) mineral mining, (9) dams, (10) irrigation impoundments and water withdrawals, (11) wetland (including estuaries) loss or removal, (12) introduction of exotic or invasive species, and (13) impediments to fish passage (NMFS 2005). In the Ventura River watershed, the mainstem of the river from the estuary to the confluence of Matilija Creek, the North Fork Matilija Creek, the Matilija Creek from its confluence with the North Fork Matilija Creek upstream to the base of Matilija Dam, are designated critical habitat for the endangered Southern California DPS of steelhead (NMFS 2005) (Figures 11-40 in Appendix A).

B. Life History and Habitat Requirements

The life history of steelhead generally involves rearing in freshwater for one to three years before migrating to the ocean, usually in the spring and fall, where they may remain for up to four years. The timing of emigration appears to be influenced by photoperiod, streamflow, and temperature. In some drainages, immature steelhead may rear in lagoon or estuary for several weeks prior to entering the ocean. Steelhead grow and reach maturity at age two to four while in

the ocean. Adults generally immigrate to natal streams for spawning (but may also enter non-natal streams) during winter; some adults may not enter coastal streams until spring. Adults may migrate several miles, hundreds of miles in some watersheds, to reach their spawning grounds. Although spawning may occur in late winter and early spring, the specific timing of spawning may vary a month or more among streams within a region. Steelhead do not necessarily die after spawning and may return to the ocean, sometimes repeating their spawning migration one or more years. Female steelhead excavate a nest in the streambed and then deposit their eggs. After fertilization by the male, the female covers the nest with a layer of gravel, and the embryos incubate within this gravel pocket. Hatching time varies from about three weeks to two months depending on water temperature. The young fish emerge from the nest two to six weeks after hatching. Additional details regarding steelhead life history can be found in Shapovalov and Taft (1954), Barnhart (1991), Bjornn and Reiser (1991), and Quinn (2005).

Habitat requirements of steelhead in streams generally depend on the life history stage (Cederholm and Martin 1983, Bjornn and Reiser 1991). Generally, discharge, water temperature, and water chemistry must be appropriate for adult and juvenile migration. Passage of adults to upstream spawning areas should not be impeded because evidence suggests delays in arrival times at spawning areas can reduce fitness and ultimately production of young. Low discharge, high water temperature, physical barriers, low dissolved oxygen, and turbidity (high levels, see Bjornn and Reiser 1991) may delay or halt upstream migration of adults and timing of spawning, and downstream migration of juveniles and subsequent entry into the estuary, lagoon, or ocean. Suitable water depth and velocity, and substrate composition are the primary requirements for spawning, but water temperature and turbidity are also important. Dissolved oxygen concentration, pH, and water temperature are factors affecting survival of incubating embryos. Fine sediment, sand and smaller particles, can fill interstitial spaces between large substrate particle types, thereby reducing waterflow through and dissolved oxygen levels within a nest. Juvenile steelhead require living space (different combinations of water depth and velocity), shelter from predators and harsh environmental conditions, food resources, and suitable water quality and quantity, for growth and survival during summer and winter. Young-of-the-year and yearling steelhead generally use riffles, runs and pools (*e.g.*, Roper *et al.* 1994) during much of a given year where these habitats exist. Young-of-the-year and older juveniles may seek cover and cool water in pools during summer (Nielsen *et al.* 1994) particularly as discharge and therefore space declines in summer and fall (Kraft 1972). Juvenile steelhead have specific habitat requirements as indicated by the similarity of microhabitat use despite changes in microhabitat availability, as observed in some streams (Spina 2003).

C. Population Dynamics

The number of steelhead in the Southern California steelhead DPS is small (Busby *et al.* 1996, Good *et al.* 2005) (see these source documents for information regarding the study streams). Recent total run size of adults for the DPS (based on combined estimates for the Santa Ynez, Ventura, and Santa Clara rivers, and Malibu Creek) is estimated at less than 500 adults. The small estimated run sizes suggest the Southern California steelhead DPS is not likely to be viable over lengthy temporal scales because the risk of extinction increases with decreasing population size and the extinction factors affecting population dynamics have more effect on small populations as compared to large populations (Pimm *et al.* 1988, McElhany *et al.* 2000). Evidence suggests that production of juvenile steelhead (i.e., numbers of individuals) is relatively low, with fewer than 5000 age-1 and older individuals noted within selected areas of

the watershed (Appendix D).

Although no long-term data set is available that would allow an adequate assessment of population variability, observations of species presence and distribution since 1997 indicate the variability of the Southern California steelhead DPS is high. For instance, since this species was listed in 1997, NMFS has periodically observed steelhead in drainages, with abundance ranging from no fish to numerous fish (A. Spina, NMFS, pers. obs.). These observations corresponded with years in which rainfall was more or less at or above normal for the region, which provided increased attraction flows and migration for adult and juvenile steelhead. Because population abundance depends, in part, on the availability of suitable freshwater habitat, and the frequency and magnitude of annual rainfall (which creates and sustains living space for steelhead) fluctuates greatly in southern California, steelhead abundance is likely to vary substantially over time. Such population variability is expected to increase the risk of species' extinction because risk increases with variation (fluctuation) in population size (Pimm *et al.* 1988). Steelhead populations in southern California exhibit sub-populations of residualized fish (i.e., fish which complete their life-cycle in freshwater without returning to the ocean to mature). These fish have the ability to produce progeny which may revert to a fully anadromous life-cycle. Genetic investigations of southern California steelhead (including those from the Ventura River drainage) provide evidence that residualized *O. mykiss* above Matilija Casitas Dams are more closely related to anadromous fish below the dams than to other populations (including hatchery derived populations), and that they are most likely derived from native anadromous populations of *O. mykiss* (Nielsen *et al.* 2005, Girman and Garza 2006)

D. Status and Distribution

Wild steelhead populations in California have decreased from their historic levels (Swift *et al.* 1993, Busby *et al.* 1996, Good *et al.* 2005). Reasons for the decline of steelhead include past and present destruction, modification or curtailment of the species habitat; over-utilization for commercial, recreational and educational purposes; disease and predation; and inadequacy of existing regulatory mechanisms (NMFS 1997, 2006a). In many watersheds throughout the Southern California steelhead DPS, steelhead have been cut off from historical spawning and rearing habitats due to the damming of streams for creation of water-storage and diversion facilities (*e.g.*, Twitchell Reservoir within the Santa Maria River watershed, Bradbury Dam within the Santa Ynez River watershed, Matilija and Casitas dams within the Ventura River watershed, Rindge Dam within the Malibu Creek watershed). Such facilities have resulted in both physical barriers and hydrological impediments for adults and juveniles migrating to and from prime spawning and rearing habitats. Within stream reaches that are accessible to this species, diversion and storage of surface waters and groundwater pumping have in many watersheds eliminated or dramatically reduced the quality and amount of living space for juvenile steelhead, based on NMFS' observations (A. Spina, NMFS, pers. obs.). Urbanization has contributed to declines in the quality and quantity of suitable habitat for this species. The decline in the abundance of steelhead prompted listing of the Southern California steelhead DPS as endangered on August 18, 1997 (NMFS 1997) and the endangered status was reaffirmed on January 5, 2006 (NMFS 2006a).

Reviews of the DPS status (Busby *et al.* 1996, Good *et al.* 2005) note that the number of individuals throughout much of the species' historical geographic range has declined and have concluded (and reaffirmed) the species is at risk of extinction. The historical run size of adults within the Southern California steelhead DPS (based on combined estimates for the Santa Ynez,

Ventura, and Santa Clara rivers, and Malibu Creek) was roughly estimated to be at least 32,000 to 46,000. In contrast, recent total run sizes for the same four waterways was estimated at less than 500 adults. While the estimates of historical run sizes have been criticized for lacking adequate support (Good *et al.* 2005), there is recent evidence indicating that the number of streams currently supporting the Southern California steelhead DPS (46 drainages) has been reduced to less than 50 % and may be as low as 37 % of streams that historically supported steelhead (Good *et al.* 2005). The NMFS Technical Recovery Team identified the Ventura River steelhead population as one of the "core" populations essential for the successful recovery of endangered steelhead. Of the core populations, the Ventura River was ranked as having the third highest intrinsic potential to support a viable steelhead population if restored to an unimpaired state. This ranking is due, in part, to the watershed's large size, spawning and rearing habitat quality, relatively reliable winter river discharge, and greater potential for being independently viable (Boughton *et al.* 2006).

E. Analysis of the Species and Critical Habitat Likely to be Affected

The proposed action is expected to adversely affect the Southern California steelhead DPS of steelhead and elements of this species' critical habitat (see the foregoing description of the distribution of this species' critical habitat within the Ventura River watershed). With regard to the species, the wet season (Nov-June) is considered the "migratory season" for adults and juvenile steelhead (Shapovalov and Taft 1954), and finding parr, presmolt, and smolt steelhead in the winter-spring emigration is not uncommon (Spina *et al.* 2005). Adults spawn during this time as well. During the dry season (June-Nov), juvenile steelhead are often found in streams. Because various elements of the proposed action will be occurring throughout the year, and will create impacts such as sedimentation and loss of habitat, these specific steelhead life stages are expected to be affected. With regard to critical habitat (NMFS 2005), the proposed action is expected to affect the following essential habitat features: water quantity and quality, space, water velocity, water depth, cover/shelter, passage conditions, food, and riparian vegetation. Other anthropogenic activities have contributed to the decline in the quality and quantity of steelhead critical habitat.

The NMFS Technical Recovery Team identified the Ventura River steelhead population as one of the "core" populations essential for the successful recovery of endangered steelhead due, in part, to the watershed's large size, spawning and rearing habitat quality, relatively reliable winter river discharge, and greater potential for being independently viable (Boughton *et al.* 2006). There are many streams within designated critical habitat areas, including Matilija Creeks and the Ventura River, which have been given high conservation values by the Critical Habitat Analysis Review Teams and have healthy habitat which has allowed steelhead to persist, and will facilitate the future recovery of steelhead populations within the DPS (Good *et al.* 2005). Contemporary juvenile steelhead use in the mainstem of the Ventura River, particularly in the Casitas Springs/Foster Park and upper Ventura River reaches, have been documented (Capelli 1995). Additionally, steelhead productivity of portions of the Ventura River has been investigated and has documented high growth and survival rates of juvenile steelhead in the Casitas Springs reach of the river (Moore 1980) where two municipal wells are proposed.

IV. ENVIRONMENTAL BASELINE

This section describes the status of steelhead and critical habitat in the action area and past and ongoing factors affecting steelhead abundance and distribution.

A. Status of Critical Habitat and Steelhead in the Action Area

Critical habitat within the action area begins at the base of Matilija Dam and extends downstream several miles to the estuary, and represents a substantial proportion of critical habitat within the Southern California DPS of endangered steelhead (NMFS 2005). Matilija Dam and the Robles Diversion have blocked steelhead access to historical habitat in the tributaries of the Ventura River (though a fish-passage facility was constructed at the diversion in 2004). Anthropogenic factors, such as agricultural activities, urbanization, and water withdrawals, have reduced the quality and quantity of habitat for steelhead in the action area. The amount and extent of surface flow during the dry season (i.e., habitat used as sites of freshwater rearing) is affected by diversion of surface water and groundwater pumping. The Robles Diversion removes a variable amount of surface water throughout any given year, depending on natural rainfall and runoff. Riffles, runs, and many pools (depth range from a few feet to over 6 feet) are present and appear to provide suitable sites of spawning and rearing for adult and juvenile steelhead, based on NMFS' observations. Portions of the habitat in the lower reaches are noticeably impaired by development along the river, or development in the watershed such as roads, residences, and agriculture located on steep, highly erosive soils. Surface flow in the middle reaches of the lower river (e.g., from the Robles Diversion extending downstream to San Antonio Creek) often ceases during the dry season, particularly in years with limited precipitation. Downstream of San Antonio Creek, surface water is supported by tributary inflow, rising groundwater, and tertiary-treated discharge from the Ojai Valley Sanitary District's wastewater-treatment facility.

The number of adult steelhead returning to the Ventura River has declined over the past several decades, with only a small number of adult steelhead being observed annually since the mid 1970. NMFS' estimated run size of less than 200 adults (Busby *et al.* 1996) is the most recent published estimate of the Ventura River steelhead population. Recent abundance surveys were performed in summer of 2006 and showed a large number of juvenile steelhead in the upper portions of the action area above the Robles Diversion compared to the lower portions of the action area, but few if any ocean reared steelhead (Appendix C). Steelhead utilization of the Ventura River watershed is currently limited to the mainstem of the Ventura River, San Antonio Creek, the lower reaches of Coyote Creek below Casitas Dam, Matilija Creek below Matilija Dam and the North Fork Matilija Creek. Spawning and rearing currently occurs primarily in the Casitas Springs/Foster Park reach and upper reaches of the mainstem of the Ventura, San Antonio Creek, and the lower reaches of Matilija Creek and the North Fork of Matilija Creek, when adequate water conditions exists (Figures 11-40 in Appendix A).

B. Factors Affecting Species Environment within the Action Area

Matilija and Robles Dams

Matilija Dam has blocked passage of steelhead to historical spawning and rearing habitats upstream (for about the last 50 years), and reduced the amount of sediment that would otherwise be transported to downstream reaches and the estuary (Corps 2004d). The reduction in sediment has deprived downstream reaches of substrates that are necessary to provide a suitable substrate for steelhead spawning. The dam has interfered with the natural hydrology and hydraulics of Matilija Creek and the Ventura River, which contributes to the formation and maintenance of channel diversity and complexity. Additionally, water that has been impounded and subsequently released downstream is typically of poorer quality, affected by higher temperature, lower dissolved oxygen, and potentially higher nutrient loads (Corps 2004d) (Figures 9 and 10 in Appendix A).

Operation of the Robles Diversion has impacted the natural flow regime of the lower Ventura River, and thus steelhead migration, spawning, and rearing within this area. The historic 20 cfs downstream bypass flow from the Robles Diversion is insufficient to provide the depth necessary for successful upstream migration, and for adequately maintaining available spawning and rearing habitat in the lower river, particularly within the Casitas Springs/Foster Park area below San Antonio Creek. Recently, since the construction of the Robles Diversion fish-passage facility in 2004, a new plan to allow more of the Ventura River's natural flow to remain in the river channel for adult and smolt migration in and out of the watershed, and to support downstream spawning and rearing is now being implemented and flows of 30-50 cfs are allowed to pass downstream through the Robles Diversion fish-passage facility during diversion operations for the period of the January through July when natural upstream surface flows are available during wet and average rainfall years. NMFS consulted with the Bureau of Reclamation on operation of the diversion and concluded that the fish-passage facility is not likely to jeopardize the continued existence of the endangered Southern California steelhead DPS (NMFS 2003) (Figures 17-21 in Appendix A).

Flood Control

Levees & rip rap flood-control measures are present on the Ventura River. These are mostly in the lower reaches and are usually near developments, namely the Live Oak Acres and Casitas Springs area, and adjacent to Highway 33 in the lower reaches in the vicinity of the City of Ventura. The levees are usually only on one side of the river where human infrastructure is present, generally on the east side (except for Live Oak Acres). Levees do affect the fluvial geomorphology of the Ventura River and also recruitment of riparian vegetation by concentrating flow and increasing velocities and scouring riparian vegetation, and disrupting the natural meandering and fluvial geomorphology of the river. The County of Ventura (Watershed Protection District) also keeps the riverside of most levee reaches (i.e., the levee structure plus 10 feet from the toe) free of vegetation by herbicide spraying or mechanical removal. Impacts to steelhead and steelhead critical habitat from these facilities include loss of riparian vegetation and cover, loss of undercut bank (undercut banks have been observed in the action area, including the mainstem Ventura River, A. Spina, NMFS, pers. obs.) and pool habitats next to the banks and loss of sediment inputs some of which would provide spawning gravel size substrates.

Repeated emergency actions undertaken by various agencies of the county of Ventura (Public Works, Road Department, Parks Department), Ventura County Watershed Protection District, and the City of Ventura, have had a detrimental effect on significant portions of the middle and lower reaches of the mainstem of the Ventura River. These periodic flood-control activities disrupt instream habitat, increase and prolong turbidity, alter the natural distribution of plant propagules (e.g., seeds, stems) by disrupting the natural patterns of soil deposition, and prevent the natural maturation and succession of riparian habitats. Such activities also facilitate the spread of non-native species such as giant reed (Capelli and Stanley 1984, Lockard and Burgess 1984) (Figures 29, 30, 33 and 34 in Appendix A).

Non-Native Plant Species

Giant reed has become the dominant vegetation type within extensive portions of the Matilija Reservoir basin, and is continuing to spread into the remaining areas, including some portions of the Matilija Creek riparian habitat upstream of the reservoir basin. This plant displaces native vegetation and can degrade habitat quality within localized areas. Downstream of Matilija Dam, giant reed have colonized in parts of the floodplain of the Ventura River (Figures 5, 23, 24, 35 – 40 in Appendix A).

Urbanization, Agriculture, and Industrial Impacts

Although not heavily urbanized in its upper reaches (which are within the Los Padres National Forest), the Ventura River Watershed is affected by the cities of Ojai, and Ventura, and several unincorporated residential areas, including Matilija Canyon, Hawthorne Acres, Live Oak Acres, Meiners Oaks, and Foster Park. There are also industrial complexes that were built next to the river in the 1940s through 1970s (and now no longer operate) as well as extensive oil development within the highly erosive unconsolidated marine sediments characteristic of the lower reaches of the watershed. Discharges into the Ventura River, including point source contributions from a wastewater-treatment facility, and non-point source contributions from agricultural and urban development, have affected the water quality, particularly of the lower river. The California Regional Water Quality Control Board has classified the Ventura River as a Category I (impaired) watershed and has approved the river's status on the 303(d) list and TMDL priority schedule for pollutants including DDT, copper, silver, zinc, algae (eutrophication) and trash. Impacts to steelhead and steelhead critical habitat from these impairments within the Ventura River itself have not been adequately studied. Urbanization around streams can increase runoff severity and can lower water quality in the creeks (Spence *et al.* 1996). Increased impervious surfaces, such as that due to roads and urbanization in the action area, can increase runoff and peak flood flows (Florsheim and Goodwin 1993). The subsequent increase in peak flow volume and velocity, due to urbanization, can increase streambank erosion, turbidity, channel downcutting, and the extent that gravels are surrounded or covered by sand and smaller particles (Spence *et al.* 1996) (Figures 29, 30, 33, 34, and 39 in Appendix A).

Stream pollution from runoff is expected to have increased in response to higher human density along the Ventura River (Florsheim and Goodwin 1993, Bowen and Valiela 2001). Runoff from road surfaces can have oils, antifreeze, gasoline residue and other pollutants from vehicles, while runoff from urban development can include pesticides, herbicides, fertilizers, sewage, antibiotics, and other chemicals, all of which drain into creeks from storm drains and degrade water quality

for both people and wildlife (Florsheim and Goodwin 1993, Bowen and Valiela 2001). Agricultural activities can degrade water quality in the action area via stream bank erosion, sedimentation, and runoff from fields (Spence *et al.* 1996). Agricultural runoff can transfer nutrients and pesticides to the creek, which lowers dissolved oxygen levels by increasing algae growth in streams, and kills macroinvertebrates which salmonids use for food (Warren 1971, Spence *et al.* 1996). Given the existing impacts to water quality from a variety of point and non-point sources, additional impacts from more sediments, particularly fine sediments (sand and smaller particles) originating from the project, pose an increased risk to the currently depressed steelhead populations in the Ventura River watershed below Matilija Dam.

Water Withdrawals

Besides the diversion, and therefore removal, of several hundred acre-feet of water by Matilija Dam and the Robles Diversion (average annual diversion for the period 1959 to 2005 = 12,137 acre feet, Wickstrum 2005), pumping of subsurface alluvial groundwater within or near to the Ventura River occurs along much of the 11 miles directly below the Robles Diversion. The City of Ventura operates a well field and subsurface diversion in the Foster Park area, which diverted an annual average of 6,800 acre-feet (AF) of water between 1980 and 1990. Several smaller water districts and individual water extractors also take water from the alluvial aquifer in the downstream reaches of the Ventura River. Approximately 18,000 AF of water is withdrawn annually from the Ventura River basin, a majority as a result of the operation of the Casitas Municipal Water District facilities, including the Robles Diversion. The substantial amount of water extracted from the Ventura River aquifer combined with Robles Diversion operations substantially abbreviates the duration and magnitude of river flows necessary for successful steelhead migration, both upstream and downstream (NMFS 2003). Aquatic habitat in the lower Ventura River is especially vulnerable to water extractions in the summer and fall periods when base flows in the Ventura River are low (Rogers 2004). The reduction in the amount and extent of surface flows is expected to translate into reductions in water-dependent features of steelhead critical habitat. Such features include freshwater rearing sites, freshwater migration corridors, and freshwater spawning sites (and their constituent elements). While the Ojai Valley Sanitary District wastewater treatment plant releases an average of 2 million gallons/day (~ 3.0 cfs) of tertiary treated effluent to the river (Ojai Valley Sanitary District 2007), the functional value of the release of treated water for creating and maintaining suitable habitat for steelhead is poorly understood (Figures 25-37 in Appendix A).

V. EFFECTS OF THE PROPOSED ACTION

A. Methodology for Determining Effects

NMFS reviewed the supporting environmental documents (e.g., the Matilija Dam Feasibility Study Final Report, final EIR/EIS) to develop an understanding of the type, amount, and extent of impacts that were expected to result from the dam-removal project. These impacts were integrated with a review of the ecological literature concerning the effects of habitat changes on fish and the aquatic environment to predict the possible effects of the impacts on steelhead and critical habitat for this species. This review was supplemented with information acquired from federal and state agency websites, and a general knowledge of physical and biological processes, population dynamics, and the life history and habitat requirements of steelhead. With regard to

determining effects of the proposed action on critical habitat, this biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR §402.02. Instead, NMFS has relied on the statutory provisions of the ESA to complete the foregoing analysis with respect to critical habitat. Therefore, destruction or adverse modification involves direct or indirect alteration that appreciably reduces the conservation value of critical habitat. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

B. Important Assumptions of this Effects Analysis and Biological Opinion

NMFS relied on certain assumptions when assessing effects of the proposed action on endangered steelhead and critical habitat (Table 1). While other assumptions, though of no less importance, can be found elsewhere in this biological opinion, the assumptions listed here relate to elements of the proposed action that possess a heightened potential of creating (or influencing) conditions that harm steelhead. These assumptions derived from (1) discussions with, and written correspondence from, the Corps (e.g., Corps 2006b, Corps 2007), (2) NMFS' understanding of the proposed action, (3) the habitat and life history requirements of steelhead, and (4) NMFS' experience evaluating effects of projects on steelhead, and developing measures for minimizing such effects. If new information indicates an assumption in the following table (or elsewhere in this biological opinion) is invalid, the Corps and NMFS may be required to re-initiate section 7 consultation to consider the new information and then re-assess effects of the proposed action on endangered steelhead and critical habitat.

C. Effects on Critical Habitat

Removing Fine Sediments from the Reservoir Area

Removing fine sediment from the reservoir with subsequent placement in protected locations outside the normally active river channel is not expected to diminish the functional value of critical habitat downstream of the dam. Sediment-water slurry will be contained in a temporary pipeline and transported downstream to disposal sites. The pipeline is generally expected to be placed out of the river (or creek) channel and riparian areas, so location (placement) effects due to the pipeline footprint are not expected. In narrow canyon areas, the pipeline will overlap with riparian areas, but because placing the pipeline does not appear to require removal of streamside

Table 1. List of important assumptions NMFS relied on to predict the effects of the dam-removal project on endangered steelhead and critical habitat for this species.

Project Element	Assumption
Foster Park Groundwater Wells	• The new wells will be operated only when surface flows in the Ventura River (measured at the Foster Park Gauging Station, USGS 11118500, or similar device), equal or exceed 15 ft^3/sec (cfs). When surface flows in the river, as above, fall below 12 cfs, operation of the subject wells will cease. • The operation of said wells will not reduce surface flows more than 3 cfs, leaving a minimum discharge of 12 cfs in the river. • Through application of reliable monitoring techniques, the Corps will verify the foregoing assumptions. Evidence of this verification (i.e., field data obtained from the monitoring) will be provided to NMFS within a reasonable time after such data become available.
High-Flow Sediment Bypass	• The high-flow sediment bypass will be designed and operated in a manner that will not interfere with passage of adult or juvenile steelhead during operation of the facility. Design and construction of fish-passage capability or facility will be incorporated into this project feature. • The Corps will convene a panel of NMFS (and other) technical experts (e.g., steelhead ecologists and fish-passage engineers) and seek expert recommendations for the purpose of designing a high-flow sediment bypass that is commensurate with the life history and habitat requirements of steelhead. The Corps will receive NMFS' recommendations and make mutually agreeable revisions to the subject design. • Prior to constructing the high-flow sediment bypass, the Corps will develop design drawings for the high-flow sediment bypass, as well as a description of how the bypass will be operated, and NMFS will find these designs agreeable. • Prior to constructing the high-flow sediment bypass, the Corps will prepare a plan for validating post-construction performance and ensuring long-term maintenance of the high-flow sediment bypass, and NMFS will find this plan to be agreeable. This validation plan will be implemented according to a schedule defined in the plan. • Operation of the high-flow sediment bypass will not affect operation of the Robles fish-passage facility, or steelhead attempting to enter or migrate through said facility.
Removal of the dam	• Steelhead will access and use historical spawning and rearing habitat upstream of the dam location; adults will reproduce and progeny will rear upstream of the dam location, and successfully emigrate from the dam site; as a result the steelhead population in the Ventura River watershed will increase beyond current levels.
Removal of sediment from reservoir	• An accidental rupture of the transport pipeline and release or spill of the sediment-water slurry will be avoided.
Monitoring and Adaptive Management Plan	• The Corps will develop a program (e.g., a monitoring and adaptive management plan) to address NMFS project-related uncertainties (identified in the enclosure to NMFS' October 25, 2006, letter to the Corps). The Corps' program will accomplish the following: (a) Within each general category of uncertainty (as identified in NMFS' letter of October 25, 2006), identify specific uncertainties and the questions that need to be addressed to resolve each uncertainty; (b) Identify biological goals and objectives for each specific uncertainty; (c) Implement a monitoring program that is able to provide the necessary information to answer questions related to resolving each uncertainty (e.g., define a process for measuring the spatial and temporal changes in habitat quantity and quality due to the proposed action, and the related biological responses to these changes); (d) Outline the compensatory mitigation program that will be implemented to offset impacts of the proposed action on instream and riparian habitat, as currently identified, and as may be experienced as a result of unforeseen project impacts; (e) Define a protocol that will respond to new information or changing conditions, and detect and effectively address deficiencies in the mitigation program or other project related issues in a timely manner; (f) Incorporate feedback loops that link implementation and monitoring to a decision-making process that result in appropriate changes in project features or operations; and, (g) Define a protocol that will track performance of the mitigation program, respond to new information or changing conditions, and detect and address deficiencies in the mitigation program or other project-related issues in a timely manner. • The MAMP as well as the program for addressing NMFS project-related uncertainties will be adequately funded.

trees or vegetation, the pipeline is not expected to create conditions that reduce the functional value of the streamside area (e.g., to provide shade). While an accidental rupture of the pipeline and release of sediment-water slurry are possible, NMFS believes such an incident is speculative (and difficult to meaningfully analyze effects because they are dependent on a variety of unknown factors such as location and duration) and therefore is not specifically evaluated in this biological opinion. A NMFS-approved contingency plan will be implemented if an accidental release of sediment occurs (Corps 2004b, Corps 2006b). The pipeline will be dismantled and removed and the area restored following completion of this project element.

With regard to the sediment disposal sites, these sites lie in upland or floodplain areas; with only a few exceptions inundation of these sites during high-flow events is not expected to be a frequent occurrence (Corps 2004a, Corps 2004d). The upstream-most disposal site, located near the Highway 150 bridge, is designed to gradually release stored sediments over time (during 5 to 10-year flow events). Other slurry disposal sites are farther away from the river, but inundation from flood events greater than a 10-year event is possible. The effects of sediment releases (sand and smaller particles are the principal substrate types of concern to NMFS, given the reported effects of these substrate particle types on the aquatic environment, e.g., Cordone and Kelley 1961) could range from discountable (e.g., a few discrete accumulations of surficial fine sediment, i.e., sand and smaller particles) to catastrophic (extensive accumulations of surficial fine sediment throughout the action area and widespread alteration of freshwater rearing, spawning, and migration sites, and the estuary). The latter effects do not seem likely given that elaborate controls have been incorporated into the proposed action for the purpose of reducing the likelihood of such an event. These controls include (1) the design and intended function of the sites, which are projected to erode only during less frequent higher flow events, >10-yr return frequency, (2) the soil cement on the downstream storage sites, which is expected to increase the potential that fine sediment will erode only during the high-flow events (and subsequently evacuated latitudinally and longitudinally from the active river), and (3) removing one-third of the total volume of material from behind the dam, which will reduce the total volume of fine sediment that could adversely affect downstream habitats. Consequently, effects related to the release of sediment from the disposal sites are expected to be near discountable. The actual effects will depend, in part, on the type, amount, and extent of sediments that are released into the water column, the magnitude and duration of discharge, the performance of the disposal sites, and background turbidity concentrations. Because the magnitude and extent of effects are to some extent uncertain, implementation of a reliable MAMP, in combination with the Corps' commitment to implement a program that will address the uncertainties that NMFS has identified (including effects due to sedimentation, NMFS 2006b; see also Corps 2006b), becomes increasingly important for detecting and then reconciling sediment-related effects on critical habitat (Figures 27 and 28 in Appendix A).

Dam Removal and Release of Sediments from Behind the Dam

Habitats that were historically available to steelhead, but rendered inaccessible due to the dam, will become accessible to this species. The actual degree of accessibility is governed largely by the effective operation of the downstream Robles Diversion fish-passage facilities and whether steelhead can pass the high-flow sediment bypass. Removing the dam will increase the amount and extent of suitable habitat available for the local (watershed specific) population of steelhead as well as the Southern California DPS of endangered steelhead. Although dam-removal

activities will temporarily create considerable and extensive physical disturbance to the channel immediately upstream and downstream of the dam, when the dam is fully removed and the stored sediments flushed from the reservoir site, the affected area will be restored to historical conditions. The channel that was present prior to construction of the dam will be restored in the former reservoir area, and several hundred feet of the existing creek channel downstream of the dam will be re-configured, aligned and graded. The new channel will be designed to allow steelhead passage to upstream reaches of Matilija Creek for the first time since 1947. The natural fluvial processes after dam removal are expected to form meanders and other essential features of critical habitat over time. As part of the MAMP, this area will be monitored for an extended period of about 10 years (or possibly longer if necessary) to ensure irreparable and undesirable changes to steelhead habitat (*i.e.*, development of steelhead migration barriers) in this reach of Matilija Creek do not occur, or are adequately mitigated (Corps 2004a) (Figures 7 and 8 in Appendix A).

During construction, the reach of Matilija Creek extending about 500 to 1000 feet downstream of the dam will be dewatered during late spring through fall for 6 to 9 months to allow work in the dry. Work or use of heavy equipment in creek and flowing water during winter will not occur (Corps 2004b). The diversion of surface water and dewatering to facilitate construction in the dry are expected to cause loss of a freshwater rearing site for steelhead, and loss of food-producing areas. The loss of these features of critical habitat will be temporary because the affected area will be rewatered following completion of the in-channel work activities, though full restoration of those features may require several seasons of normal or above normal rainfall and runoff. All contractors will be required to follow a set of best management practices (Corps 2004a, b) to reduce the likelihood of water-quality alterations and therefore effects on critical habitat.

Dam-removal activities will expose extensive areas of fine and coarse sediments, thereby increasing the potential for erosion, turbidity and sediment-related effects on critical habitat. An understanding of the type, magnitude, and degree of probable sediment releases is necessary to develop a basis for predicting the possible effects on critical habitat. Therefore, the following discussion briefly summarizes what sorts of sediment releases, and increases in turbidity, are expected. The discussion of the sediment releases is taken directly from the supporting environmental documents (e.g., Corps 2004b, d) as well as supplemental information (Corps 2007), where additional information and specific details can be found. Although a substantial effort was undertaken to assess potential sediment impacts, the variable southern California climate challenges the development of a reliable prediction of the effects on critical habitat (and steelhead).

With regard to fine sediments, "large" releases into flowing water are not expected until the first rains after the dam is completely removed and the flows are reintroduced into the reconfigured channel (Shuman 1995, Pizzuto 2002, Cluer 2006a). At this time, the area of the former reservoir will have been converted to a new channel and temporary sediment-storage sites. Because most of the fine sediments from the lake bed will have been removed through the sediment-slurry operation, and the fraction of silt and clay particles in the remaining delta-area sediments is relatively small, the turbidity impact from the first few rainfall events is expected to be of short duration, though this period could be extended depending on rainfall and runoff patterns in the watershed. NMFS expects 1 to 3 rainfall events each of 1 to 2 days in duration will be required to flush residual unstabilized fines from the new channel (Cluer 2006a). After

flood peaks have passed, the concentrations of fine materials are expected to quickly decrease to background levels. Concentrations will still be approximately 2 to 3 times higher during smaller rainstorms than if the dam had not been removed, and this condition could persist for 3 to 10 years depending on rainfall patterns. After the initial flushes of fine sediment from areas upstream of the dam, the release of fine sediments and turbidity increases will occur again many times over the next 10 to 20 years as the sediment-storage sites are inundated by large floods. Because the Corps estimates four separate removals of revetment along the sediment-storage sites as they erode (due to discharges above the 2 to 5-year range, or 3000 to 7100 cfs) and sediments are transported downstream, there will be at least four episodic impacts from fine sediments released into downstream reaches during the 10 to 20 years. As each revetment is removed, the turbidity concentrations and suspended sediment levels are expected to increase by a factor of 2 to 10 times the background conditions within the Matilija Creek and Ventura River depending on the severity of the flood event and hydrologic conditions (i.e., if there is a 2 versus a 10-year flood event). After the final revetment is removed, the turbidity levels should stabilize at equilibrium levels after one or two floods of average size pass through the historic reservoir area above the dam. Estimates indicate that 10 to 20 years will be needed for all the sediments within the storage sites to be transported downstream.

With regard to coarse sediments, these will be released at a much slower rate, depending on their size, and they will take a decade or more to distribute through the downstream reaches of Matilija Creek and the Ventura River. The main short-term effect of renewed coarse sediment mobilization will be sediment deposition and aggradation of the Matilija Creek and Ventura River channels (Shuman 1995, Pizzuto 2002, Corps 2004a, Corps 2004d). The project is also expected to restore sediment-transport function. The elevation of the channel bed will rise while the sediments migrate through the downstream reaches, in some areas by several feet, with extensive deposits of sediment observed in localized areas. Specific changes in channel geomorphology and channel bed elevation were modeled on a reach scale throughout the action area in an attempt to predict the effects of the dam removal with more confidence. The modeling of future sediment flows was made with past hydrology; one key assumption of the model involved the future hydrology of the region. Recent computer modeling of precipitation for Southern California over the next hundred years shows slight to modest decreases in annual precipitation ranging from 5 to 15% occurring by the year 2100 (Hayhoe *et al.* 2004). In this context, the evacuation of sediment from the storage sites and corresponding changes in channel bed elevation may take longer if the climate becomes drier in the next 20 years, or the channel bed elevation could change abruptly if a major 50-year flood event occurs during the project life. These channel changes over the project life (20 years) are illustrated in Table 2, with the 10-year modeling results corresponding to a drier climate, and the 50-year modeling results corresponding to a severe flood. In either scenario, the channel bed is expected to aggrade, but the rate of aggradation will result in differing amounts of deposition (Table 2) (Figures 11, 12, 15, and 25-30 in Appendix A).

Table 2. Two possible scenarios in average reach-specific aggradation of the channel bed during the 20-year project life: one scenario based on a drier climate, and the second based on a severe flood event. Reach number increases in proximity to the dam, with reach 6b being closest to the dam. Values in the table represent the predicted average deposition (feet) of sediment, and are obtained from modeling.

Location	Dry climate 10-year	Flood event 50-year
Reach 2	1.2	3.6
Reach 3	2.0	4.2
Reach 4	0.8	2.3
Reach 5	1.4	2.2
Reach 6a	2.3	6.4
Reach 6b	1.0	0.9

In regard to critical habitat, the release of fine and coarse sediment into Matilija Creek and the Ventura River is expected to alter freshwater rearing and spawning sites and the estuary, despite the actions taken to limit the adverse effects (e.g., the design of the sediment storage sites, the use of soil cement, among others). Given the expected magnitude, frequency, and duration of sediment releases, and predicted increases in channel-bed elevations throughout the action area, a reduction in water-column depth and filling and loss of habitats (such as pools, and runs, which serve as freshwater rearing sites and freshwater spawning sites) throughout the action area is expected (cf. Cordone and Kelley 1961, Eaglin and Hubert 1993). Such effects are likely to persist for several years until the increased sediment loads are buffered by fluvial processes and scour, and the sediment equilibrium becomes reestablished (Pizzuto 2002, Cluer 2006b). The additional amount of sediments in the channel bed could also be susceptible to "clumping" in some areas and may migrate downstream as "waves" (Pizzuto 2002); these clumps of sediment could become stalled in locations for years and impair long-existing pools (Cluer 2006b) or other areas that may support freshwater rearing and spawning. Given the highly variable hydrology of coastal streams in southern California, freshwater rearing and spawning sites could remain largely filled or impaired for several years between large storm flows. Input of gravel, cobble, and boulder may enhance existing critical habitat because these substrate types support freshwater spawning and rearing sites. Deposition of sands and finer materials along the channel margins is expected to benefit establishment and growth of riparian vegetation (Shafroth *et al.* 2002, Cluer 2006a), which can provide shade over freshwater rearing sites. Overall, the foregoing effects largely do not favor maintenance of critical habitat for endangered steelhead in the short and medium time frame (2 to 10 years). However, the projected sediment-related effects on critical habitat are not expected to persist indefinitely and to be offset by anticipated project benefits, such as restored steelhead access to historical spawning and rearing habitats.

Sediment-related effects of the proposed action are expected to extend downstream to the estuary. The loss or alteration of estuarine habitat within the Ventura River watershed, should such effects in fact occur, would be of major ecological concern because such habitats provide numerous values to anadromous salmonids (Smith 1990, Thorpe 1994, Bond 2006), and possess features that are essential to the conservation of adult and juvenile steelhead (NMFS 2005). For instance, essential features of estuarine areas include (1) water quality, water quantity, and salinity conditions that are capable of supporting adult and juvenile physiological transitions between fresh and saltwater, (2) natural submerged and overhanging cover, and (3) forage for adults and juveniles, which supports growth and maturation. According to the source documents for the proposed action (i.e., the feasibility report), the estuary is not expected to incur more than

1 foot of deposition due to sand. Whether this level of aggradation would result in an alteration or loss of essential features of the estuary to conserve the species is not clear at this time because the information needed to inform such an assessment is not available. Accordingly, reliable implementation of the proposed MAMP, in combination with the Corps' commitment to implement a program that will address the uncertainties NMFS has identified (which included effects due to sedimentation, NMFS 2006b; see also Corps 2006b), will be necessary to detect and then reconcile sediment-related effects on critical habitat (Figures 39 and 40 in Appendix A).

Foster Park Groundwater Wells

Information on the design and operation for the two new wells is incomplete at this time, and therefore only a general assessment of the effects on critical habitat can be made. The construction and operation of the Foster Park wells will preserve the City of Ventura's ability to extract water. The proposed operation of the new Foster Park groundwater wells is expected to reduce surface flows in the Ventura River in the vicinity of Foster Park no more than 3 cfs (Corps 2006b). While the maximum flow reduction can be assumed from the information provided, the geographic extent of the reduction cannot because the distance between the groundwater elevation and the elevation of the bottom of the sloped river channel fluctuates, causing a change in the intersection of the groundwater with the river channel. Therefore, the downstream extent that surface flow throughout the Casitas/Foster Park reach of river (which encompasses freshwater rearing and spawning sites) would be reduced is unknown at this time. The Corps' proposal to confine operation of the new wells to periods when discharge is 15 cfs or greater and no other surface diversion occurs, and to not reduce discharge by more than 3 cfs, will ensure that discharge will not fall below 12 cfs due to operation of the new wells.

The manner in which a reduction in discharge of 3 cfs will affect the quality and quantity of freshwater rearing or spawning sites cannot be determined from the available information. Given NMFS' examination of recent hydrology records for the Foster Park area, daily mean discharge appears to rarely exceed 15 cfs during the dry season (May 1 to Nov 1). Assuming these discharge records accurately represent discharge for the local area, operation of the new wells during the dry season is not expected, and effects on critical habitat are unlikely within this period. Water extractions outside the dry season by the new wells do possess the potential to reduce the amount and extent of surface flow because annual droughts or extended rain-free periods can result in dry season surface-flow conditions even during winter, as was observed during a February 8, 2007, inspection of the action area (A. Spina, NMFS, pers. obs., Appendix E). However, the Corps' proposal to confine pumping of the new wells to periods when discharge is 15 cfs or greater is expected to reduce the amount and extent of pumping-related effects on surface flows (and therefore critical habitat) during the wet season. The proposed MAMP, in combination with the Corps' program for addressing uncertainties NMFS has identified (NMFS 2006b; see also Corps 2006b, Corps 2007), is expected to provide the information necessary for determining the actual effects of well operation on critical habitat. Developing a clearer understanding of how wells will be operated would further NMFS' ability to assess effects of well operation on critical habitat for endangered steelhead. While specific provisions are expected to minimize adverse effects due to operation of the new wells, other wells, which are not the subject of this consultation, may continue to operate, thereby causing surface flows to decline beyond the level defined for operation of the new wells (Figures 35-37 in Appendix A).

High-Flow Sediment Bypass

The design and operating criteria for the high-flow sediment bypass are only preliminary at this time, and therefore only a general assessment of the effects on critical habitat can be made.

Construction of the high-flow sediment bypass (with the incorporation of fish-passage capability or feasibility) is expected to reduce effects of the existing earthen berm (i.e., the timber crib wall that is currently buried under accumulated channel bed substrates) on the freshwater migration site for endangered steelhead. Preliminary plans for the sediment bypass include a fishway on the left bank of the high-flow sediment bypass, and a rock fishway with boulder weirs on the downstream dam slope adjacent to the right wall of the sediment bypass (Corps 2006a). While these plans are conceptual, the Corps proposes to (1) design and operate the bypass to avoid interfering with migration of adult and juvenile steelhead at the bypass, (2) design and construct fish-passage capability or feasibility for incorporation into the bypass, and (3) work with NMFS steelhead biologists and NMFS fish-passage engineers on the design and operation of this project feature during the upcoming detailed design phase of the dam removal (Corps 2006a, Corps 2007). Accordingly, NMFS expects the bypass will be designed, constructed, and operated in a manner that will not impede migration of steelhead at the bypass (i.e., over the range of hydrologic events the structure is designed to operate). The bypass has the potential to extend the operational range of fish passage in the localized area and therefore more fully realize the potential benefits of the removal of the Matilija Dam. A description of how the incorporation of fish-passage capability or feasibility into the high-flow sediment bypass will minimize effects on steelhead is as follows.

Incorporating an ecologically meaningful fish-passage element into the high-flow sediment bypass is critically important for reducing the effects of this project feature on endangered steelhead. The existing earthen berm spans the entire mainstem of the Ventura River and represents an obstruction to passage of steelhead. Although a fish-passage facility was recently constructed at the Robles Diversion Dam on the west bank of the river adjacent to the earthen berm, passage of steelhead through the ladder has not been corroborated. Additionally, operation of this facility is confined to relatively low flows (50 to 1,500 cfs) and limits the average number of fish-passage days per year (44 days under the existing terms of NMFS' 2003 biological opinion versus 150 fish-passage days prior to the construction of the Robles Diversion facilities). The physical characteristics of the local area and the behavior and migratory ecology of steelhead represent other reasons why incorporation of fish passage into the sediment bypass is needed. In this context, the preliminary design for the high-flow sediment bypass specifies placement on the east bank of the river channel and would discharge high flows (in excess of 1,500 cfs and the operating range of the existing fish-passage facility) to a separate eastern channel, which connects to the western active channel about 1000 feet downstream (Appendix B). Adult steelhead migrate during periods of elevated streamflow (Shapovalov and Taft 1954) and are attracted to areas of "heavy" turbulent water (Bunt *et al.* 1999, Bunt 2001, Rivinoja *et al.* 2001). The high flows released through the bypass are therefore expected to lure steelhead into the eastern channel, toward the water apex just downstream of the bypass and away from the westerly channel and the entrance to the existing fish-passage facility. Any steelhead remaining in the eastern channel when operation of the bypass ends would be exposed to lethal conditions created when the water releases subside or cease (e.g., Cushman 1985). Consequently,

incorporation of a proper fish-passage facility or capability into the high-flow sediment bypass is necessary to reduce the likelihood that migrating steelhead would be delayed (because they cannot locate the entrance of the existing fish-passage facility) or stranded and killed (due to being trapped in the eastern channel following cessation of flows from the bypass) (Figures 17-24 in Appendix A).

With regard to construction of the bypass, effects to critical habitat are expected to be discountable. Short-term impacts from the construction of the bypass and fish-passage facility (or fish-passage capability) are expected to be those related to temporary channel disturbance (from heavy equipment), excavation, compaction, and the loss of native channel bed material where the dam and the bypass structure would be located. Some exposed soils may result from construction activities, thereby increasing the potential of erosion and sedimentation in freshwater rearing and spawning sites. The type, amount, and extent of the effects are expected to be minimized through implementation of best management practices during construction activities.

Downstream Flood Control Improvement Projects (Levees/Floodwall, and Bridges)

Raising the existing levees will preserve the levees and perpetuate existing effects on critical habitat into the future. The existing levees prevent natural lateral migration of the river channel, confine the river within an artificially defined corridor, and propagate the existing fragmentation of the active river channel and the historical floodplain. Freshwater rearing sites for steelhead include floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility. Therefore, the existing levees (and the proposed raising) increase the likelihood that adverse effects to critical habitat will continue into the future. The new levee and floodwall proposed in the Meiners Oaks area is expected to produce effects similar to the foregoing effects on critical habitat. Activities to construct or raise levees and floodwalls will take place in upland areas, where riparian plant species, and flowing water, are not expected. Therefore, construction activities are not expected to affect critical habitat.

Designs for the new and improved bridges are only preliminary at this time, and therefore only a general assessment of the effects on critical habitat can be made. Removal and relocation of the Camino Cielo Bridge and the widening and elevation of the Santa Ana Road Bridge are expected to require workspace dewatering, excavation, and slope and channel alterations. These activities can lead to temporary loss of freshwater rearing sites (dewatering), loss of shade, decreased bank stability (where streambanks are disturbed and then not adequately protected), and increased erosion. Best management practices will be implemented as part of the construction activities, which is expected to minimize adverse effects on critical habitat. Long-term effects due to the new and improved bridges are expected to include bank stabilization (rock riprap) in the vicinity of the bridges, and loss of riparian habitat. The river channel beneath both bridges will be widened to improve flow and sediment conveyance, and to allow for the passage of a 100-year flood event (but not at the Camino Cielo Bridge) with the increased sediment loads expected after dam removal. Replacing the Camino Cielo Bridge is expected to improve the freshwater migration site because the box culverts under the current bridge appear to represent an obstruction within the migratory corridor (Corps 2004a) (Figures 15, 29, 30, 33 and 34 in Appendix A).

Giant reed Removal Plan

The removal of non-native plants (chiefly giant reed) downstream of the dam in Matilija Creek and the Ventura River is expected to result in discountable effects to critical habitat (because steelhead and critical habitat for this species are not currently present in areas upstream of the dam, only the giant reed removal proposed for reaches downstream of the dam, where steelhead and critical habitat are currently present, is considered in this biological opinion). The removal will use mechanical means, hand laborers, and herbicides. Minor localized releases of fine sediments during mechanical removal of plants are possible, but should such releases occur, they are not expected to diminish the functional value of freshwater rearing and spawning sites. Removal activities will take place largely during the dry season, however. The herbicides are not expected to alter water quality; NMFS' experience indicates Glyphosate is immobile in the soil, becomes inactive over several weeks, and is not likely to create toxic instream conditions. Much of the removal activities will be far removed from the active channel where surface water would be present. Best management practices will be implemented (e.g., avoid spraying herbicides in or near flowing water, using hand dispensers to directly apply herbicides to plants) to further minimize the likelihood of adverse effects (Figures 5-8, 11, 23-25, and 35-40 in Appendix A).

D. Effects on Steelhead

Removal of Reservoir Area Fine Sediments

Because the effects of sediment releases from the disposal sites on critical habitat (and primary constituent elements) are to some degree uncertain, only a general characterization of the possible effects on steelhead can be made. While steelhead in the Ventura River are expected to be affected when high flows contact the sediment-disposal sites causing the release of fines, the release of fine sediment from the sites is expected to be infrequent (once every 5 to 10 years), short lived (2 to 3 days) and create low turbidity concentrations. The sites themselves will be designed to minimize contact of fine sediment with flowing water. Background turbidity concentrations are expected to be elevated during periods of increased flows, therefore the potential exists that background levels could mask turbidity concentrations resulting from the release of sediment from the disposal sites. The severity of the effects on steelhead will depend on both suspended sediment concentration and duration of exposure (Newcombe and Macdonald 1991, Newcombe and Jensen 1996), but are expected to be discountable based on the foregoing. With regard to effects due to sedimentation, once mobilized, the fine sediments released from the disposal sites are not expected to settle, and therefore eggs, incubating embryos, and alevins in nests are not expected to be harmed. A NMFS-approved contingency plan will be implemented in the event of an accidental release of sediment (Corps 2004b, Corps 2006b) (Figures 27 and 28 in Appendix A).

Dam Removal and Release of Sediments behind Matilija Dam

Dewatering the reach of creek immediately downstream of the dam is expected to be problematic for steelhead because the temporary loss of water, and therefore habitat, would disrupt steelhead behavioral patterns. Steelhead need suitable living space for ontogeny and survival; living space absent surface water is not suitable. Streamflow diversion could harm individual steelhead by

concentrating or stranding them in residual wetted areas (Cushman 1985) or by causing them to migrate to adjacent habitats (Kraft 1972; Campbell and Scott 1984). Dewatering the workspace may cause harm, injury and mortality to steelhead by confining them to areas that are predisposed to dewatering or desiccation, increased water temperature, decreased dissolved oxygen concentration and predation (Cushman 1985). The number of steelhead that may be affected by isolating workspaces from flowing water is expected to be relatively low, based on the number of juvenile steelhead recently observed in the action area (Appendix D). Monitoring biologists would relocate steelhead from work areas (i.e., net steelhead and move them a short distance to instream areas outside the work area) thereby reducing the number of steelhead that could be killed or harmed by dewatering activities. Effects to steelhead resulting from dewatering activities, including relocation of stranded individuals, are expected to be largely non-lethal and temporary (Figures 7-9 in Appendix A).

The effects on steelhead that may result from the release of fine and coarse sediments from the former reservoir area (during high-flow events) are of concern to NMFS. Given the expected effects of the releases on critical habitat (e.g., increased turbidity, and some alteration of instream and estuarine habitat, filling or alteration of freshwater rearing and spawning sites, and channel aggradation), the potential exists that extensive portions of action area could be rendered unsuitable for spawning and rearing steelhead for several months or years. Increased turbidity levels may increase "coughing" and gill flaring in fish (Berg and Northcote 1985), and increase respiration and reduce oxygen uptake by the gills (Cordone and Kelley 1961, Herbert and Merkins 1961). Juvenile steelhead may experience a reduced ability to forage when turbidity increases (Berg and Northcote 1985, Gregory and Northcote 1993, Suttle *et al.* 2004). With regard to physical alteration of the channel bed due to sedimentation, the increased coarse sediment load is expected to affect all life stages of steelhead within the action area since the sequence and locations of pools, riffles and runs will likely be changed (Pizzuto 2002). The filling of freshwater rearing sites (e.g., pools) is expected to reduce, if not eliminate, the quality of such sites for juvenile steelhead. A reduction in the availability of suitable rearing sites increases the potential that the abundance of juvenile steelhead would decrease within the action area. Additionally, the timing of such sediment releases could influence the type and degree of impacts. For example, if sediment deposition occurs after steelhead have spawned in the lower river (Casitas Springs/Foster Park reach), there is an increased risk that deposition of fine sediments would adversely affect the incubation and emergence of any steelhead embryos and fry (and alevins). By contrast, the riparian area is expected to benefit from deposits of sediment in river margins and the floodplains (Shafroth *et al.* 2002, Cluer 2006a). NMFS presumes that through implementation of the MAMP, as well as the Corps' program for addressing the uncertainties NMFS has identified, sediment-related effects on steelhead (based on impacts to habitat) can be detected and will be remedied as appropriate and necessary. The foregoing projected sediment-related effects on steelhead are expected to be offset by the ecological benefits due to removal of the dam, which are described as follows.

While the process of removing the dam is expected to create temporary instream conditions that are not entirely agreeable with the habitat requirements of steelhead, after the dam is gone the Ventura River population of endangered steelhead and the entire Southern California DPS of endangered steelhead is expected to experience an increased potential of being viable over time (this expectation is predicated on the population gaining access to the upstream spawning and rearing tributaries above Matilija Dam, which in turn is governed largely by the effective

operation of the downstream Robles Diversion fish-passage facilities and the degree to which steelhead can effectively pass the high-flow sediment bypass). After the dam has been removed, habitat connectivity will have been achieved and steelhead will once again have access to historical spawning and rearing habitats. The elimination of habitat fragmentation and restoration of bi-directional gene flow (i.e., movement of steelhead to and from the reaches upstream of the former dam) is expected to decrease the risk of species extinction (Rieman and McIntyre 1995, Rieman and Allendorf 2001). This favors conservation of the local population of endangered steelhead and the entire Southern California DPS. Further, the Ventura River is one of the relatively few inland populations within the Southern California DPS that has historically produced the largest run sizes in the study area, and has a high priority for protection (Boughton *et al.* 2006). While historical habitat will be accessible to steelhead following dam removal, the proposed action includes no monitoring to determine whether steelhead are using the historical habitats and the type, magnitude, and degree of the use. Therefore, no mechanism exists, related to the proposed action, for determining whether steelhead will be able to migrate to and then spawn and rear in the subject area. The anticipated benefits of removing the dam for steelhead are currently tentative (Figures 1-6 in Appendix A).

Foster Park Groundwater Wells

Because specific information on the design and operation for the two new wells is not available, only a general understanding of the effects on steelhead can be developed at this time. Confining operation of the new wells to river flows of 15 cfs or more (and ceasing pumping when surface flows fall below 12 cfs) is expected to minimize the amount and extent adverse effects that steelhead may incur as a result of operating the new wells. This expectation assumes that (1) surface flows of 12 cfs are in fact sufficient to create and maintain essential habitat features that are needed for growth and survival of adult and juvenile steelhead, and (2) the 3 cfs reduction in surface flow does not have a consequence for the survival or growth of steelhead (i.e., the essential features of critical habitat and growth and survival conditions for steelhead are the same at 15 cfs and 12 cfs regardless of season). The information needed to validate these assumptions is not currently available, however. While the flow-related precautionary measure governs operation of the new wells, operation of existing wells in the Foster Park area is apparently not controlled by a similar precautionary measure. As a result, pumping of existing wells may cause surface flows to decline beyond those "protective" flows defined to guide operation of the new wells. The proposed MAMP, in combination with the Corps' program for addressing uncertainties NMFS has identified (NMFS 2006b; see also Corps 2006b), will contribute to determining the true effects of operating the new wells on critical habitat. Developing a clear understanding of the manner in which the new wells would be operated would further NMFS' ability to assess effects of operating the new wells on endangered steelhead (Figures 35-37 in Appendix A).

High-Flow Sediment Bypass

Activities related to the construction of the bypass are not expected to affect steelhead individuals because NMFS presumes construction will occur when the channel is dry. If flowing water is present, no dewatering of the workspace is believed necessary because river discharge is likely to be diverted away from the workspace through the Robles Fishway on the west side of the river (Figures 19-24 in Appendix A).

Because the design and operating criteria for the high-flow sediment bypass are preliminary at this time, only a general assessment of the effects on steelhead can be made. Construction of the high-flow sediment bypass with incorporation of ecologically meaningful fish-passage capability or feasibility is expected to improve migration of adult and juvenile steelhead through the river channel (and high-flow sediment bypass) in the localized area, within a range of operating discharge. A fish-passage facility was recently constructed at the Robles Diversion Dam, adjacent to the earthen berm; steelhead may be able to migrate upstream past the berm using the fish ladder, though passage of steelhead, as such, through the ladder has not been corroborated and has an inherent limitation on the operation range (50 to 1,500 cfs). The Corps proposes to design and operate the bypass to benefit passage of steelhead at the bypass and to work with NMFS' steelhead ecologists and fish-passage engineers on the design and operation of this project feature during the upcoming detailed design phase of the dam removal (Corps 2006b). Moreover, NMFS has defined some assumptions regarding the outcome of the final design and operation of this structure (Table 1); under these assumptions, the bypass has the potential to extend the operational range of the fish passage and therefore more fully realize the potential benefits of the removal of the Matilija Dam. Consequently, NMFS expects the bypass will be designed, constructed, and operated in a manner that will not stop or delay migration of adult or juvenile steelhead over the bypass (or those individual steelhead attempting to migrate through the Robles fish-passage facility), within the range of hydrologic events during which the structure is designed to operate (i.e., NMFS presumes the bypass will operate under a specified range of discharges, and therefore when the structure is not operated, the bypass will represent an obstruction in the species freshwater migration).

Downstream Flood Control Projects

The levees and floodwall do not provide the ecological role of floodplains for maintaining the productivity and diversity of riverine communities; raising the levees will increase the likelihood that these structures will be preserved into the future. Evidence provided in the ecological literature indicates that floodplains can impart an elevated level of biotic diversity, fish and invertebrate production, and habitat area and diversity. Precluding the Ventura River from entering the available historical floodplain during the wet season is expected to be unfavorable for the aquatic environment in general and the local population of steelhead in particular. However, NMFS does not possess the specific information needed to reliably predict how the levees and floodwall would in fact affect steelhead at the individual and population level. Activities to construct or raise levees and floodwalls will take place in or near upland and floodplain areas, where riparian plant species, and flowing water, are not expected. Therefore, construction activities are not expected to affect steelhead.

Designs for the proposed bridges are incomplete at this time; only a general evaluation of the effects on steelhead can be performed. Construction activities, such as dewatering, excavation, slope and channel alterations, are expected to create conditions that affect adult and juvenile steelhead. Should dewatering of workspaces be needed, this would be expected to displace juvenile steelhead, presuming individuals are present in the workspace at the time of the dewatering. Currently, the Camino Cielo Bridge lies in an area where surface flow is perennial and therefore appears to represent the only case where dewatering may be necessary. Since the area of water diversion in the vicinity of the bridge is likely not more that 100-200 feet, the numbers of steelhead that are expected to be captured during the removal and reconstruction of this bridge are likely less than 100, based on NMFS' knowledge of steelhead abundance in the action area. With regard to excavation, bank-slope protection, and access routes, these activities are likely to expose soils, thereby increasing the potential for sediment input into flowing water. Best management practices will be implemented as part of the construction activities, which is expected to reduce the likelihood that exposed soils will create instream conditions that adversely affect steelhead. The bank stabilization (through use of rock riprap) may result in the permanent loss of riparian habitat, but the amount and extent of the loss, should one occur, is unknown at this time. Replacement of the Camino Cielo Bridge is expected to favor migration of adult steelhead because the culverts under the existing bridge represents an obstruction within the migratory corridor for adult steelhead (Corps 2004a). Overall, the effects of the flood-control improvements on adult and juvenile steelhead are expected to be largely discountable and non-lethal, presuming best management practices are effective and the MAMP and the Corps' program for addressing the uncertainties NMFS has identified can resolve effects on steelhead (Figures 29, 30, 33 and 34 in Appendix A).

Giant reed Removal Plan

Based on NMFS current understanding of the proposed plan to remove non-native plant species, and anticipated effects on critical habitat (as described previously), effects to steelhead are expected to be confined to juveniles and discountable (Figures 5-8, 11, 23-25, and 35-40 in Appendix A).

VI. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Endangered Species Act. Based on NMFS' review of the supporting documents (i.e., the draft EIS), there does not appear to be at this time any actions or activities that would be reasonably certain to occur that would not require section 7 consultation.

VII. INTEGRATION AND SYNTHESIS OF EFFECTS

This section combines the effects of past and present activities (*i.e.*, environmental baseline) that are projected to extend into the future with effects of the proposed action and cumulative effects (*i.e.*, those future actions that are reasonably certain to occur). The purpose of this assessment is

to develop an understanding of how the combined effects might affect steelhead and critical habitat for this species. The methodology for this assessment involved identifying potential environmental effects associated with reasonably certain actions, integrating potential effects of these actions with the environmental baseline and expected effects of the proposed action, and qualitatively evaluating the combined effects of future actions, past and present activities, and the proposed action on steelhead and critical habitat.

The larger river systems are believed to have been the historical foundation for the Southern California steelhead DPS. The Ventura River watershed is one such system because the drainage is one of the largest steelhead-bearing watersheds within the Southern California DPS. However, the abundance of steelhead in the Ventura River, like other drainages throughout the DPS, has been dramatically reduced due to a variety of anthropogenic alterations to the watershed and waterways. Presently, the number of steelhead in the Ventura River watershed is extremely small. Likewise, the number of steelhead comprising the DPS is small, less than 1% of the estimate historical run size. Because the viability of small populations is especially tenuous, and such populations are susceptible to prompt decreases in abundance and possess a greater risk of extinction relative to large populations (Pimm *et al.* 1988, Berger 1990, Primack 2004), activities that reduce the quality and quantity of habitats, or that preclude formation of "new" populations, are expected to compel the population toward extinction as individual populations become extinct (McElhany *et al.* 2000). The Ventura River is one of the core populations that NMFS has identified as essential for the recovery of the endangered southern California steelhead. This river is one of the few populations within the Southern California DPS that have historically produced the largest run sizes in the study area, and have a high priority for protection (Boughton *et al.* 2006). Consequently, activities harming steelhead or destroying habitat, including critical habitat, with this population has implications for the recovery and ultimately delisting of the DPS under the ESA.

A. Summary of Effects of Past and Present Activities

Evidence indicates past and present activities have reduced the quality and quantity of spawning, migration, and rearing habitat for the Southern California DPS within action area (and Ventura River watershed). Anthropogenic activities, including urbanization, are believed to have contributed to declines in steelhead abundance within the action area and the watershed. The Ventura River watershed is a highly altered, manipulated, and managed ecosystem, and in its present state is considerably different from its historical natural condition. Water is removed annually via surface diversions and groundwater pumping, which has reduced the quantity and quality of freshwater rearing, spawning and migration sites in the action. The existing wells and surface diversions (including the subsurface water diversion) in the Foster Park area can substantially reduce, if not eliminate, surface flows within the action area. Because existing dams (e.g., Casitas, Matilija) block steelhead from accessing historical spawning and rearing habitat upstream of the dams, abundance of this species in the upstream areas is expected to have decreased. Effects of past and present activities are expected to extend into the future. As a result, the Ventura river population of steelhead is expected to continue to experience a risk of extinction in the foreseeable future.

B. Summary of Effects of the Proposed Action

The removal of Matilija Dam is expected to restore habitat connectivity, restore steelhead access to about 10 miles of spawning and rearing areas within Matilija Creek, and increase the amount and extent of freshwater spawning and rearing sites available to steelhead, though the actual amount is controlled largely by the Robles Diversion Dam (i.e., the effectiveness of the fish-passage facility) and whether steelhead can pass the high-flow sediment bypass. These consequences of the dam removal are expected to favor conservation of the local population of endangered steelhead and the DPS of endangered steelhead. Release of sand and smaller particles, due to a variety of features related to the proposed action, is expected to diminish the functional value of freshwater rearing and spawning sites for endangered steelhead over extensive areas of the action area. Instream habitats are likely to be altered and some areas necessary for steelhead ontogeny and survival may be lost. Sediment-related effects are not expected to persist indefinitely (beyond 20 years), however. Input of coarse sediments (such as gravel, cobble and boulder) may favor essential features of steelhead critical habitat, e.g., in the formation of extensive instream accumulations of gravel for spawning or a buildup of boulders and cobble, which juveniles can use as shelter, and as a colonization substrate for macroinvertebrates, which serve as food for rearing steelhead. The expected benefits that the local population of steelhead (and Southern California DPS) is expected to incur from removal of the dam are expected to offset the transient adverse effects of the proposed action.

C. Combined effects

With regard to effects on critical habitat, the aggregate continuing effects of past and present activities and the effects due to the proposed action are expected to have mixed influences on the quality and quantity of critical habitat for endangered steelhead. On one hand, the aggregate effects seem likely to reduce the amount and extent of essential features of critical habitat in certain areas within the action area, particularly while the former reservoir area is contributing fine and coarse sediments at unnatural accelerated rates (i.e., widespread loss and alteration of instream and estuarine habitat throughout the action area). NMFS assumes that the MAMP in combination with the Corps' program for addressing the uncertainties NMFS has identified, will contribute to reducing the amount, extent, and duration of effects. On the other hand, an increase in accessibility to spawning and rearing areas (about 10 miles) is expected due to removal of the dam. Given that the effects of urbanization are expected to extend into the future, it is possible that areas of the Ventura River watershed that are susceptible to the effects of urbanization will experience a decline in the functional value of steelhead critical habitat. The increased access to historical spawning and rearing habitat, which lies upstream of the principal urban area, may therefore serve to compensate, to some degree, the future effects of urbanization on downstream steelhead habitat, though the unique role of the estuary cannot be similarly compensated by opening stream habitats.

With regard to effects on steelhead, based on the perceived aggregate effects of past and present activities and the effects due to the proposed action on critical habitat, the local steelhead population may show increased reliance on habitats upstream of urban influences. Such habitats include those that are expected to be made accessible to steelhead following dam removal. While re-establishing steelhead access to historical spawning and rearing habitats (and the anticipated benefits to endangered steelhead) is expected to favor the viability of the Southern

California steelhead DPS, the dam removal is not projected to fully ameliorate the continuing effects of past and present activities on this species.

VIII. CONCLUSION

After reviewing the best available scientific and commercial information, the recent status of the Southern California steelhead DPS, the environmental baseline, expected effects of the proposed action, cumulative effects, and the combined effects of past and present activities, the proposed action, and actions that are reasonably certain to occur, NMFS concludes the proposed action is not likely to jeopardize the continued existence of the Federally endangered Southern California steelhead DPS, and is not likely to destroy or adversely modify critical habitat for this species.

IX. INCIDENTAL TAKE STATEMENT

Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Harm is further defined by NMFS to include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and must be undertaken by the Corps for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to adhere to the terms and conditions of this incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to NMFS as specified in the incidental take statement (50 CFR §402.14(i)(3)).

A. Amount or Extent of Take

NMFS believes the proposed action that will occur in Matilija Creek and the Ventura River, Ventura County, California, may result in the incidental take of steelhead. Incidental take would be in the form of harassment, harm, or mortality, and the principal sources of take involve (1) the relocation effort to remove juvenile steelhead from workspaces that are dewatered, and (2) the release of sediments from the reservoir area on adult and juvenile steelhead. With regard to #1 above, NMFS anticipates that no more than 350 juvenile steelhead will be captured and then relocated, based on NMFS' experience in the Ventura River watershed as well as recent information regarding the number of juvenile steelhead in the action area. Of these, no more than 5% will be killed. With regard to the release of sediments (#2 above), NMFS expects that the river channel and instream habitats throughout the action area downstream of the dam to the estuary (a distance of about 15 miles), will experience the magnitude of deposition identified in

Table 2 (also presented below) (the estuary is expected to experience no more than 1 foot of sediment deposition, as considered in pages 22-23 of this biological opinion).

Table 2. Two possible scenarios in average reach-specific aggradation of the channel bed during the 20-year project life: one scenario based on a drier climate, and the second based on a severe flood event. Reach number increases in proximity to the dam, with reach 6b being closest to the dam. Values in the table represent the predicted average deposition (feet) of sediment, and are obtained from modeling.

Location	Dry climate 10-year	Flood event 50-year
Reach 2	1.2	3.6
Reach 3	2.0	4.2
Reach 4	0.8	2.3
Reach 5	1.4	2.2
Reach 6a	2.3	6.4
Reach 6b	1.0	0.9

No other incidental take of steelhead (or its habitat) is anticipated as a result of the proposed action, and at this time NMFS does not have information indicating the new wells will cause take of steelhead. The accompanying biological opinion does not anticipate any form of take that is not incidental to the proposed action.

B. Effect of Take

In the Biological Opinion, NMFS concluded that the anticipated level of take associated with the proposed action is not likely to jeopardize the continued existence of the federally endangered Southern California steelhead DPS.

C. Reasonable and Prudent Measures

NMFS believes Reasonable and Prudent Measures are necessary and appropriate to minimize and monitor incidental take of steelhead. The results of the effects analysis provide the basis for the following Reasonable and Prudent Measures:

1. Avoid working in flowing water within the action area.
2. Minimize the amount and extent of temporary and permanent changes to the quality and quantity of instream, riparian, and estuarine habitat within the action area.
3. Employ a fisheries biologist(s) for the purposes of monitoring the affected area, and for removing and relocating steelhead from the affected area within the action area.
4. Implement effective sediment and turbidity control measures within the action area.
5. Minimize the amount and extent of sediment-related effects on the type, amount, extent, and quality of instream and estuarine habitat within the action area.
6. Minimize the type and amount of adverse effects associated with operating the high-flow sediment bypass on migration of steelhead at the bypass.
7. Minimize the amount and extent of changes in discharge, and alterations in the quality and quantity of instream habitat, due to operation of the new Foster Park wells within the action area.
8. Minimize the effects of specifically identified project-related uncertainties on steelhead

and the quality and quantity of habitat for this species within the action area.

9. Monitor and assess steelhead migration, abundance, distribution, and habitat use within the action area.

10. Provide written reports to NMFS describing the activities associated with minimizing and monitoring project action effects within the action area.

X. TERMS AND CONDITIONS

In order to be exempt from take prohibitions of section 9 of the ESA, the Corps and its contractors, associates, and partners in the proposed action is responsible for ensuring compliance with the following Terms and Conditions, which implement the Reasonable and Prudent Measures described above and outline required reporting/monitoring conditions. These Terms and Conditions are non-discretionary:

1. The following terms and conditions implement reasonable and prudent measure #1.

   A. The Corps, or their authorized designee, shall isolate the workspace from flowing water when such isolation is necessary for avoiding heavy equipment or other activities in flowing water, sedimentation, turbidity and direct effects to steelhead or their critical habitat. Prior to construction activities, sandbags, cofferdams, straw bales, visqueen, or culvert (hereafter referred to as *diversion*) shall be installed to divert streamflow around the workspace (i.e., isolate the workspace from flowing water). The diversion shall remain in place during the project, then removed immediately after work is completed.

   B. Wherever feasible, the Corps, or their authorized designee, shall use existing ingress or egress points, or perform work from the top of the creek banks, for the purposes of avoiding work and heavy equipment or other activities in flowing water, and disturbing creekbank, vegetation and instream habitat.

   C. The Corps, or their authorized designee, shall ensure and certify that the selected contractor(s) and monitoring biologist(s) have read and understand each term and condition of this biological opinion prior to implementation of the proposed action.

2. The following terms and conditions implement reasonable and prudent measure #2.

   A. The Corps, or their authorized designee, shall photograph the action area during and immediately before and after construction activities are completed for developing a reference library of instream and riparian habitat characteristics.

   B. Channel excavation for isolating the workspace from flowing water is prohibited.

   C. The Corps, or their authorized designee, shall minimize disturbance to existing native instream, riparian and upland vegetation. Native vegetation affected by the proposed action shall be replaced and a revegetation success ratio (in terms of area) of no less than 2:1 (for streamside vegetation and riparian species) or 1:1 (upland areas) shall be ensured for a minimum of 5 years following completion of the proposed action.

D. The Corps, or their authorized designee, shall revegetate soil exposed as a result of construction related activities using seed casting, hydroseeding, or live planting methods, ~~no~~ later than the first November following the completion of the proposed action. Only native plant species shall be used for revegetation.

E. The Corps, or their authorized designee, may collaborate with NMFS as necessary for the purpose of identifying an area(s) and conditions where natural revegetation of disturbed areas can proceed in the absence of full or partial vegetative plantings. The Corps shall obtain written NMFS agreement for each subject area no later than 30 days following completion of the activities that caused the vegetation disturbance (including vegetation loss or alteration) for the subject area.

F. The Corps, or their authorized designee, shall inspect revegetated area(s) one year after the subject area was revegetated (or planted or seeded), and every year thereafter for a period of no more than four years (total of five years of monitoring). The first year of monitoring shall commence in fall (November). The purpose of the monitoring is to qualitatively assess growth of the plantings or seedlings and the presence of exposed soil. The presence of native and non-native vegetation and extent (percent area) of exposed soil shall be noted, and the subject area shall be photographed during each inspection.

G. Woody debris or large native rock removed from the channel shall be retained and later returned to the creek in functional form immediately following completion of the dam removal.

H. All equipment shall be refueled in upland areas and in accordance with a spill and pollution-control plan.

3. The following terms and conditions implement reasonable and prudent measure #3.

A. The Corps, or their authorized designee, shall retain a fishery biologist(s) with expertise in the areas of resident or anadromous salmonid biology and ecology; fish/habitat relationships; biological monitoring; and, handling, collecting, and relocating salmonid species. The biologist(s) will monitor installation and removal of the diversion, the workspace, and construction activities (monitoring biologist).

B. The monitoring biologist(s) shall continuously monitor placement and removal of the diversion for removing any steelhead. The biologist(s) shall capture steelhead stranded in residual wetted areas as a result of streamflow diversion and workspace dewatering, and relocate steelhead to a suitable instream location outside of the workspace. The biologist(s) shall note the number of steelhead, condition, and size of steelhead observed in the affected area, the number of steelhead relocated, and the date and time of the collection and relocation. Photo-documentation of any captured or relocated steelhead shall be filed as part of written reports of such monitoring, capture and relocation activities to be submitted to NMFS on an annual basis (or as defined in term and condition 10B). One or more of the following methods shall be used to capture steelhead: dip net, seine, throw net, minnow trap, hand. Electrofishing is prohibited. Once the diversion is in place, the biologist shall monitor periodically, based on a

monitoring schedule and protocol that is mutually agreeable to the Corps and NMFS. The Corps shall obtain written NMFS agreement for this schedule and protocol prior to undertaking activities that are necessary to begin isolating the workspace(s) from flowing water.

C. The monitoring biologist(s) shall periodically monitor (based on a schedule and protocol that is mutually agreeable to the Corps and NMFS) construction activities, instream habitat, and performance of sediment control/detention devices (see Term and Condition No. 4A) for the purpose of identifying and reconciling any condition that could adversely affect steelhead or their habitat. The biologist shall be empowered to halt work activity and to recommend measures for avoiding adverse effects to steelhead and their habitat. The Corps shall obtain written NMFS agreement for this schedule and protocol prior to undertaking activities that are necessary to begin removing Matilija Dam.

D. The monitoring biologist(s) shall contact NMFS (Anthony Spina, 562-980-4045) immediately if one or more steelhead are found dead or injured. The purposes of the contact shall be to review the activities resulting in take, to determine if additional protective measures are required, and to discuss handling procedures for injured or dead steelhead.

4. The following terms and conditions implement reasonable and prudent measure #4.

A. Erosion control and (or) sediment-detention devices (e.g., straw bales, silt fencing) shall be installed outside flowing water and at the time of construction within the action area. These devices shall be in place during construction activities, and after if necessary, for minimizing fine sediment and sediment-water slurry input to flowing water. The devices shall be placed at all locations where the likelihood of sediment input exists.

B. Placement of any soil-sediment berm in direct contact with flowing water for the purpose of isolating any workspace from flowing water is prohibited within the action area.

C. When dewatering any area, methods shall be employed to collect then return clear water to the creek or river for avoiding input of sediment-water slurry to flowing water within the action area.

5. The following Terms and Conditions implement Reasonable and Prudent Measure #5.

A. The Corps, or their authorized designee, shall develop and then implement a mutually agreeable (to NMFS and the Corps) written study plan to detect sediment-related effects within instream and estuarine habitats within the action area and remedy the identified effects (note that this plan may be included in the MAMP). This will require the collection of baseline (pre-dam removal) data both upstream and downstream of the reservoir (behind Matilija Dam). The plan shall include (1) a description of the study objectives, (2) a description of the field methods and equipment that will be used to quantify sediment-related effects, (3) proposed locations to monitor channel-bed characteristics, or a suggested protocol that would allow for the random selection of monitoring locations, (4) a clearly defined schedule to guide implementation and field sampling (monitoring)

activities over time and space, (5) a description of the types of actions that will be taken to resolve a particular sediment-related effect, (6) a schedule for resolving effects, whereby the effects shall be remedied within a reasonable period of time, but in no case later than 30 days after the subject effect was detected, and (7) reporting requirements. This plan shall be prepared in collaboration with a qualified quantitative steelhead biologist with prior experience performing studies of steelhead (abundance, distribution, habitat use) within the action area. The Corps shall obtain written NMFS agreement for this plan prior to undertaking activities that are necessary to begin removing Matilija Dam.

6. The following Terms and Conditions implement Reasonable and Prudent Measure #6.

   A. With regard to the Corps' proposal to collaborate with NMFS on the design of the high-flow sediment bypass, this collaboration shall involve working with NMFS for the purpose of designing and then constructing a fish-passage facility or fish-passage capability that will be physically integrated with the high-flow sediment bypass. The fish-passage facility shall be designed, constructed, and operated such that the operation of the bypass shall not interfere with the migration of any adult or juvenile steelhead attempting to migrate over, through, or around the bypass. The Corps shall provide to NMFS engineered design drawings (at 30 %, 60 %, and 90 % completion) of the fish-passage facility and high-flow sediment bypass for review and potential approval. The guidance NMFS provides to the Corps shall be used to make mutually agreeable revisions to the design drawings. The Corps shall obtain written NMFS agreement for the final engineered design drawings for the fish-passage facility and the high-flow sediment bypass prior to undertaking activities that are necessary to begin removing Matilija Dam.

   B. The Corps, or their authorized designee, shall prepare and then implement a mutually agreeable (to NMFS and the Corps) written plan to validate post-construction performance of the high-flow sediment bypass and fish-passage facility, as described in term and condition 6A (note that this plan may be included in the MAMP). The plan shall adopt a specific protocol for validating post-construction performance, and shall include measurement of water depth and velocity within the fish-passage facility over a range of river discharge representing those magnitudes experienced by migrating adult and juvenile steelhead (or measurement of other variables determined by NMFS). The measured values of depth and velocity (or other variables) shall be compared with the migration requirements of adult and juvenile steelhead, and the results of the hydraulic design analyses (i.e., predicted depths and velocities) for the as-built condition. A summary report describing the results of the validation task shall be prepared and then submitted to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California, 90802) no later than 30 days following completion of the validation task. The Corps shall obtain written NMFS agreement for the plan to validate post-construction performance of the high-flow sediment bypass and fish-passage facility or fish-passage capability prior to constructing the high-flow sediment bypass and fish-passage facility.

C. The Corps, or their authorized designee, shall prepare and then implement a mutually agreeable (to NMFS and the Corps) written plan to maintain the high-flow sediment bypass and the fish-passage facility or fish-passage capability, as described in term and condition 6A. The maintenance plan shall ensure long-term maintenance of the fish-passage facility or fish-passage capability and include a clearly defined schedule requiring timely inspection and removal of debris (both sediment and wood). Although an inspection of the subject structure is warranted during wet and dry seasons, greater visit frequency shall be allocated to the wet season (e.g., immediately after rainfall events). To guide field personnel, the plan shall clearly define the type and magnitude of debris requiring removal and the physical methods of removal. The fish-passage facility or fish-passage capability shall be inspected at least once annually for the life of the structure. The inspection shall include visual evaluation of the structure, along with measurements of water depth and velocity, performed similar to those conducted for validation. The Corps shall submit an annual summary report describing the results of the maintenance task to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California, 90802) no later than 30 days following completion of the subject year's maintenance evaluation. The Corps shall obtain written NMFS agreement for this maintenance plan prior to constructing the high-flow sediment bypass.

7. The following Terms and Conditions implement Reasonable and Prudent Measure #7.

A. The Corps, or their authorized designee, shall prepare and then implement a mutually agreeable (to NMFS and the Corps) written plan describing how the new wells at Foster Park will be operated (note that this plan may be included in the MAMP). The plan shall include (1) a description of the operating criteria for the wells, (2) a schedule directing the operation of the wells, (3) the proposed protocol for minimizing reductions in the amount and extent of surface flow due to operation of the wells, (4) the proposed protocol for minimizing effects due to operation of the wells on endangered steelhead and the amount and extent of habitat for this species, (5) a description of the methods that will be used to evaluate whether the actual operation of the wells comports with the operating criteria (#1 above), the schedule (#2), and the protocols for minimizing effects on surface flow and steelhead (#3 and #4), (6) a description of the methods that will be used to assess the effectiveness of the minimization measures (#3 and #4 above), and (7) reporting requirements. This plan shall be prepared in collaboration with a qualified steelhead biologist who has prior experience performing field studies of steelhead (abundance, habitat use, distribution) within the Ventura River watershed. The Corps shall submit this plan to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California, 90802) for review. The Corps shall obtain written NMFS agreement for this plan prior to initiating operation of the subject wells.

B. The Corps, or their authorized designee, shall prepare and then implement a written plan for the purpose of assessing effects of operating the new wells at Foster Park on steelhead and critical habitat for this species in the Ventura River for a period of no less than 12 years following completion of the proposed action.

The plan shall include (1) a proposed protocol to monitoring discharge, (2) a description of the field methods that will be used to quantify steelhead abundance in the Ventura River upstream, adjacent to, and downstream of the new Foster Park wells over time, (3) a description of the field methods that will be used to quantify instream habitat characteristics in the Ventura River upstream, adjacent to, and downstream of the new Foster Park wells over time, (4) a clear description of the methods that will be used to assess effects of operation of the wells on steelhead and critical habitat for this species, (5) identification of the response variables, inferential models, and sample size requirements, (6) a schedule for the field studies, and (7) reporting requirements. This plan shall be prepared by a qualified quantitative steelhead biologist who has prior experience performing field studies of steelhead (abundance, habitat use, distribution), preferably within the Ventura River watershed. The Corps shall submit this plan to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California, 90802) for review. The Corps shall obtain written NMFS agreement for this plan prior to initiating operation of the subject wells.

8. The following Terms and Conditions implement Reasonable and Prudent Measure #8.

   A. With regard to the Corps' program to address uncertainties, the Corps, or their authorized designee, shall prepare and then implement a mutually agreeable (to NMFS and the Corps) written plan to address steelhead related uncertainties (note that this plan may be included in the MAMP). This plan shall be submitted to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California, 90802) for review and comment on the adequacy of the plan. The Corps shall obtain written NMFS agreement for this plan prior to undertaking activities that are necessary to begin removing Matilija Dam.

9. The following Terms and Conditions implement Reasonable and Prudent Measure #9.

   A. The Corps, or their authorized designee, shall prepare and then implement a mutually agreeable (to NMFS and the Corps) written plan to quantify adult and juvenile steelhead abundance, distribution, and use of the habitats within creek reaches (both the north fork and south fork of Matilija Creek) upstream of the former location of Matilija Dam for a period of no less than 8 years (two years dedicated to collection of pre-dam removal data) for the purpose of assessing the benefits the dam-removal project on this species (note that this plan may be included in the MAMP). This plan shall be prepared by a qualified quantitative steelhead biologist who has prior experience performing field studies of steelhead (abundance, distribution, habitat use), preferably in the Ventura River watershed. The selected biologist will consult with NMFS prior to preparing the plan for the purpose of identifying the study elements, objectives, work tasks for inclusion into the plan, and reporting requirements. The Corps will submit this plan to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California, 90802) for review and comment. The selected biologist will make mutually agreeable revisions to the draft plan, based on NMFS' comments on the adequacy of the study plan, to produce the final study plan. The Corps shall obtain written NMFS agreement for this plan prior to undertaking activities that are necessary to begin removing Matilija Dam.

B. The Corps, or their authorized designee, shall prepare and then implement a written plan to quantify steelhead abundance and distribution within the Ventura River watershed for a period of no less than 8 years (two years dedicated to collection of pre-dam removal data) for the purpose of assessing benefits of the dam-removal project on this species. This plan shall be prepared by a qualified quantitative steelhead biologist who has prior experience performing field studies of steelhead (abundance, distribution, habitat use), preferably in the Ventura River watershed. The selected biologist will consult with NMFS prior to preparing the plan for the purpose of identifying the study elements, objectives, work tasks for inclusion into the plan, and reporting requirements. The Corps will submit this plan to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California, 90802) for review and comment. The selected biologist(s) will make mutually agreeable revisions to the draft plan, based on NMFS' comments on the adequacy of the study plan, to produce the final study plan. The Corps shall obtain written NMFS agreement for this plan prior to undertaking activities that are necessary to begin removing Matilija Dam.

10. The following Terms and Conditions implement Reasonable and Prudent Measure #10.

A. The Corps, or their authorized designee, shall provide written evidence to NMFS demonstrating compliance with Term and Conditions 1C.

B. The Corps, or their authorized designee, shall provide a written monitoring report to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802) within 15-working days following completion of any activity that requires the dewatering of a workspace (e.g., bridge replacements, levee improvements, removal of dam debris from the base of the dam or channel restoration). The report shall include the number of steelhead killed or injured during the proposed action and biological monitoring; the number and size of steelhead removed and relocated; any effect of the proposed action on steelhead that was not previously considered (reinitiation of consultation would be required, see section XI (2) of the Biological Opinion); and, photographs taken during, before and after work activity.

C. The Corps, or their authorized designee, shall provide a written report describing results of any project-related revegetation task to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802) within 15-working days following completion of any revegetation effort (e.g., those related to bridge replacements, restoration of the creek channel, bank stabilization). The report shall include a description of the locations planted or seeded, the area (ft^2) revegetated, a plant palette, planting or seeding methods, proposed methods to monitor and maintain the revegetated area, performance or success criteria, and pre- and post-planting color photographs of the revegetated area.

D. The Corps, or their authorized designee, shall provide a written report describing the results of vegetation monitoring to NMFS (501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802) within 15-working days following completion of any vegetation monitoring inspection conducted during fall as required for a particular activity related to the proposed action. The report shall include color photographs taken of the project area during each inspection and before and after implementation of the project, and estimated percent of exposed soil remaining within each area affected by the project.

E. The Corps, or their authorized designee, shall document and notify NMFS of any dispute or problem encountered with achieving compliance with any of the Reasonable and Prudent Measures and Terms and Conditions in this biological opinion. Such notification shall be made to NMFS within a reasonable period of time, but in no case later than ten days after the Corps' discovery of any such problem or dispute.

XI. REINITIATION OF CONSULTATION

This concludes formal Section 7 consultation on the actions outlined in the project proposal. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in this opinion, (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately. As project designs and plans develop, or if key assumptions are found to be invalid, NMFS and the Corps may need to re-initiate section 7 consultation to incorporate new information and re-assess project effects.

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Appendix A

Photographic Reference Library`

Figure 1. Matilija Creek falls looking northwest 8.2 miles above Matilija Dam. 4-10-03

Figure 2. Matilija Creek above confluence with Murietta Creek looking southeast 6 miles above Matilija Dam. 4-15-95

Figure 3. Matilija Creek looking west 2 miles above Matilija Dam. 2-23-07

Figure 4. Matilija Creek looking southwest 1.5 miles above Matilija Dam. 2-23-07

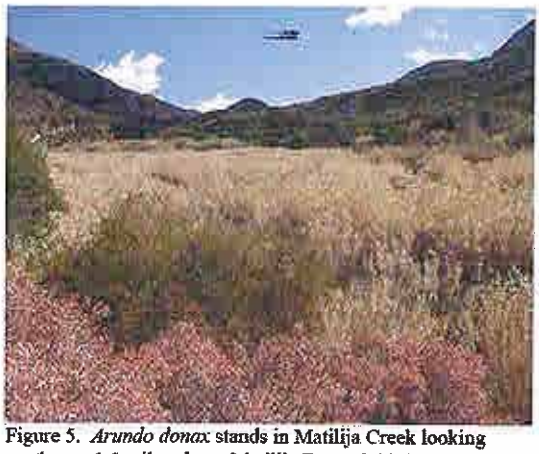


Figure 5. *Arundo donax* stands in Matilija Creek looking southwest 1.0 miles above Matilija Dam. 2-23-07

Figure 6. Matilija Creek looking southwest 0.5 mile above Matilija Dam. 2-23-07

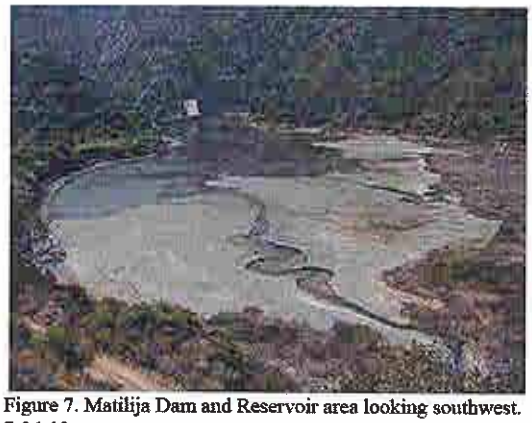


Figure 7. Matilija Dam and Reservoir area looking southwest. 7-26-03

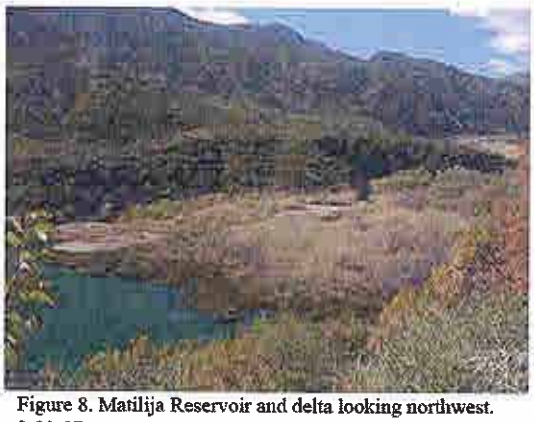


Figure 8. Matilija Reservoir and delta looking northwest. 2-23-07

Figure 9. Aerial view of Matilija Dam and Reservoir. 9-7-01

Figure 10. Matilija Dam. 2-08-07

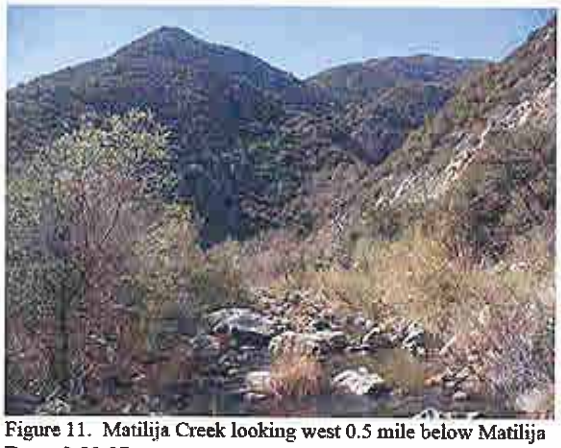


Figure 11. Matilija Creek looking west 0.5 mile below Matilija Dam. 2-23-07

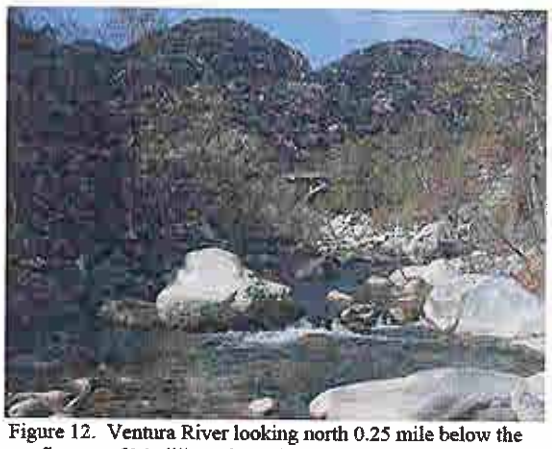


Figure 12. Ventura River looking north 0.25 mile below the confluence of Matilija and North Fork Matilija Creeks. 2-23-07

Figure 13. North Fork Matilija Creek looking southwest 0.5 mile above confluence with Matilija Creek. 2-23-07

Figure 14. North Fork Matilija Creek looking northeast 0.5 above confluence with Matilija Creek. 2-23-07

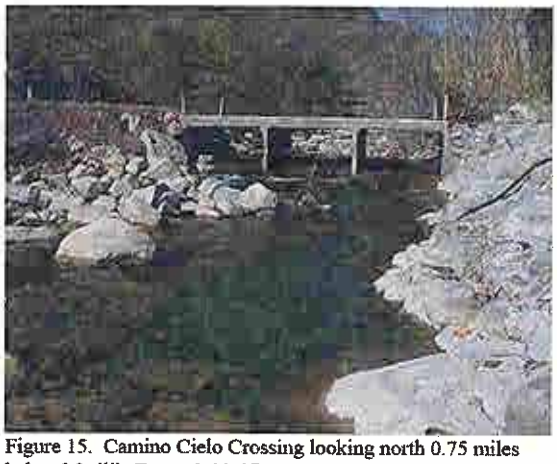


Figure 15. Camino Cielo Crossing looking north 0.75 miles below Matilija Dam. 2-23-07

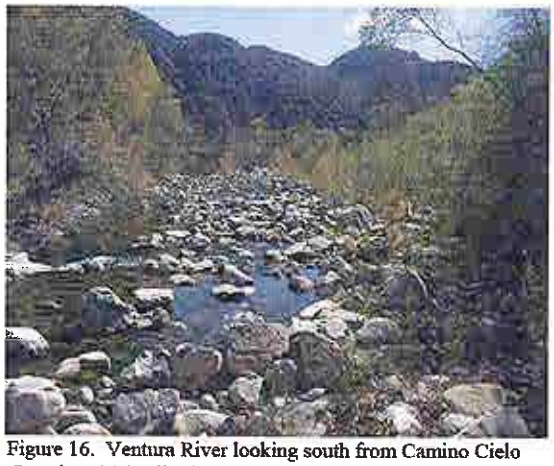


Figure 16. Ventura River looking south from Camino Cielo Crossing 0.75 miles below Matilija Dam. 2-23-07

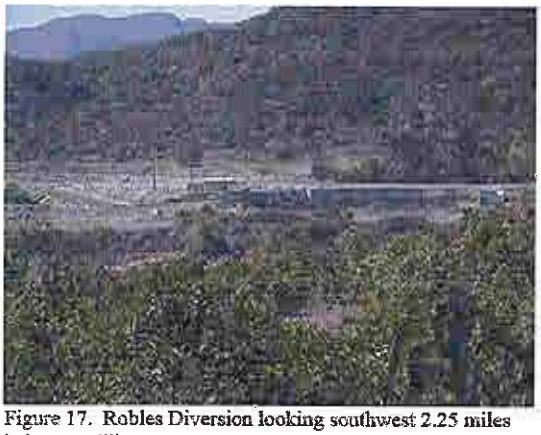


Figure 17. Robles Diversion looking southwest 2.25 miles below Matilija Dam. 2-23-07

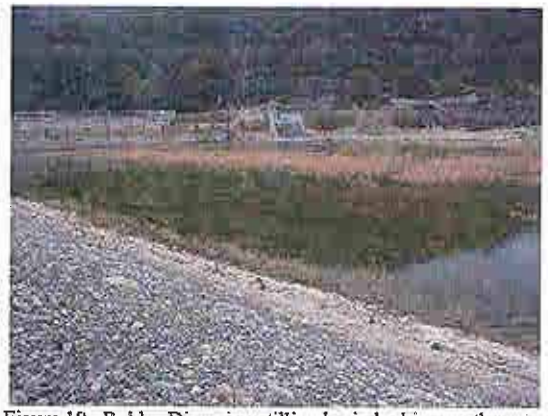


Figure 18. Robles Diversion stilling basin looking northwest 2.25 miles below Matilija Dam. 2-08-07

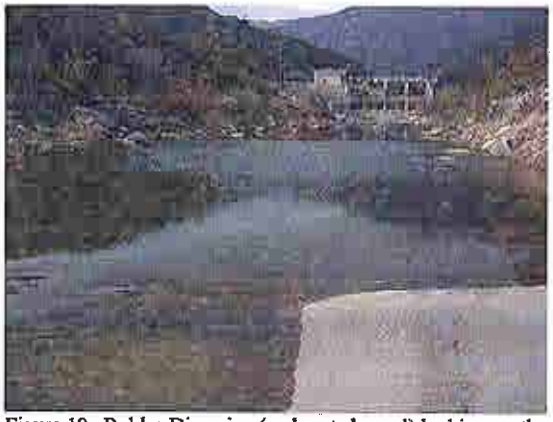


Figure 19. Robles Diversion (and east channel) looking north 2.25 miles below Matilija Dam. 2-08-07

Figure 20. Robles Diversion access road/wier (over east channel) looking west 650 feet below Robles Diversion. 2-08-07

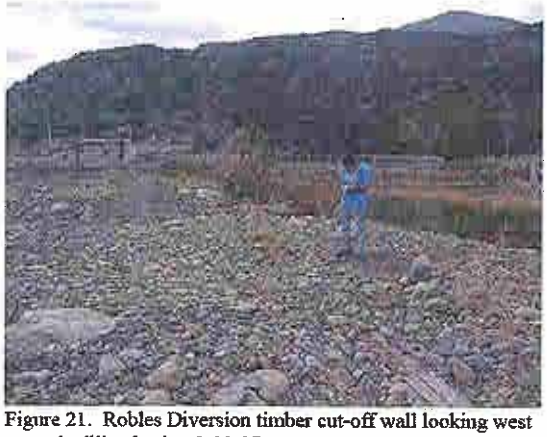


Figure 21. Robles Diversion timber cut-off wall looking west toward stilling basin. 2-08-07

Figure 22. Ventura River (east channel) looking downstream from Robles Diversion timber cut-off wall. 2-08-07

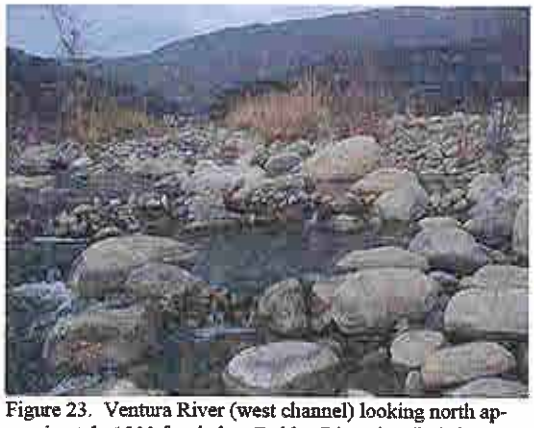


Figure 23. Ventura River (west channel) looking north approximately 1000 feet below Robles Diversion (in left background). 2-08-07

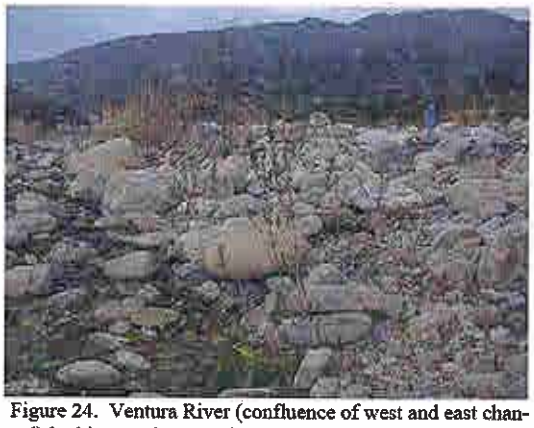


Figure 24. Ventura River (confluence of west and east channel) looking north approximately 1000 feet below Robles Diversion (in left background). 2-08-07

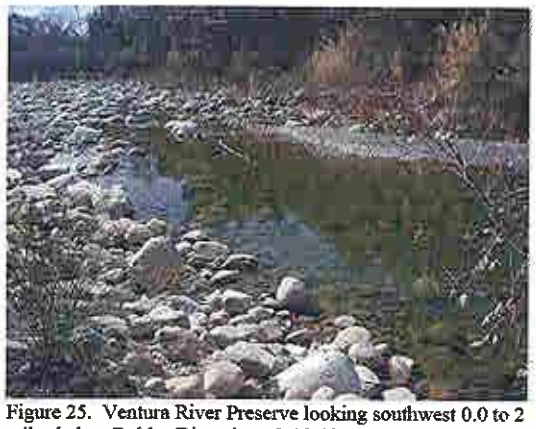
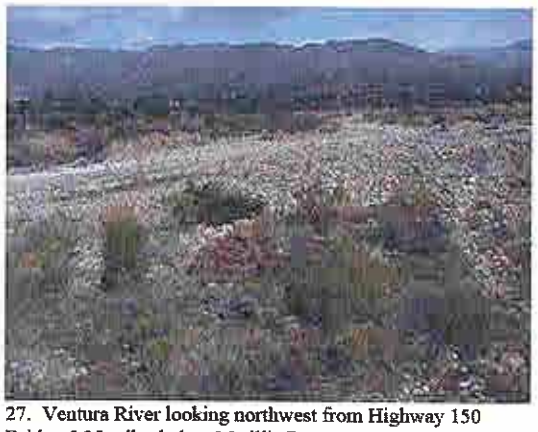


Figure 25. Ventura River Preserve looking southwest 0.0 to 2 miles below Robles Diversion. 2-08-07

Figure 26. Ventura River Preserve looking northwest 0.75 mile below Robles Diversion. 3-23-03



27. Ventura River looking northwest from Highway 150 Bridge 5.25 miles below Matilija Dam. 2-23-07

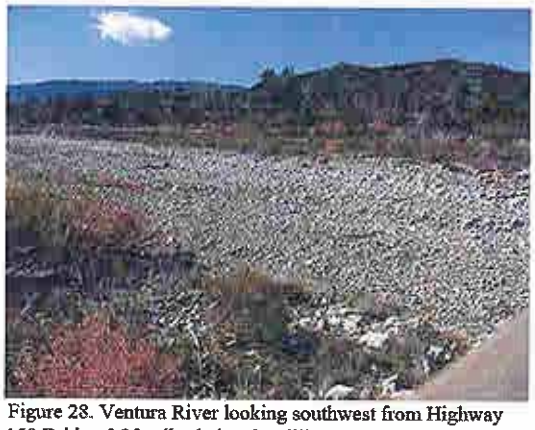


Figure 28. Ventura River looking southwest from Highway 150 Bridge 5.25 miles below Matilija Dam. 2-23-07

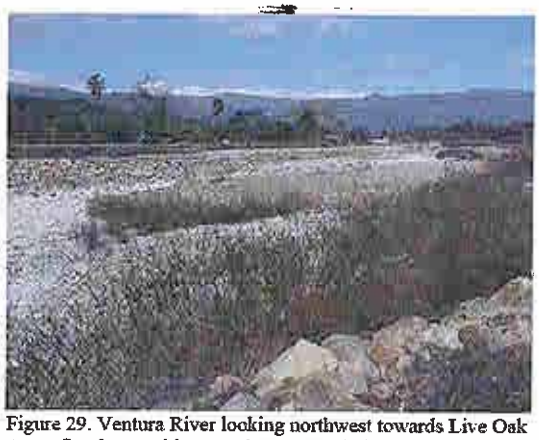


Figure 29. Ventura River looking northwest towards Live Oak Acres flood control levee at Sana Ana Blvd. Bridge 7.25 miles below Matilija Dam. 2-23.07

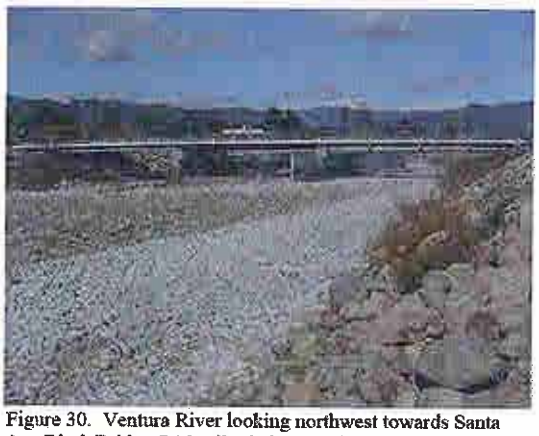


Figure 30. Ventura River looking northwest towards Santa Ana Blvd. Bridge 7.25 miles below Matilija Dam. 2-23-07

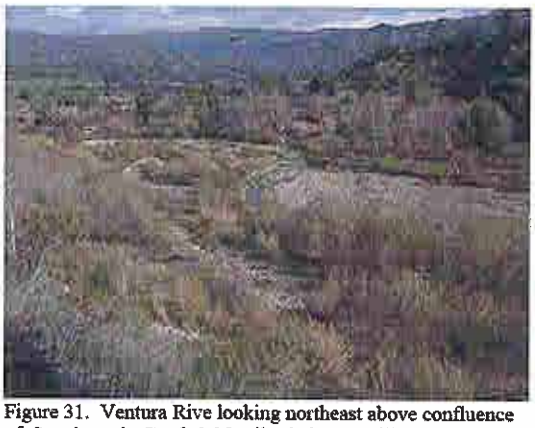


Figure 31. Ventura Rive looking northeast above confluence of San Antonio Creek 8.25 miles below Matilija Dam. 2-23-07

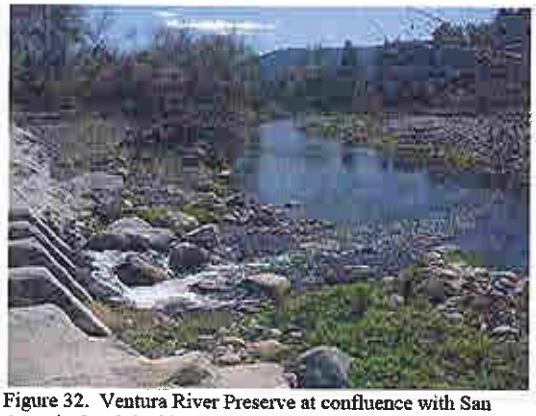


Figure 32. Ventura River Preserve at confluence with San Antonio Creek looking south 8.5 miles below Matilija Dam. 2-23-07

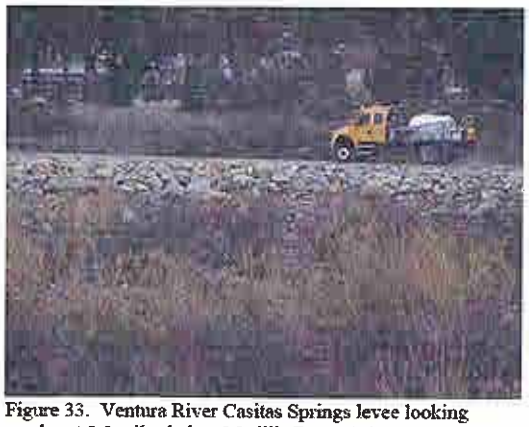


Figure 33. Ventura River Casitas Springs levee looking southeast 9.0 miles below Matilija Dam. 2-08-07

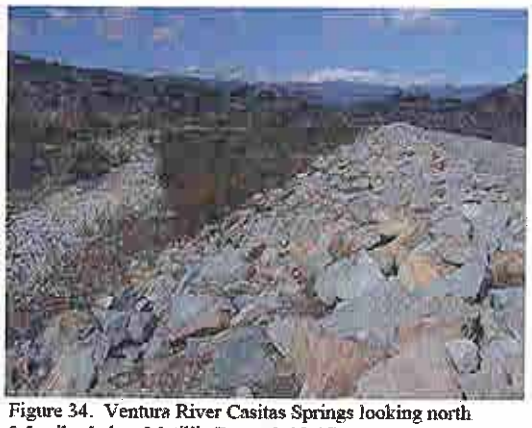


Figure 34. Ventura River Casitas Springs looking north 9.5 miles below Matilija Dam. 2-23-07

Figure 35. City of Ventura Foster Park submerged diversion dam and well-field area looking north 10.25 miles below Matilija Dam. 2-23-07

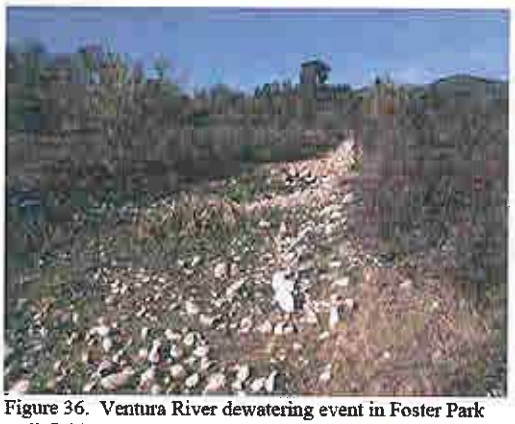


Figure 36. Ventura River dewatering event in Foster Park well-field area looking north 10.25 miles below Matilija Dam. 1-09-88

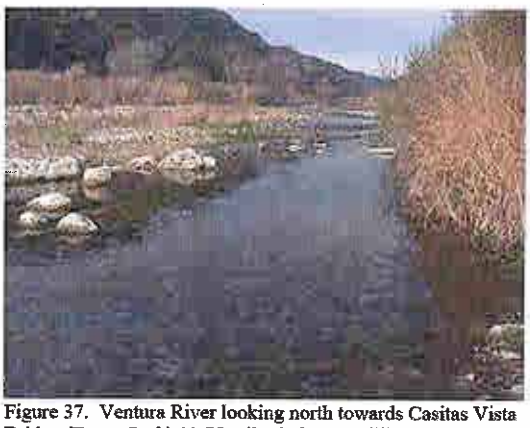


Figure 37. Ventura River looking north towards Casitas Vista Bridge (Foster Park) 10.75 miles below Matilija Dam. 2-08-07

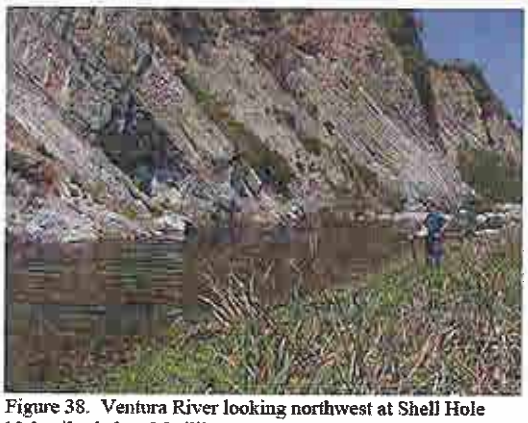


Figure 38. Ventura River looking northwest at Shell Hole 12.0 miles below Matilija Dam. 4-10-03

Figure 39. Ventura River looking north from Main Street Bridge 15.75 miles below Matilija Dam 2-23-07

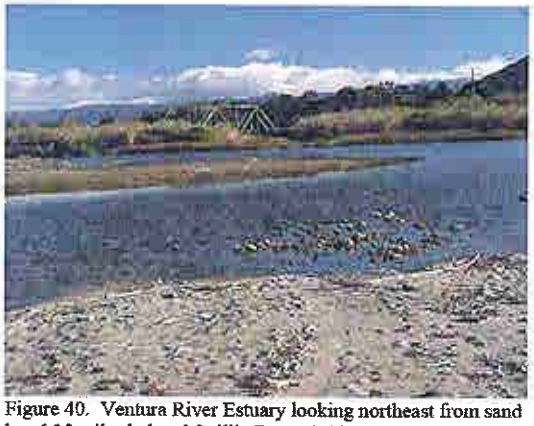
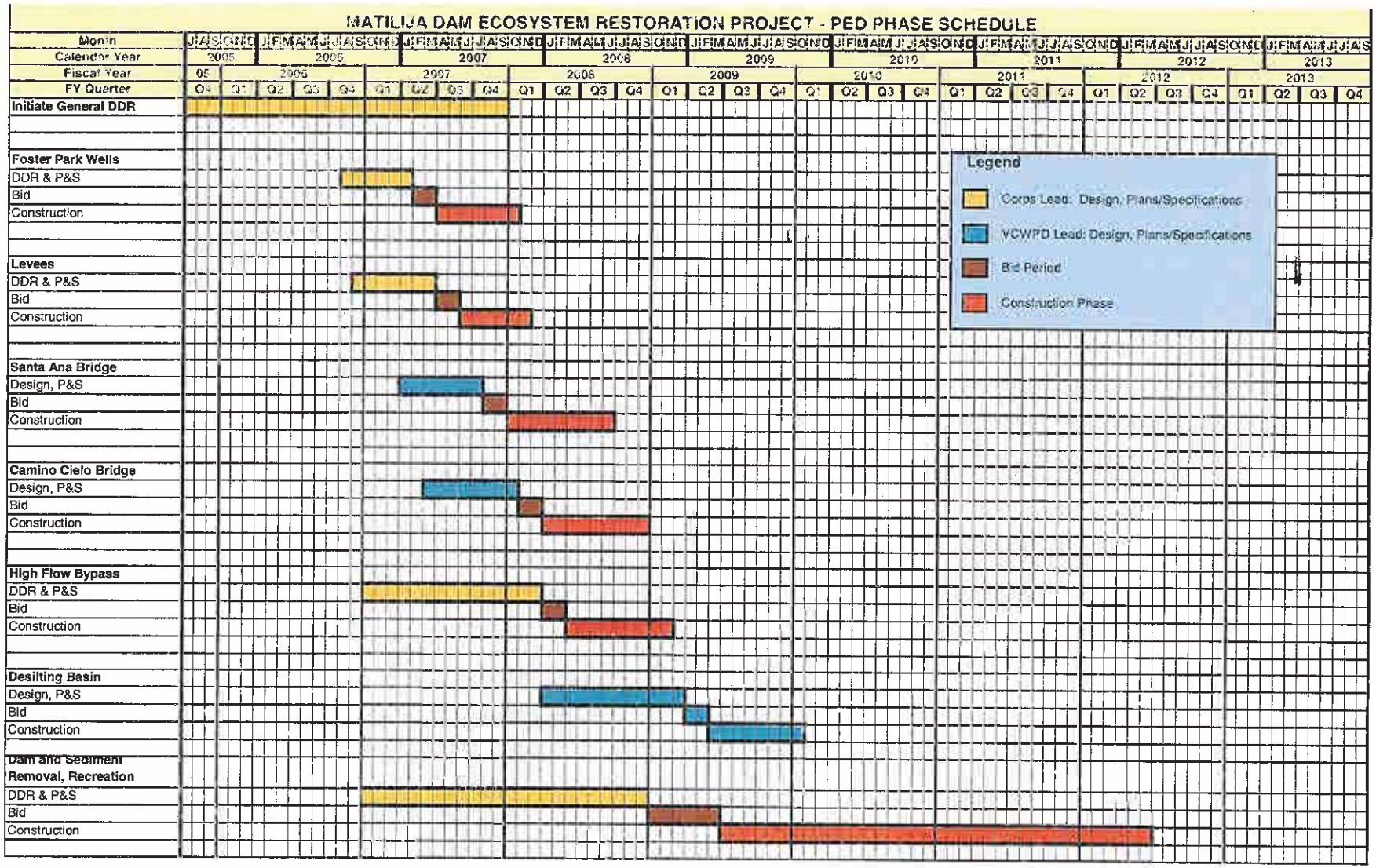


Figure 40. Ventura River Estuary looking northeast from sand bar 6.25 miles below Matilija Dam. 2-23-07

Appendix B

Generalized Schedule for Elements of the Proposed Action

MATILIJA DAM ECOSYSTEM RESTORATION PROJECT - PED PHASE SCHEDULE



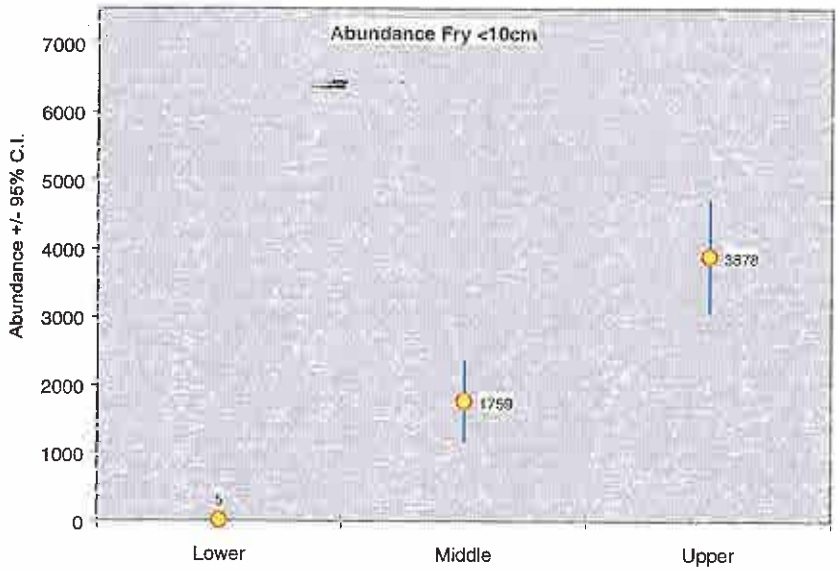
Appendix C

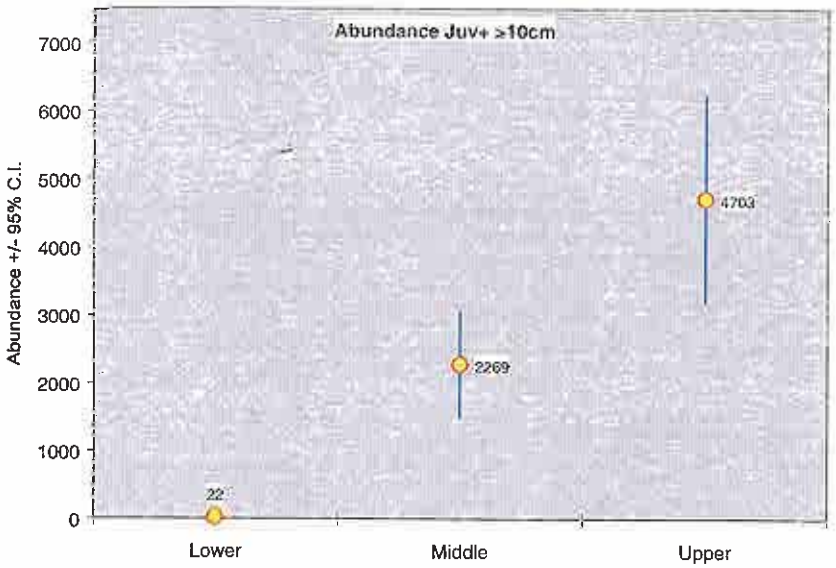
Aerial Photograph of the Proposed Construction Site on the Ventura River for the High-Flow Sediment Bypass

Present Robles Diversion Dam and location of proposed high flow by-pass
Robles Canal
Sluice Gates

Appendix D

Results of seelhead (*Oncorhynchus mykiss*) abundance surveys performed in Matilija Creek and Ventura River, summer 2006. Provided by M. Allen, Thomas R. Payne & Associates, Arcata, California





Lower = Ventura River from lagoon up to Robles Diversion Dam
Middle = Ventura River from Robles Diversion Dam up to Matilija Dam and Lower NF Matilija Creek up to Wheeler Gorge CG
Upper = Matilija Creek above Matilija Dam and Upper NF Matilija Creek (both to first impassable barriers) - NOT incl Murietta or Old Man Creeks

Appendix E

Photographs of the "Foster Park Reach" of the Mainstem Ventura River, February 8, 2007

Ventura River (looking south from Foster Park Bridge) 2-8-07

Ventura River (looking north 0.25 mile below Foster Park Bridge) 2-8-07

Appendix B

Ojai Valley Area Plan 2008 Amendment

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VENTURA COUNTY GENERAL PLAN

OJAI VALLEY AREA PLAN

Last Amended 02-05-2008

Ventura County Planning Division

VENTURA COUNTY GENERAL PLAN

OJAI VALLEY AREA PLAN

1990-1995 Decision-Makers and Contributors

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VENTURA COUNTY GENERAL PLAN

OJAI VALLEY AREA PLAN

Adopted by the Ventura County Board of Supervisors - July 18, 1995

Amended - December 10, 1996

Amended – October 28, 1997

Amended - July 13, 1999

Amended - November 19, 1999
(S.O.A.R. Election - March 7, 2000/Effective - April 7, 2000)

Amended – November 15, 2005

Amended – February 5, 2008

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Introduction

History

The first Area Plan governing the Ojai Valley was part of the Land Use Element of the General Plan for Ventura County and was adopted in 1963.

In March, 1977, the Board of Supervisors adopted an Emergency Ordinance to restrict subdivisions in the Ojai Valley because questions were raised regarding the cumulative impacts on air quality, traffic and water supply. They established a technical task force to prepare a report on the status of services and the quality of the physical environment in the Valley. In conjunction with that effort, County staff began work on the Ojai Valley Area Plan, which was subsequently adopted by the Board of Supervisors on August 14, 1979.

In 1988, during discussions regarding the comprehensive update to the Countywide General Plan, the Board of Supervisors directed County staff to "revisit" the Ojai Valley Area Plan.

Purpose

In general, the purpose of an Area Plan is to specify the distribution, location, types and intensity of land uses within a prescribed area, as well as provide specific policies concerning development in that area.

The specific purposes for updating the 1979 Ojai Valley Area Plan were to:

1. Update the Plan's technical information and goals, policies and programs in light of changing conditions;
2. Ensure that Area Plan policies are consistent with Countywide General Plan goals, policies and programs; and
3. Reformat the Area Plan to be consistent with other County Area Plans.

The planning area of the Ojai Valley Area Plan encompasses approximately 74,000 acres and is generally bound on the north by the Nordhoff Ridge, on the south by the Sulphur Mountain ridgeline, on the east by the mountain ridge between Bear Canyon and Santa Paula Canyon and on the west by the Lake Casitas/Ventura River watershed boundary. Parcel lines, which most closely match those identified geographic features, have been used as the actual boundaries in order to avoid the splitting of land use designations and zoning of parcels.

Due to staff vacancies, work on the update did not begin until July 3, 1990 when the Board of Supervisors adopted a Resolution of Intention directing staff to proceed with processing of a General Plan Amendment to update the Ojai Valley Area Plan.

Process

County staff began work on updating the Ojai Valley Area Plan by preparing a Background Report (separate document) which was completed in June, 1991. In order to provide for input from the citizens of the Ojai Valley, an Area Plan Advisory Committee was formed consisting of six representatives from District 1, appointed by Supervisor Lacey, and three representatives and one alternate from District 3, appointed by Supervisor Kildee. From July, 1991 through February, 1993 the committee held public meetings at which time they formulated goals, policies, programs and land use maps of the draft Ojai Valley Area Plan.

On February 8, 1993, the Ojai Valley Area Plan Advisory Committee preliminarily approved the draft Ojai Valley Area Plan, and on December 12, 1994, made its final recommendation to the County Planning Commission and Board of Supervisors. The Ojai Valley Area Plan was subsequently adopted by the Board of Supervisors on July 18, 1995.

Relationship To Other County General Plan Elements

The Ventura County General Plan is the plan by which the unincorporated portions of Ventura County will develop in the future. The County General Plan is divided into four chapters which

encompass the State-mandated General Plan elements. In addition to the general goals, policies and programs contained in these four chapters, portions of the unincorporated area of Ventura County are governed by more detailed land use plans (area plans) designed to reflect the needs and desires of those individual communities. The Ojai Valley Area Plan is the detailed land use plan of the Ventura County General Plan for the Ojai and Ventura River Valley areas. It should be noted that words in *italics* in the Area Plan are defined in its glossary or in the General Plan Goals, Policies and Programs volume.

State law also mandates that all elements of a general plan be consistent with one another. To achieve this consistency, the goals, policies and programs and maps of the Ventura County General Plan were reviewed and used in drafting this Area Plan. The goals, policies and programs of this Area Plan supplement those goals, policies and programs of the Countywide General Plan.

Overall Committee Goals For The Ojai Valley Area Plan Update

This Area Plan was developed in public meetings over a period of two years by a 10-member citizen's advisory committee. The following overall goal statements were used by the committee in drafting the Ojai Valley Area Plan:

A. The primary goals of the committee are to preserve and protect the character of the Ojai Valley and ensure and maintain the quality of life for its residents. These goals can only be met by ensuring that population densities, land uses, and development are consistent with the appropriate utilization of existing valley resources. The committee intends to protect and maintain a healthful and attractive environment for the inhabitants of the study area.

B. The character of the Ojai Valley is defined by its rural, small town qualities containing many natural and cultural resources, and framed by its commercial agricultural and open space lands which provide for scenic views and vistas. The committee, in establishing this list of goals, expressly recognizes that with respect to its most important resources, particularly air quality, transportation and water, the study area is at, nearing, or exceeding the limits of its resources. The recommendations of the committee, both as to general and specific goals, must be viewed in that context.

C. The committee recognizes that although the Ojai Valley comprises several distinct and diverse neighborhoods, it is one valley-wide community, wherein everyone shares a common air basin, road system, sources of water supply, etc.

The specific recommendations made by the committee with respect to the Plan were governed by the following general goals:

1. Ensure that the type, rate, amount and location of both the population and economic growth do not compromise the public health and safety (e.g. air quality, water quality, geologic, fire and flood hazards), nor exceed the Valley's ability to provide adequate public facilities and services (e.g., roads, sewers, water supply, parks, trails and schools).

2. Ensure that any future development within the study area is of high quality, consistent with the character of the Ojai Valley and beneficial to the community as a whole.

3. Within the limitations of the resources found within the study area, it is important to ensure that land uses are planned and managed to foster a healthy commercial and economic base.

4. Promote adequate housing opportunities by ensuring, to the extent possible, that a diversity of housing types for all segments of the population are provided.

5. Protect and preserve the continued viability of commercial agriculture within the study area.

6. Ensure that adequate and efficient public facilities and services (e.g., roads, sewers, water supply, parks, trails, public transportation, police, fire and schools) are provided to serve the existing and future residents of the Valley and that these facilities be sized and located in a manner which does not, in and of itself, induce and promote growth.

7. Utilize a common unified approach to land use planning and provide and enhance mechanisms for decision-making by area residents. The fiscal and political feasibility of a single valley-wide governmental entity should be explored.

8. Prevent the degradation of the Ojai Valley airshed from developments which are site specific sources of air pollution, specifically including a dump site in Weldon Canyon or elsewhere affecting the Ojai Valley airshed, whether privately or publicly owned and operated.

Definitions

The goals, policies and programs contained in this Area Plan express the intent of the Board of Supervisors, with input from the community and those governmental agencies responsible for providing services to the area. Goals, policies and programs are defined below:

Goal - The ultimate purpose of the County's effort stated in a way that is general in nature. Example: "Discourage further land divisions of large parcels that are presently in agricultural production or those that are suitable for agriculture."

Policy- A specific statement guiding day-to-day actions and implying clear commitment to carry out the goals of the General Plan in a prescribed manner. Example: "Land outside the existing urban area which is primarily in agricultural use shall be designated Open Space."

Program- A coordinated set of actions to carry out the goals of the plan. Example: "Special economic programs that aid agriculture, (e.g. the Land Conservation Act), will be preserved and promoted."

*****- An asterisk (*) next to a program means that particular program will not be pursued until the budgetary constraints affecting the County are relieved and the Planning Division is given direction by the Board of Supervisors to proceed with the program.

The goals, policies and programs are divided into four major sections as follows:

1. **Resources**
2. **Hazards**
3. **Land Use**
4. **Public Facilities And Services**

Overall Goals For The Ojai Valley Area Plan

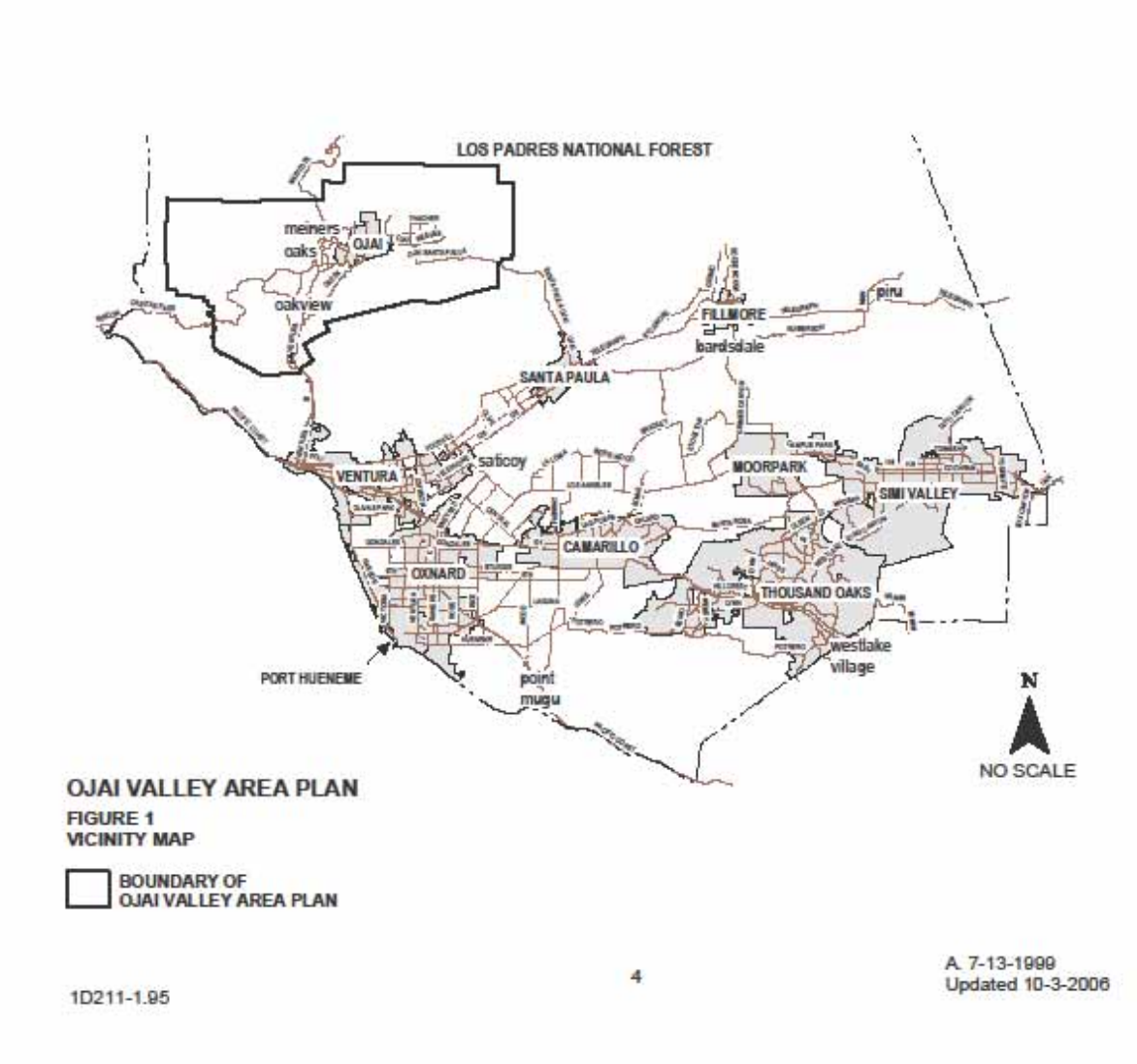
The following goals establish the overall framework for the Ojai Valley Area Plan:

A. The primary goals of the Ojai Valley Area Plan are to preserve and protect the character of the Ojai Valley and ensure and maintain the quality of life for its residents. These goals can only be met by ensuring that population densities, land uses, and *development* are consistent with the appropriate utilization of existing valley resources. The Plan has been written to protect and maintain a healthful and attractive environment for the inhabitants of the study area.

B. The character of the Ojai Valley is defined by its rural, small town qualities containing many natural and cultural resources, and framed by its commercial agricultural and open space lands which provide for scenic views and vistas. This Area Plan expressly recognizes that with respect to its most important resources, particularly air quality, transportation and water, the Ojai Valley is at, nearing or exceeding the limits of its resources. The recommendations of the Area Plan, both as to general and specific goals, must be viewed in that context.

C. This Area Plan recognizes that although the Ojai Valley comprises several distinct and diverse neighborhoods, it is one valley-wide community, wherein everyone shares a common air basin, road system, sources of water supply, etc.

Figure 1
Vicinity Map



1. Resources

1.1 Air Quality

1.1.1 Goals

1. Promote a level of air quality which protects the public health, safety and welfare and seeks to meet or surpass State and Federal primary and secondary standards.
2. Control oil and gas exploration/development, landfills and other industrial development which are site specific sources of air pollution by imposing conditions in order to move toward achieving State and Federal mandated air quality standards.
3. Promote public transportation with the intent of improving air quality.
4. Promote the development of alternative energy sources, with the intent of improving air quality, which are not deemed to cause other significant environmental impacts.

1.1.2 Policies

1. *Discretionary development* in the *Ojai Valley* shall be found to have a significant adverse impact on the regional air quality if daily emissions would be greater than 5 pounds per day of Reactive Organic Compounds (ROC) and/or greater than 5 pounds per day of Nitrogen Oxides (NOx).

1.1.3 Programs

*1. The Planning Division will prepare a program proposal for the Board of Supervisors' consideration to re-examine and lower the current pace of *development* in the *Ojai Valley* concurrent with the next update of the VCOG population, dwelling unit and employment forecasts.

*2. To the extent the methodology exists or can reasonably be determined, the Planning Division will prepare a program proposal for the Board of Supervisors' consideration to regulate the pace of commercial and industrial development.

3. South Coast Area Transit (SCAT) should provide public transit service both intra-valley and inter-city with particular emphasis on providing for senior and disabled persons and increasing service for commuters desiring to take public transit to and from work.

*4. The Planning Division will prepare a budgetary proposal for the preparation of a brochure to promote the use of alternative energy sources.

5. The Planning Division will amend the County Initial Study Guidelines so that the Ventura River Municipal Advisory Council and the City of Ojai will have review authority over all projects in the Ojai Valley Airshed that emit more than 5 lbs./day of NOx and/or ROC.

1.2 Water Resources

1.2.1 Goals

1. Ensure that water which currently meets State standards shall not be degraded and ensure that water quality which does not meet State standards is improved.

1.2.2 Policies

1. New *development* that generates sewage in *aquifer recharge areas* shall be required to comply with the County Sewer Policy.

* See Page 4

2. Existing homes and businesses with private sewage disposal systems that function improperly shall be required to make necessary modifications or to convert to a sewer system in compliance with the County Sewer Policy.
3. New oil and gas exploration and production activity shall not significantly affect the quality or quantity of the water supply.
4. *Discretionary development* which has the potential to deposit a significant amount of sedimentation, oil residue or other urban pollutants into the surface water drainage system shall be conditioned as appropriate, to require retention basins and oily water separators so that at least the first inch of rainfall from any one storm is retained within the project, in order that contaminants from urban runoff do not significantly impact downstream surface water quality and biological resources. The control devices used in the oily separators shall be properly maintained for the life of the authorized use.

1.2.3 Programs

1. The Casitas Municipal Water District, in coordination with the Ojai Groundwater Basin Management Agency, should investigate the *conjunctive use of water*, giving full consideration to all affected beneficial uses of water, including in-stream and out-of-stream beneficial uses.
*2. The Ventura County Flood Control District, Public Works Agency-Water Resources Division and Planning Division, City of Ojai, City of Ventura, water and sewer districts within the *Ojai Valley*, and appropriate Federal and State agencies should explore the development of a comprehensive watershed management study to address the full spectrum of water quantity and quality issues of the Ventura River system.
3. The Agricultural Department will continue to encourage the use of alternatives to chemical methods of pest control and fertilization.

1.3 Mineral Resources

1.3.1 Goals

1. Ensure that mineral extraction is conducted in a manner which is least impacting to the environment and the public's health, safety and welfare.
2. Ensure compatibility between oil and gas exploration and production and neighboring land uses.

1.3.2 Policies

1. Oil and gas exploration and production permits shall utilize "Best Available Control Technology" (BACT), as outlined by *APCD* Rules and Regulations.
2. Gases emitted from all oil and gas wells shall be collected and used or removed for sale or proper disposal, if feasible. Flaring or venting should only be allowed in cases of emergency or for testing purposes.
3. Electrically powered oil and gas exploration and production equipment shall be used where practical to alleviate pollution from internal combustion engines.
4. If it is determined there would be a significant visual impact created or if visible from a public road or publically owned land, oil and gas production sites shall be landscaped in accordance with an approved landscape plan.
5. Exploration activities for oil and gas shall be conditioned to require the restoration and revegetation of the site if the exploration does not result in oil and gas production facilities.

* See Page 4

6. Drill sites that would be silhouetted on a prominent ridge as illustrated by the Scenic Resource Protection Overlay Zone on Figure 2 (Resource Map), shall not be permitted.
7. No refining facilities shall be permitted within the *Ojai Valley*.
8. All *discretionary development* permits for oil and gas exploration and production shall be kept to a minimum size and area.
9. As existing oil and gas exploration and production permits are modified or come up for renewal, they shall be conditioned so that drilling and production will be subject to current policies, standards and conditions.

1.3.3 Programs

1. Conditions applied to *conditional use permits* for oil and gas exploration and development will be enforced to the maximum extent feasible in order to protect the health and welfare of the citizens and the character of the *Ojai Valley*.

1.4 Biological Resources

1.4.1 Goals

1. Protect significant *biological resources* within the *Ojai Valley* in order to maintain natural ecosystems and also preserve the natural beauty of the area.
2. Balance the preservation of *wetland habitats* with the need to adequately protect public safety and property from flooding hazards.
3. Recognize the role of fire in local ecosystems by supporting controlled burns and other fire prevention measures.

1.4.2 Policies

1. A biological field reconnaissance report detailing the composition of species at the site, the presence of *rare, threatened, endangered* or candidate plant or animal species, significant *wetlands, locally important plant communities*, and suitable mitigation measures shall be prepared by the County's biological consultant as part of the environmental assessment of all *discretionary development* permits involving earth movement or construction on previously undeveloped land where the natural vegetation still exists.
2. The California Department of Fish and Game, the U.S. Fish and Wildlife Service, the National Audubon Society, the California Native Plant Society and the Los Padres National Forest shall be contacted during the initial 30-day project review period for *discretionary development* proposals when proposals are submitted which may adversely affect the *biological resources* under their purview. This policy does not apply to *emergency permits*.
3. *Discretionary development* shall be located to avoid loss or damage to protected trees as defined in the County's Tree Protection Ordinance. Removal of protected trees shall only occur after review of the necessity of such removal, and in accordance with the provisions of the County's Tree Protection Ordinance.
4. Required revegetation or landscaping plans shall incorporate *indigenous plant species* where feasible in order to restore habitat in already disturbed areas.
5. Proposed *discretionary development* shall be coordinated with affected agencies that regulate water courses and wetland habitats early in the planning stages so as to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed, including protection of anadromous fish habitat.
6. *Discretionary development* within *high fire hazard areas* shall be reviewed with attention to the environmental impact of required brush clearance to *biological resources*, particularly on *moderate* to *steep slopes*. Brush clearance that reduces fuel volumes while allowing the selective retention of native shrubs a minimum of 20 feet apart should be encouraged, as permitted by the Ventura County Fire Protection District.

7. *Discretionary development* which would result in a significant adverse impact to a *Locally Important Plant Community* shall be required to replace such *Locally Important Plant Community* proposed for removal on at least a 1:1 basis and will be required to monitor the success of such planting for a minimum of seven years. In lieu of replacement, developers may dedicate without compensation, acreage containing such *Locally Important Plant Community* to a government agency or non-profit organization (e.g., a homeowners' association, a land conservancy) provided such entity will provide assurances that the dedicated *Locally Important Plant Community* acreage will be retained in a permanent undeveloped state. Such dedicated lands shall be at least two times the acreage of the *Locally Important Plant Community* which is proposed for removal. The form of such dedication may be fee title, conservation easement or other instrument approved by the County.

8. *Discretionary development* within 300 feet of the Ventura River, Coyote Creek, San Antonio Creek/Reeves Creek and Lion Canyon Creek, or located within the Sensitive Biological Resources Area (as illustrated on Figure 2) shall be reviewed to determine the potential for interference with *wildlife migration* opportunities and potential for impact on *"Endangered", "Threatened", "Rare*" or "*Locally Important*" species and communities. Projects which would result in significant adverse impacts to such resources shall be denied unless they can be mitigated to a less-than-significant level or a statement of overriding considerations is adopted by the decision-making body per CEQA requirements.

1.4.3 Programs

1. The U.S. Forest Service is encouraged to monitor and protect sensitive species, including the Ojai Fritillary. Appropriate resource management efforts to protect the Ojai Fritillary might include realignment of the Gridley Springs hiking trail and/or the transplanting of specimens to minimize the risk of extirpation of this species.

2. For any proposed Highway 33 improvements between Sulphur Mountain Road and Canada Larga Road, CALTRANS is encouraged to incorporate appropriate *wildlife migration* mitigation measures, such as underpasses or other means that will allow safe movement of wildlife between the Ventura River corridor and the Sulphur Mountain area.

1.5 Farmland Resources

1.5.1 Goals

1. Preserve agricultural land as a resource and economic benefit to the Ojai Valley.

2. Discourage the expansion of Rural and Existing Community designations into the East Ojai and Upper Ojai Valleys.

3. Minimize land use incompatibilities between agricultural operations and other land uses.

1.5.2 Policies

1. *Discretionary*, non-agricultural land uses adjacent to agricultural operations shall be required to establish appropriate buffers.

2. Land outside the Existing Community and Rural designated areas which is primarily in agricultural use shall be designated Open Space.

1.5.3 Programs

**1. The Planning Division will prepare a budgetary proposal to develop a brochure on the County's Right to Farm Ordinance in order to increase public awareness of the ordinance.

2. Special economic programs that aid agriculture (e.g., *Land Conservation Act*) should be preserved and promoted.

* See Page 4

1.6 Scenic Resources

1.6.1 Goals

1. Preserve and protect the significant visual quality and aesthetic beauty of the *Ojai Valley* which includes, but is not limited to, surrounding mountains, hills, and ridgelines, arroyos, barrancas and protected trees.
2. Preserve the scenic view of State, Federal and local park land in and around the *Ojai Valley.*
3. Ensure that *discretionary development* on or near ridgelines minimizes impacts from grading activities in order to preserve the natural beauty of the area.
4. Discourage the proliferation of antenna and satellite dish facilities from developing on ridgelines.

1.6.2 Policies

1. *Discretionary development*/grading which will significantly degrade or destroy a scenic view or vista from public roads or publicly-owned land shall be prohibited, unless the development/grading is a public project, or a private project for which there is a substantial public benefit, and overriding considerations are adopted by the decision-making body.
2. The area within 400 feet (horizontal) of prominent ridgelines as shown in Figure 2 shall be zoned "Scenic Resource Protection Overlay" in order to ensure that visual impacts of grading and attendant structures are minimized to the maximum extent feasible. *Discretionary development* shall be located and designed to minimize visibility and silhouetting against the skyline as viewed from nearby public roads, and shall incorporate as many of the following planning techniques as feasible:
   a. Limit construction to single-story structures on or near ridgelines;
   b. Utilize large building pad setbacks (50 feet or more) from the edge of a ridgeline;
   c. Utilize berms and landscaping to soften the visual impact of homes and graded areas;
   d. Utilize raised foundations, split-level designs, roof materials consisting of clay or concrete plate tile with a natural color, and other techniques to fit the home to the hillside terrain, and to minimize the amount of grading equired.
3. *Discretionary development* for antenna and satellite dish facilities shall be prohibited unless public need has been adequately demonstrated. When it can be demonstrated that antenna and/or satellite dish facilities are necessary for public safety or to provide a substantial public benefit, they shall be conditioned to minimize visual impacts to the maximum extent feasible. The following standards shall apply:
   a. Such facilities shall be colored to blend in with the background view and shall utilize landscaping which is consistent with the natural character of the area to screen or soften the visual impact of such facilities.
   b. The height of such facilities, with the exception of monopole whiptype antennas, shall be limited to 40 feet where technically feasible. Several shorter facilities are preferable to one larger facility.
   c. New facilities shall be avoided when feasible if there is available capacity on existing antenna facilities.
   d. Visual impacts of ancillary facilities (e.g., power lines, cables, equipment buildings) shall be taken into consideration in the conditioning of antenna facilities.
   e. *Discretionary development* permits for antenna facilities shall be reviewed by the Planning Division at least once every ten years. The purpose of such review is to ascertain whether there have been significant changes in antenna technology which

would allow replacement of existing apparatus with smaller or less visually intrusive equipment.

f. Abandoned or unused antenna equipment shall be removed.

4. As a result of *any discretionary development*, the reshaping of the natural terrain to permit access and construction shall be kept to the absolute minimum. Where possible, improvements shall be designed to conform to the terrain rather than the reverse and shall comply with the following:

   a. Transition Design: The angle of the graded slope shall be gradually adjusted to the angle of the natural terrain.

   b. Angular Forms: Angular forms shall generally not be permitted. The graded form shall reflect the natural rounded terrain, unless exposed rock faces can be used as a desirable visual element.

   c. Exposed Slopes: Graded slopes shall be concealed by landscaping, berms or other measures.

   d. The toe and crest of all cut and fill slopes in excess of five feet vertical height shall be rounded with vertical curves.

   e. Where cut or fill slopes exceed 100 feet in horizontal length, the horizontal contours of the slope shall be curved in a continuous, undulating fashion in conformance with natural slopes.

   f. Where cut and fill slopes in excess of five feet in height are created, detailed landscape and irrigation plans shall be submitted to and approved by the Planning Division and Public Works Agency prior to the issuance of any grading permit, conditional use permit or building permit. The plan will be reviewed for type and density of ground cover, seed-mix, hydromulch mix, plant sizes and irrigation systems.

5. *Discretionary development* on parcels containing protected trees as defined in the County's Tree Protection Ordinance, shall design necessary grading to ensure the survival and health of all such trees, except those which have been expressly authorized for removal or encroachment into the protected zone. These trees shall be protected from grading activities. If a permit has been issued for encroachment into the protected zone, the grading plan shall be accompanied by details for retaining walls and drainage devices prepared by a landscape architect.

6. A sign program shall be submitted concurrently with a *discretionary development* permit for all commercial and industrial development. Freestanding off-site advertising signs shall be prohibited. All on-site freestanding signs shall be limited to five feet in height.

7. Cut or fill slopes for *discretionary development* which exceed a vertical height of 25 feet shall be subject to a Planning Commission hearing.

1.6.3 Programs

*1. The Planning Division will prepare a budgetary proposal, for the Board of Supervisors' consideration, to develop ministerial ridgeline development standards which will regulate the height, shape and color of structures built on or near prominent ridge lines. Once these standards are adopted, the requirement for a Conditional Use Permit will be removed from properties zoned Scenic Resource Protection Overlay Zone outside of the Lake Casitas Resource Protection area. After the Planning Division prepares the proposal and before action is taken by the Board of Supervisors, a citizen's committee will convene for the purpose of reviewing and commenting on the proposal.

* See Page 4

1.7 Cultural Resources

1.7.1 Goals

1. Preserve and protect the unique *cultural resources* within the *Ojai Valley*.
2. Ensure the utilization of proper archaeological research and assistance to precede future development so as to prevent the loss or destruction of significant *archaeological* and *historic resources*.
3. Encourage the maintenance and use of facilities and organizations, (such as libraries, museums, historical societies and schools), which provides an understanding of the history and diversity of cultures in the *Ojai Valley* and surrounding areas.

1.7.2 Policies

1. All *discretionary development* permits involving construction or earth movement within the *Ojai Valley* shall be reviewed by the County's designated archaeological resource review organization.
   a. Whenever such *discretionary development* requires a field reconnaissance study, such study shall be conducted by a County approved archaeologist to determine the potential for surface or subsurface cultural remains.
   b. A *qualified archaeological monitor* shall be present to monitor significant trenching or earth movement at any such site if deemed to be needed by the study. If the archaeological monitor is not a Native American and Native American cultural resources are found at the site, then a Native American monitor shall be required.
   c. In the event that artifacts of historical or archaeological significance are uncovered, the *qualified archaeological monitor* shall be empowered to halt construction in the immediate vicinity of such unearthed artifacts until disposition of the site has been determined by the County Planning Division.
2. All structures and/or sites designated, or being considered for designation as County Historical Landmarks within the *Ojai Valley* shall be preserved or appropriately salvaged, when deemed reasonable by the permitting authority, as a condition of *discretionary development*. All costs of preservation/salvage shall be borne by the developer. An appropriate marker shall be placed on the site to describe the historical significance of the structure, site or event.

1.7.3 Programs

1. The Planning Division will review the County's list of qualified archaeological monitors every five years.

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2. Hazards

2.1 Geotechnical Hazards

2.1.1 Goals

1. Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from seismic and geological hazards.

2.1.2 Policies

1. Developers shall provide all necessary information relative to seismic and geologic hazards which may affect their project. The developer shall specify how they intend to alleviate any and all identified hazards.
2. *Discretionary development* shall be prohibited in seismic and geologic hazard areas (as identified during the environmental review process) where such hazards cannot be mitigated to less-than-significant levels.

2.2 Flood Hazards

2.2.1 Goals

1. Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from flood hazards.

2.2.2 Policies

1. New *development* shall be protected from flood hazards and shall not adversely affect the flood carrying capacity of the area of Special Flood Hazard, as provided for in the Flood Plain Management Ordinance.
2. Subdivisions of land within the 100 year floodplain of the Ventura River shall be prohibited until flood control facilities to protect the area from the 100-year flood are constructed by the Ventura County Flood Control District (VCFCD) or others.

2.2.3 Programs

1. The County Sheriff's Department Office of Emergency Services, in coordination with the Ventura County Flood Control District and the Casitas Municipal Water District, will maintain and update as necessary an emergency warning and evacuation plan to protect affected residents in the event of failure or spill-over of either the Matilija Dam or the Casitas Dam.

2.3 Fire Hazards

2.3.1 Goals

1. Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from fire hazards.
2. Ensure that development in "*high*" and *"very high" fire hazard areas* provides adequate protection of life and property.
3. Support controlled burn programs and other fire prevention measures.

2.3.2 Policies

1. *Discretionary development* permits shall be conditioned to provide adequate water and access for fire fighting purposes as determined by the Fire Protection District. Adequate access and fire flow improvements shall be completed prior to combustible construction.
2. All roads shall meet or exceed the standards of the Fire Protection District.

3. *Discretionary development* in "*high*" and "*very high" fire hazard areas*, as determined by the Ventura County Fire Protection District shall be required to develop landscape plans utilizing fire retardant plant material, cleared areas, or other acceptable means of reducing fire hazards consistent with Fire Protection District standards.
4. A Fire Protection District approved *fuel modification zone* (fuel break) of at least 100 linear feet shall be provided around all combustible structures located in *"high"* or *"very high" fire hazard areas*.
5. Fire-retardant roofing materials shall be required for new construction in *"high"* and *"very high" fire hazard areas.*

2.3.3 Programs

1. The Fire Protection District, in cooperation with the Los Padres National Forest Service, will continue control burn programs as necessary.
2. The Ventura County Fire Protection District should continue the fire hazard management (including enforcement of brush clearance requirements) program within the *Ojai Valley*.
3. [*] The Ventura County Fire Protection District should prepare, for the Board of Supervisors' consideration, a budgetary proposal to upgrade the Oak View Fire Station.

2.4 Noise Hazards

2.4.1 Goals

1. Provide for a quiet environment within the *Ojai Valley* through proper land use planning and permit conditioning.
2. Separate and/or buffer *noise sensitive uses* from noise generating uses.

2.4.2 Policies

1. *Discretionary development* which would create significant noise impacts shall not be permitted to locate near residences and other *noise sensitive uses* (dwellings, schools, hospitals, nursing homes, churches and libraries) unless the impact is mitigated to an insignificant level, as defined in Section 2.16.2.1(4) of the Countywide General Plan.
2. *Noise sensitive uses* shall be buffered from excessive road noise by either the placement of walls or berms, the establishment of setbacks, greenbelts and appropriate speed limits, installation of double glazed windows, or other appropriate means.
3. Mufflers shall be used on all heavy construction equipment used in conjunction with *discretionary development* and equipment used in oil/gas exploration and production activities.

2.4.3 Programs

1. The Ventura River Valley Municipal Advisory Council (or successor group) will continue to review all *discretionary* projects within its review boundaries that could generate significant noise impacts affecting the *Ojai Valley*.

[*] See Page 4

3. Land Use

3.1 General Land Use

3.1.1 Goals

1. Maintain the existing rural, small town character of the *Ojai Valley*.
2. Locate new *development* primarily within the existing urban communities and rural residential areas in order to avoid encroaching into established agricultural operations and undeveloped open space lands, and to minimize environmental degradation.
3. Ensure that future *discretionary development* within the study area is of high quality, consistent with the character of the *Ojai Valley*, and beneficial to the community as a whole.
4. Ensure that there are adequate public facilities and services available to serve the needs of the present and future residents of the *Ojai Valley* before additional growth is allowed to occur.
5. Promote the annexation of property located within the Ojai *Sphere of Influence* to the City of Ojai, in accordance with the County's *Guidelines for Orderly Development*.
6. Establish zoning and land use designations within the City of Ojai's *Sphere of Influence* to reflect existing parcel sizes and uses so that future *discretionary development* requests would be required to annex and develop under the auspices of the City.

3.1.2 Policies

1. All zoning shall be in conformance with the Land Use Maps (Figures 3, 4, 5 and 6) and Zoning Compatibility Matrix (Figure 7). A Summary Table (Figure 8) lists each land use designation and its total area, building intensity, population capacity, and population density.
2. Outward expansion of the boundaries of the Existing Community areas, as delineated on Figures 4, 5 and 6, shall be prohibited.
3. All *discretionary development* projects shall be reviewed and conditioned to ensure that they are compatible with their surroundings, are of high quality and good design, are consistent with the character of the *Ojai Valley*, and are beneficial to the community as a whole.
4. *Discretionary development* shall be required to demonstrate that there are adequate public facilities and services available to serve the needs of the proposed development.
5. Property owners requesting a *discretionary* permit in conjunction with existing *development* (e.g. a modification to an existing CUP or PD) within the City of Ojai's *Sphere of Influence* shall be encouraged to request annexation to the City of Ojai prior to consideration of their request by the County.
6. The following annexation policies shall apply to all requests for subdivisions of land and all requests for *discretionary development* permits which would result in new uses on land designated Existing Community or Rural within the Ojai *Sphere of Influence*:
   a. Owners of property contiguous and legally annexable to the City of Ojai shall be required to request annexation to the City prior to consideration by the County of any subdivision of land or request for new *discretionary development*. Such subdivisions and *discretionary development* requests shall not be accepted by the County unless an application for annexation has been denied by the City or the *Local Agency Formation Commission (LAFCO).*
   b. Owners of property not contiguous and legally annexable to the City shall be required to record an *agreement to annex* when such property becomes legally annexable, as a

condition of any subdivision or new *discretionary development* approved by the County. This agreement to annex shall contain language that is binding on all future owners of the property.

3.1.3 Programs

1. The City of Ojai will be requested by the Planning Division to process *discretionary* permits concurrently with any request for annexation.

*2. The Planning Division will prepare a budgetary proposal to develop, with suitable public input, a set of guidelines that will ensure that *discretionary development* projects are compatible with their surroundings, are of high quality and good design, are consistent with the character of the *Ojai Valley* and beneficial to the community as a whole. The general parameters of these guidelines have been included as Appendix "A" of the Ojai Valley Area Plan.

3. The Planning Division will prepare, on behalf of the Board of Supervisors, a request to LAFCO to amend the existing city Sphere of Influence line in the area north of El Roblar and west of Highway 33 in the Existing Community of Meiners Oaks.

3.2 Open Space

3.2.1 Goals

1. Preserve the undeveloped lands which surround and frame the urban and rural communities of the *Ojai Valley* as a means of retaining the existing natural, scenic resources of the area.

2. Preserve agricultural lands as a valuable resource in the *Ojai Valley*.

3. Prevent *development* from occurring in areas where it would exceed the ability to provide public facilities and services.

3.2.2 Policies

1. Open Space designated parcels shall be zoned in conformance with the Land Use Map (Figure 3) and Zoning Compatibility Matrix (Figure 7) which have been developed in accordance with the above goals. Within the Open Space designation, there are four subcategories, each with a different minimum parcel size. The minimum parcel size for the OS 10 subcategory is 10 acres, OS 20 is 20 acres, OS 40 is 40 acres and OS 80 is 80 acres.

2. The Open Space designation shall be used to define the boundaries of the Existing Community and Rural designated areas, in order to prevent urban sprawl and to promote the efficient use of public facilities and services by confining the areas of *development*.

3. All *discretionary development* that would have a significant unavoidable impact on agricultural operations in Open Space designated lands shall be prohibited unless a statement of overriding considerations is adopted by the decision-making body.

3.2.3 Programs

1. The County will continue to support the work of the Ojai Valley Land Conservancy, the Ventura County Agricultural Land Trust and Conservancy and other similar preservation organizations that might acquire and maintain "Public Open Space" lands within the *Ojai Valley*.

* See Page 4

3.3 Rural Institutional

3.3.1 Goals

1. Recognize the camps and educational uses in the *Ojai Valley* that require large acreage and are set in a rural environment.

3.3.2 Policies

1. Rural institutional development shall be zoned in conformance with the Land Use Maps (Figures 4, 5 and 6) and Zoning Compatibility Matrix (Figure 7) that have been developed in accordance with the above goal.
2. The principal uses allowed in the Rural Institutional designation shall be camps and educational facilities. Other permitted uses include those uses which are found to be necessary to maintain the principal use, or other accessory uses that are customarily incidental, but subordinate to the principal permitted use.
3. The minimum parcel size consistent with the Rural Institutional land use designation is 20 acres.

3.4 Rural Residential

3.4.1 Goals

1. Recognize and plan for low density, large lot (2 to 10 acres in size) residential development and other compatible and ancillary land uses in a rural setting.
2. Provide a transitional land use designation to buffer agricultural and open space lands from the more densely developed urban areas.

3.4.2 Policies

1. Rural Residential designated parcels shall be zoned in conformance with the Land Use Maps (Figures 4, 5 and 6) and Zoning Compatibility Matrix (Figure 7) that have been developed in accordance with the above goals. Within the Rural Residential designation there are two subcategories, each with a different minimum parcel size. The minimum parcel size for the RR 2 subcategory is 2 acres and RR 5 is 5 acres.
2. Minimum parcel size consistent with the Rural Residential land use designation for residential parcels is 2 to 10 acres.

3.5 Urban Residential

3.5.1 Goals

1. Ensure that existing and future Urban Residential land use patterns result in cohesive and consolidated neighborhoods.
2. Promote adequate housing opportunities by ensuring, to the extent possible, that a diversity of housing types for all segments of the population is provided.
3. Provide housing opportunities affordable to people of all income levels.
4. Encourage the use of the “R-P-D” zone on undeveloped parcels of five acres in size or larger which are designated Urban Residential, except in situations of in-fill development where it would not result in a cohesive, consolidated neighborhood.
5. Improve the condition of existing substandard housing and housing otherwise in need of rehabilitation.

3.5.2 Policies

1. Urban Residential designated parcels shall be zoned in conformance with the Land Use Maps (Figures 4, 5 and 6) and Zoning Compatibility Matrix (Figure 7) that have been

developed in accordance with the above goals. Within the Urban Residential designation there are five subcategories, each with a different density limitation. The density range permitted in the UR 1-2 subcategory is 1 to 2 DU/acre, UR 2-4 is 2 to 4 DU/acre, UR 4-6 is 4 to 6 DU/acre, UR 6-10 is 6 to 10 DU/acre and UR 10-20 is 10 to 20 DU/acre.

2. New residential *discretionary development* shall be conditioned so as to be compatible with its surroundings and to maintain the character of the *Ojai Valley*.

3.5.3 Programs

1. The Area Housing Authority will continue to administer the HOME improvement program (funded by Community Development Block Grants) to provide low interest loans, deferred payment loans and grants to qualified low income home owners within the *Ojai Valley* for the purpose of rehabilitating substandard or deteriorated housing.
2. The Planning Division will investigate ways to provide preferential treatment to affordable housing projects on the Ojai Valley Clean Air Ordinance waiting lists.

3.6 Commercial

3.6.1 Goals

1. Provide commercially designated property to meet the convenience shopping and service needs of the residents of the *Ojai Valley*.
2. Locate and design commercial land uses so as to minimize land use incompatibility with urban and rural residential, open space and agricultural land uses.
3. Discourage the expansion of strip commercial development.

3.6.2 Policies

1. Commercially designated parcels shall be zoned in conformance with the Land Use Map (Figures 4, 5 and 6) and Zoning Compatibility Matrix (Figure 7) which have been developed in accordance with the above goals.
2. *Discretionary development* in Commercial designated areas shall be subject to either a *Planned Development* or a *Conditional Use Permit* to assure compatibility with neighboring land uses. Such review shall give careful attention to landscaping, signage, access, site and building design and size, drainage, on-site parking and circulation, operating hours, fencing and mitigation of nuisance factors.

3.7 Industrial

3.7.1 Goals

1. Recognize the current industrial uses within the Ojai Valley.
2. Provide for industrial uses that are sensitive to the environment and to re-enforce the need to conserve local resources.
3. Locate and design industrial land uses so as to minimize land use incompatibilities with urban and rural residential, open space and agricultural uses, and to minimize aesthetic impacts.

3.7.2 Policies

1. Industrially designated parcels shall be zoned in conformance with the Land Use Maps (Figures 4, 5 and 6) and Zoning Compatibility Matrix (Figure 7) which have been developed in accordance with the above goals.
2. *Discretionary development* in Industrial designated areas shall be subject to either a *Planned Development* or *Conditional Use Permit* to assure compatibility with neighboring uses. Such review shall give careful attention to aesthetics, landscaping, signage, access, site and building design and size, drainage, on-site parking and circulation, operating hours, fencing and mitigation of nuisance factors.
3. Expansion of “M-2” and “M-3” zoning shall be prohibited.

Figure 2
Resources Map

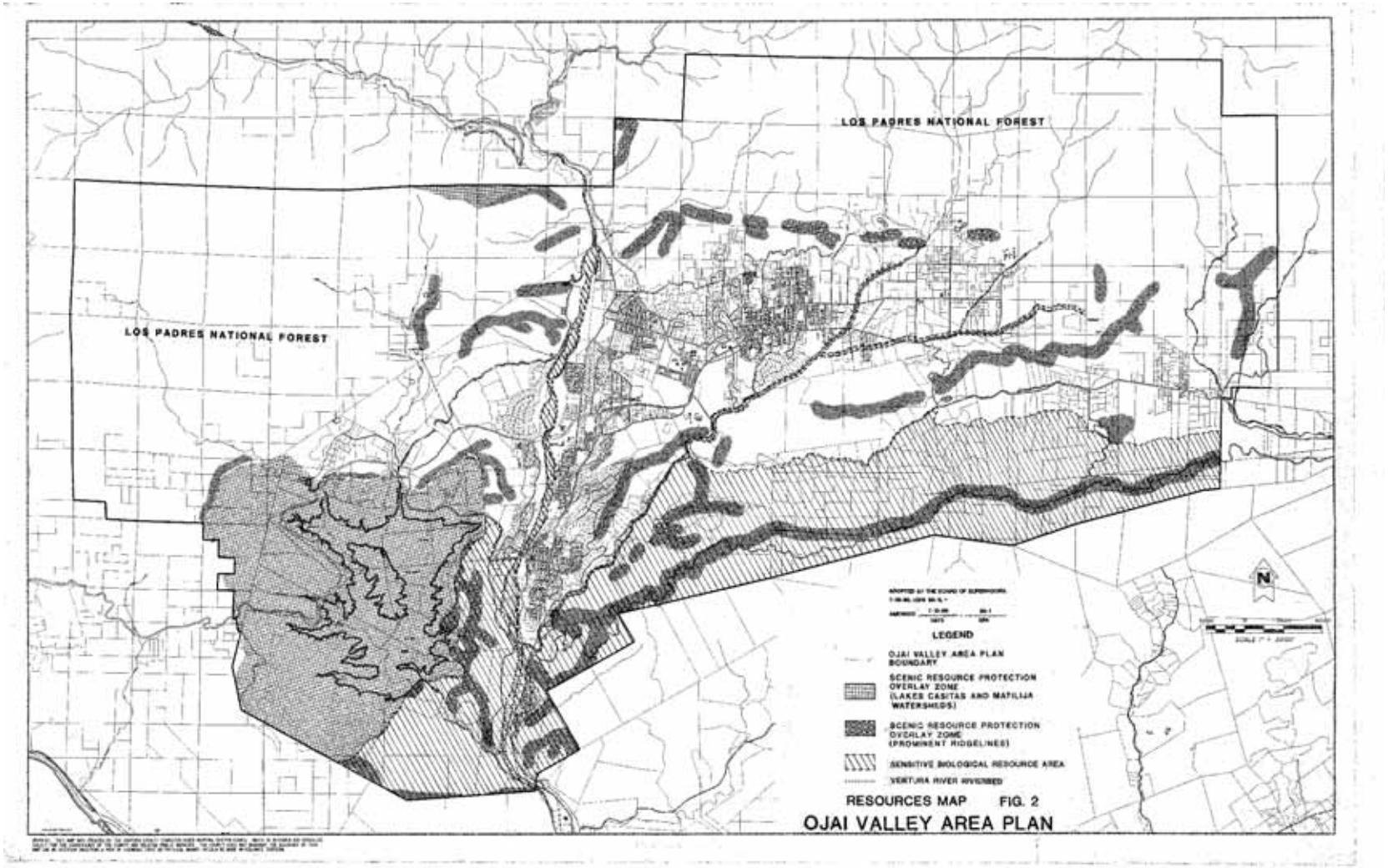

Figure 3
Land Use Map Open Space

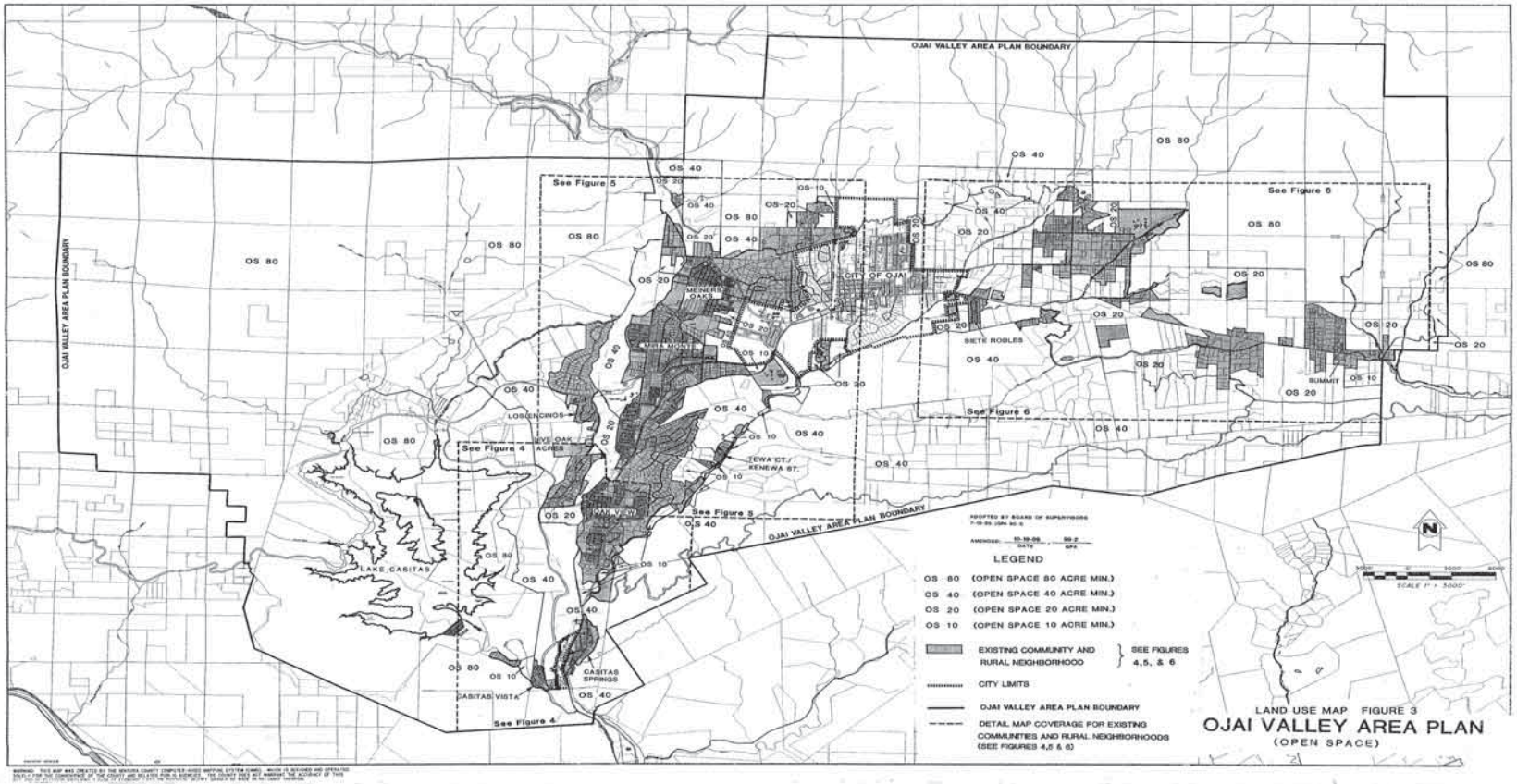

Figure 4
Land Use Map
Oak View, Casitas Springs, Live Oak Acres and Vicinity

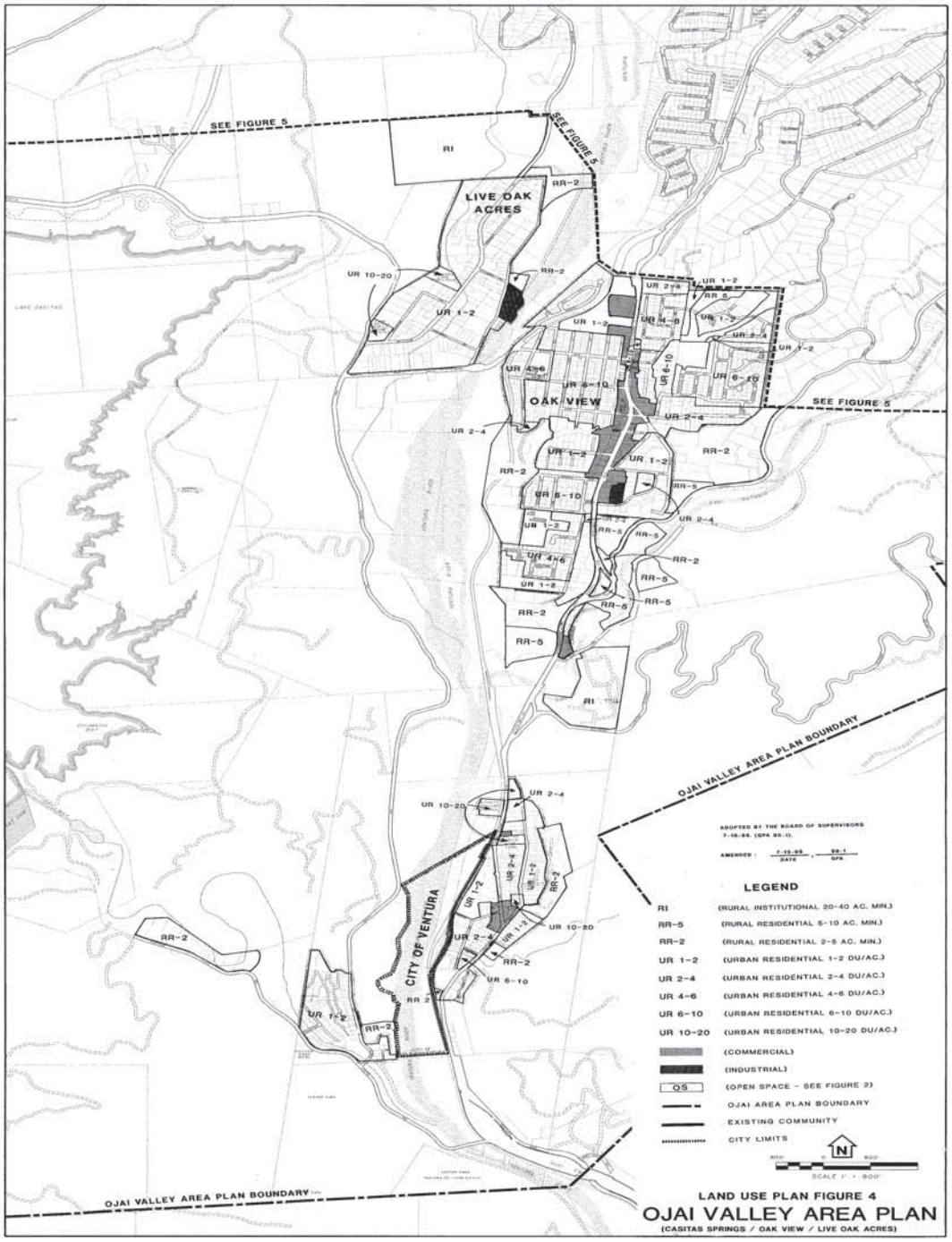

Figure 5
Land Use Map
Mira Monte, Meiners Oaks and Vicinity

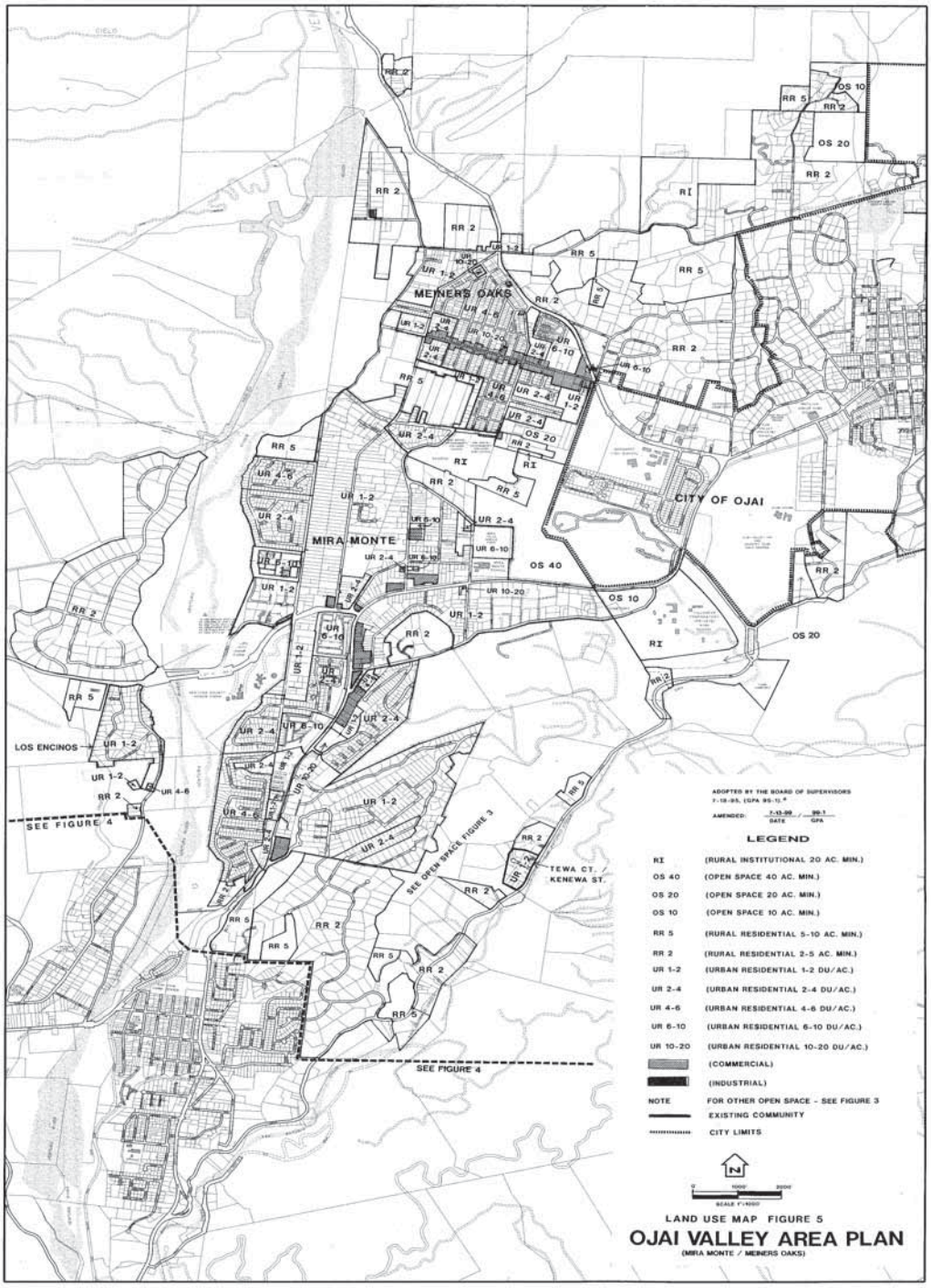

Figure 6
Land Use Map
East Ojai Valley, Summit and Vicinity

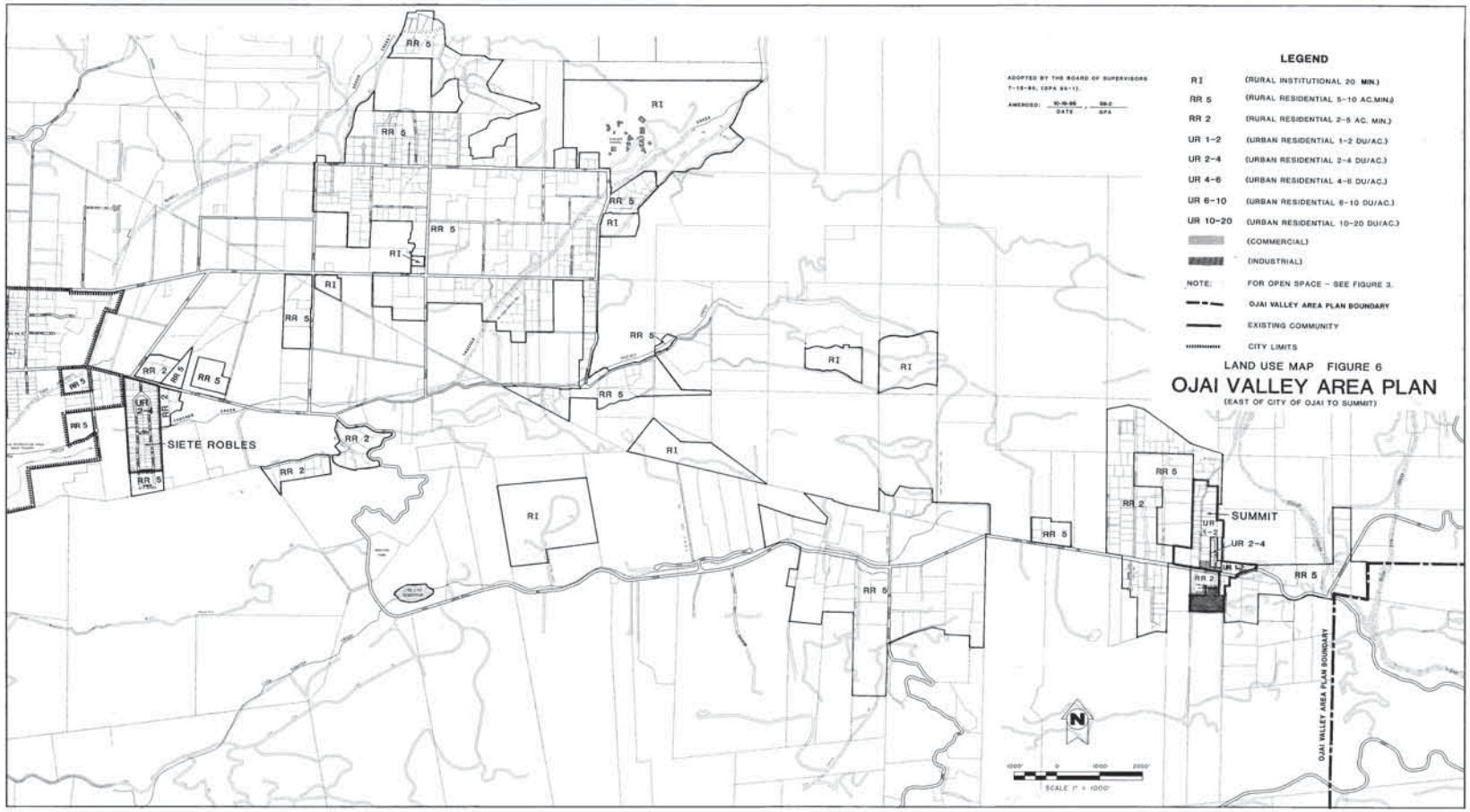

Figure 7
Zoning Compatibility Matrix

AREA PLAN MAP LAND USE DESIGNATIONS		ZONES O-S (10 AC. Min.)	A-E (40 AC. Min.)	R-A (1 AC. Min.)	R-E (10,000 S.F. Min.)	R-O (20,000 S.F. Min.)	R-1 (6,000 S.F. Min.	R-2 (3.500 S.F./DU)	R-P-D	S-P	T-P	C-O	C-1	C-P-D	M-1	M-2	M-3
OS 80	**(Open Space 80 Acre Min.)**	80 AC	80 AC														
OS 40	**(Open Space 40 Acre Min.)**	40 AC	○								○						
OS 20	**(Open Space 20 Acre Min.)**	20 AC	○								○						
OS 10	**(Open Space 10 Acre Min.)**	○	○								○						
R 1	**(Rural Institutional 20 Ac. Min.)**			20 AC	20 AC												
RR 5	**(Rural Residential 5-10 Ac. Min.)**			5 AC	5 AC	5 AC					○						
RR 2	**(Rural Residential 2-5 Ac. Min.)**			2 AC	2 AC	2 AC					○						
UR 1-2	**(Urban Residential 1-2 DU/Ac.)**			*	20	○	20		2 U		○						
UR 2-4	**(Urban Residential 2-4 DU/Ac.)**					○	10		4 U								
UR 4-6	**(Urban Residential 4-6 DU/Ac.)**						○		6 U								
UR 6-10	**(Urban Residential 6-10 DU/Ac.)**							○	10 U								
UR 10-20	**(Urban Residential 10-20 DU/Ac.)**								20 U								
COM	**(Commercial)**													○			
IND	**(Industrial)**														○	**	**

* Applies to those parcels zoned "R-A" as of 7/18/95

** Only compatible within parcels zoned "M-2" and "M-3" as of 7/18/95

□ Not compatible with Plan

○ Compatible with Plan

X U — Compatible only with zone suffix equal to or more restrictive than that shown in circle.

X AC = X acre minimum lot size

X = X thousand square feet minimum lot size

X U = X units per acre maximum

A. 7-13-99

Figure 8
Building Intensity/Population Density Standards Table

Open Space/Residential

Designation		Net Acres	Max. Bldg. Coverage (% Of Lot Area)	Maximum Intensity (DU/AC)[1]	Dwelling Units	Average Pop/DU[2]	Population	Average Population Density (Persons/Acre)
OS 80	(80 Ac. Min.)	42,198	5%[3]	0.013	143[5]	2.51	359[5]	0.03
OS 40	(40 Ac. Min.)	14,490	5%[3]	0.025	362	2.51	908	0.06
OS 20	(20 Ac. Min.)	6,690	5%[3]	0.05	335	2.51	841	0.12
OS 10	(10 Ac. Min.)	467	5%[3]	0.1	47	2.51	118	0.25
RI	(20 Ac. Min.)	966	25%	N/A	N/A	N/A	N/A	N/A
RR 5	(5-10 Ac. Min.)	2,039	25%[4]	0.2	408	2.51	1,024	0.50
RR 2	(2-5 Ac. Min.)	1,504	25%[4]	0.5	752	2.51	1,888	1.22
UR 1-2	(1-2 DU/Ac.)	1,223	28%[4]	2.0	2,446	2.43	5,943	4.86
UR 2-4	(2-4 DU/Ac.)	349	35%[4]	4.0	1,396	2.43	3,392	9.72
UR 4-6	(4-6 DU/Ac.)	137	45%[4]	6.0	822	2.43	1,997	14.47
UR 6-10	(6-10 DU/Ac.)	269	50%[4]	10.0	2,690	2.43	6,537	24.30
UR 10-20	(10-20 DU/Ac.)	94	60%	20.0	1,880	2.43	4,568	48.60
TOTALS		70,426			11,281		27,575	

Commercial/Industrial

Designation	Net Acres	Max. Bldg. Coverage (% Of Lot Area)	Projected Floor Area (X 1,000 SF)	Average Number Of Employees Per 1,000 SF	Employees	Average Number Of Employees/Acre
C-Commercial	99	60%	633	2.0	1,266	13.0
I-Industrial	25	50%	218	2.0	436	17.4
TOTALS	124		851		1,702	

Footnotes

[1] Excludes second dwelling units.
[2] Year 2010 Forecast for Ojai Growth and Nongrowth Areas.
[3] Excludes structures used for growing plants such as greenhouses, hothouses, and agricultural shade/mist structures, but includes structures used for preliminary packing, storage and preservation of produce and similar structures. For nonconforming lots of less than 10 acres in area, maximum *building coverage* shall be 2,500 square feet, plus 1 square foot for each 22.334 square feet of lot area over 5,000 square feet. Greater building coverage may be allowed under discretionary permits for Farmworker Housing Complexes and may be allowed on non-conforming lots by discretionary permits for existing uses listed in the zoning ordinance under the heading of "Crop and Orchard Production".
[4] For nonconforming lots of less than one acre in area, maximum *building coverage* shall be as specified, or 2,500 square feet, plus 1 square foot of building area for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.
[5] Projection adjusted to reflect 74% (31,249 acres) of OS-80 designation is owned by US government and thus will not be developed with housing.
N/A = Not Applicable

4. Public Facilities And Services

4.1 Transportation And Circulation

4.1.1 Goals

1. Promote a safe road system throughout the *Ojai Valley* without encouraging population growth and development.
2. Encourage alternatives to single occupancy motor vehicle trips by promoting carpools, vanpools and expanded bus service.
3. Encourage the expansion of the Ojai Valley Trail.

4.1.2 Policies

1. The County Road Standards and Five-Year Capital Improvement Programs shall be consistent with the goals, policies and programs of the Area Plan.
2. For the area covered by this plan, the minimum acceptable *Level of Service (LOS)* for road segments and intersections within the *Regional Road Network* and *Local Road Network* shall be as follows:
   a. *LOS - 'D'* for all *County thoroughfares* and *State highways* within the unincorporated area of the County, except as otherwise provided in Subparagraph (b);
   b. *LOS - 'E'* for Highway 33 between the end of the freeway and the City of Ojai;
   c. *LOS - 'C'* for all *County maintained local roads*; and
   d. The *LOS* prescribed by the City of Ojai's General Plan for all city thoroughfares and city-maintained local roads located within that city, if the city has formally adopted policies (similar to Policies 4.1.2-2 through 4) respecting *discretionary development* in the city that would affect the *LOS* of *County thoroughfares, County-maintained local roads*, and *State highways* within the unincorporated area of the County.

   At any intersection between two roads, each of which has prescribed minimum acceptable *LOS*, the lower *LOS* of the two shall be the minimum acceptable *LOS* for that intersection.
3. Area Plan land use designation changes, zone changes and *discretionary development* shall be evaluated for individual and cumulative impacts on existing and future roads, with special emphasis on the following:
   a. Whether they would cause existing roads within the *Regional Road Network* or *Local Road Network* that are currently functioning at an acceptable *LOS* to function below an acceptable *LOS*;
   b. Whether they would worsen traffic conditions on existing roads within the *Regional Road Network* that are currently functioning below an acceptable *LOS*; and
   c. Whether they could cause future roads planned for addition to the *Regional Road Network* or the *Local Road Network* to function below an acceptable *LOS*.
4. Area Plan land use designation changes, zone changes and *discretionary development* that would individually or cumulatively cause any of the impacts identified in subparagraphs (a) through (c) of Policy 4.1.2-3 (above) shall be prohibited unless feasible mitigation measures are adopted that would ensure that the impact does not occur or unless a project completion schedule and full funding commitment for road improvements are adopted that ensure that the impact will be eliminated within a reasonable period of time. This policy does not apply to *city thoroughfares*, city-maintained *local roads,* or *Federal or State highways* located within the city unless the City of Ojai has formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County (similar to Policies 4.1.2-2 through 4.2.2-4) respecting *development* in the city that would affect the *LOS* of the *County*

thoroughfares, County-maintained *local roads*, and *Federal and State highways* located within the unincorporated area of the County. Exceptions to the prohibitions of this policy include the following:

a. Farmworker Housing Complexes, Affordable Housing development per Article 16 of the Non-Coastal Zoning Ordinance, and other housing exclusively for *lower-income* households, where such developments are served by roads that are currently operating at LOS"E" or better.

b. Additional dwellings and lots on Cultural Heritage Sites as permitted in the Non-Coastal Zoning Ordinance.

c. Agriculture and Agricultural Operations as permitted in the Coastal and Non-Coastal Zoning Ordinances, where such developments are served by roads that are currently operating at LOS"E" or better.

5. Highway 33 shall be limited to two lanes between Oak View and the City of Ojai. Highway 33 south of Oak View shall be limited to as few lanes as necessary to accommodate the traffic projected to occur under the City of Ojai General Plan and this Area Plan at the prescribed *LOS* in Policy 4.1.2-2 above. Highway 33 shall not be constructed to *freeway* standards.

6. All public roads within the *Ojai Valley* shall be maintained and improved in a manner which preserves their scenic qualities.

4.1.3 Programs

1. In order to improve circulation both within the City of Ojai and valley-wide, increased cooperation and communication between CALTRANS, the City of Ojai and the County Public Works Agency should be established.

2. CALTRANS should install modifications such as traffic signals, turn lanes and pedestrian crossing facilities on Highway 33 from Foster Park to the city of Ojai as needed and where feasible, to achieve a safer highway for both motorists and pedestrians. To determine where the installation of such modifications should occur, a traffic study should be conducted by the County Public Works Agency. The study should include a travel time/intersection analysis and implementation strategies.

3. Without expanding the road beyond two lanes, CALTRANS should provide an acceptable and safe level of service on Highway 150 for motorists, pedestrians, bicyclists and equestrians through modifications such as lane widening, curve alterations and bridge improvements where necessary and feasible.

4. A modification to Highway 33 is needed in the vicinity of Casitas Springs to improve pedestrian and motor vehicle safety and to allow for an improved sense of community in Casitas Springs. Funding and construction of a Casitas Springs by-pass should only be undertaken after a thorough and complete consideration of all alternatives, including but not limited to, cuplets, pedestrian overcrossings and stoplights. Analysis of alternatives should include the following considerations:

   a. there should be minimal intrusion upon adjoining property owners and residents,

   b. safety and not traffic flow should be the primary concern, and

   c. a thorough discussion of all issues related to the proposed project should be presented in a public forum to the citizens of Casitas Springs.

5. The Ojai Valley Trail will continue to be maintained and should be extended where possible.

6. The County Public Works Agency will meet with CALTRANS officials to discuss the establishment of a restriction on truck traffic on the Highway 33 corridor during peak traffic hours.

4.2 Water Supply And Distribution

4.2.1 Goals

1. Ensure that new *development* does not exceed water resources available to the *Ojai Valley*.
2. Ensure the employment of water conservation measures in new construction and encourage water conservation practices in agricultural, municipal, industrial and recreational uses and in existing *development*.
3. Encourage the safe use of *reclaimed water* for irrigation, agriculture, wetland enhancement and stream flow maintenance and such other uses as are applicable.

4.2.2 Policies

1. New *discretionary development* shall be required to *retrofit* existing plumbing fixtures or provide other means so as not to add any net increased demand on the existing water supply. This policy shall be applicable until such time as a groundwater basin study is completed and it is found that the available groundwater, or other sources of water, could adequately provide for cumulative demand without creating an overdraft situation.
2. *Discretionary development* shall be conditioned to utilize all feasible water conservation techniques.

4.2.3 Programs

1. The County Public Works Agency, in coordination with the Ojai Groundwater Basin Management Agency, City of Ventura and water purveyors within the *Ojai Valley*, should work to establish a data base on actual available groundwater supply, projected use factors for all types of *development* and threshold limits for *development* within available water resources.
2. The Casitas Municipal Water District, the other water purveyors within the *Ojai Valley* and the City of Ojai should adopt a policy similar to Policy 4.2.2-1 above.
3. The Agriculture Department will discourage inefficient irrigation methods in agriculture including *flood or furrow irrigation*. Conservation, such as the goal of 80% distribution uniformity and irrigation efficiency, as currently encouraged by the Casitas Municipal Water District, will be encouraged.
4. The Casitas Municipal Water District should continue to explore the concept of the importation of State water.

*5. The Water Resources Division of the County Public Works Agency, in conjunction with the appropriate water agency, should investigate the groundwater availability of the Upper Ventura River Groundwater Basin and the Upper Ojai Groundwater Basin.

6. The Casitas Municipal Water District and other water purveyors should promote water conservation through the implementation of a tiered rate structure, and through participation and implementation of their own water conservation program.

4.3 Waste Treatment And Disposal Facilities

4.3.1 Goals

1. Ensure that sewage lines are constructed to serve all existing and future *development* in the unincorporated urban neighborhoods of the *Ojai Valley*, and are sized so as not to facilitate future *development* outside of the unincorporated urban neighborhoods.
2. Encourage practices that reduce the volume of waste disposed of in landfills.

* See Page 4

4.3.2 Policies

1. *Discretionary development* within the service boundaries of the Ojai Valley Sanitation District shall either connect directly to the existing sewer system or install necessary off-site pipelines to connect with the sewer system.
2. Private septic systems outside of the Ojai Valley Sanitation District boundaries shall be installed and regulated in accordance with the County Environmental Health Division regulations.
3. *Discretionary development* shall be encouraged to employ practices that reduce the quantities of wastes generated and shall be requested to engage in recycling activities.

4.4 Flood Control And Drainage Facilities

4.4.1 Goals

1. Provide and adequately maintain flood control and drainage facilities as necessary for the protection of life and property.

4.4.2 Policies

(There are no supplemental policies regarding this issue.)

4.4.3 Programs

1. The Ventura County Flood Control District (VCFCD) should continue to monitor, clean and adequately maintain the existing drainage channels and storm drain system within the *Ojai Valley*.
2. The VCFCD will actively investigate and pursue all available sources of funding for flood control improvements and maintenance such as bond issues, state grants and borrowed funds.

4.5 Public Safety

4.5.1 Goals

1. Provide for the protection of the public through effective law enforcement, fire protection and paramedic programs.
2. Prohibit *development* in areas where either emergency access or adequate water supplies for fire fighting purposes cannot be provided.

4.5.2 Policies

1. *Discretionary development* shall comply with the requirements of the Fire Protection District and Sheriff's Department by providing adequate access for fire, law enforcement, emergency equipment and personnel, and evacuation.
2. Adequate water supplies and delivery system for fire fighting purposes shall be required to serve any *discretionary development* in accordance with the standards of the Fire Protection District.

4.5.3 Programs

1. Crime prevention programs such as "Neighborhood Watch" and the "Senior Patrol" will continue to be encouraged by the County Sheriff's Department.
2. The County Sheriff's Department will work with the local schools, both public and private, in providing anti-drug, anti-gang and other anti-crime programs.
3. The hospitals and school districts should continue to provide CPR training programs to local residents.

4.6 Education

4.6.1 Goals

1. Ensure a quality education for the children of the Ojai Valley.
2. Promote the multiple use of school facilities.

4.6.2 Policies

1. All *development* projects shall comply with the school districts' impact mitigation fee programs as prescribed by State law.
2. In order to ensure adequate school facilities, general plan amendments and/or zone changes for *development* which would increase the numbers of school aged children shall not be approved, unless the applicant enters into a binding agreement with the affected school district to fully mitigate the project's impact.

4.6.3 Programs

1. The County Planning Division will coordinate an exchange of information with the Ojai Unified School District and the Ventura Unified School District regarding school needs and new residential *development*.
2. The Ojai Unified School District, the Ventura Unified School District and private schools throughout the valley, should make school facilities available during off-school hours for community meeting space, recreational programs and other compatible functions.

4.7 Parks And Recreation

4.7.1 Goals

1. Ensure that the recreational needs of existing and future residents throughout the *Ojai Valley* are adequately provided for.
2. Fully utilize existing county, city and school district park and recreational facilities and encourage the acquisition and development of new park and recreation facilities.
3. Protect existing trails and encourage the development of new bicycle and hiking/equestrian trails.
4. Ensure that recreational uses in sensitive Open Space areas preserve natural resources in balance with the provision of opportunities for the use and enjoyment of those resources.

4.7.2 Policies

1. *Discretionary development* near existing trails shall be conditioned to mitigate or avoid adverse impacts to the existing trail system.
2. *Discretionary development* permits which may be expected to benefit from or contribute to the need for the trails system shall be conditioned to dedicate and improve, or pay a fee for, planned trails and public trail access points and install appropriate signs to the standards of the County of Ventura and the National Forest Service.
3. Limited expansion of recreational facilities at Lake Casitas and other recreational areas within the *Ojai Valley* shall be encouraged, consistent with the open space character of the area.

4.7.3 Programs

1. Service clubs, civic groups and individuals who wish to coordinate or provide recreational programs in the *Ojai Valley* will be encouraged to do so.
2. The County General Services Agency will work with the City of Ojai, local civic groups and public and private schools throughout the *Ojai Valley* in order to establish cooperative

agreements for use of each other's facilities to provide the best possible service for all residents of the *Ojai Valley*.

3. The County Trails Advisory Committee, in cooperation with the General Services Agency, City of Ojai and National Forest Service will develop a master plan of proposed bicycle and hiking/equestrian trails.
4. The County General Services Agency and the City of Ojai should plan for at least 180 acres of additional local park facilities. Funding for this park acquisition should come from Quimby Fees, development dedications and other sources which may be available to the City and the County.
5. The County General Services Agency and the City of Ojai should jointly investigate the potential for formation of a new park district for the *Ojai Valley* in order to more equitably spread the cost of providing recreational services to the entire Ojai Valley.
6. To fund an expanded local parks program, the County and the City of Ojai should consider a Special Tax or other means to permanently support local and regional park and recreational services within the *Ojai Valley*.

4.8 Governmental Organization

4.8.1 Goals

1. Provide opportunities for the citizens of the *Ojai Valley* to take an active role in determining community affairs.
2. Maintain the governmental mechanisms used to communicate the residents' needs and desires to their elected representatives.
3. Encourage the study of local governmental options available to the citizens of the *Ojai Valley*.

4.8.2 Policies

1. The Ventura River Valley Municipal Advisory Council (VRVMAC) or successor group shall continue to be the Board of Supervisors' recognized public review group for all projects which fall within its review boundaries. All applications for *discretionary development* and all environmental documents for projects which would affect the *Ojai Valley* shall be reviewed by the VRVMAC or successor group.
2. All County departments shall make an effort to notify the VRVMAC (or successor group), concerning issues and programs of importance to the *Ojai Valley* area prior to decisions being made regarding these matters.

4.8.3 Programs

1. The County Planning Division will continue to coordinate an information exchange with the City of Ojai to ensure that each is informed of proposed projects that could affect the other jurisdiction.
2. The County will work with the Ojai Valley Unified Local Government Options Study Committee in order to provide adequate information for the residents of the *Ojai Valley* to make a knowledgeable decision regarding future incorporation options.
3. The members of the Board of Supervisors representing the *Ojai Valley* should explore reconstituting the VRVMAC to cover the entire planning area.

Glossary

Unless the context requires otherwise, the definitions of words and terms provided in this section as well as the Goals, Policies and Programs volume of the County General Plan, shall be used in interpreting this Plan.

Agreement to Annex: A binding agreement, officially recorded with the deed of a property, in which the owners of a property, and all heirs and successors, give their permission to allow their property to be annexed to the City of Ojai at such time as the City wishes to carry out annexation.

Aquifer Recharge Area: Streambeds, spreading grounds, aquifer outcrops which are areas where the aquifer is exposed at the ground surface, or the area above a groundwater basin that does not have a clay cap.

Area of Interest: Major geographic areas reflective of community and planning identity established by the Ventura County *Local Agency Formation Commission (LAFCO)*. (c.f., *Sphere of Influence*)

Conditional Use Permit (CUP): See County Zoning Ordinance.

Conjunctive Use of Water: The operation of a groundwater basin in combination with a surface water storage and conveyance system. Water is stored in the groundwater basin for later use by intentionally recharging the basin during years of above-average water supply.

Emergency Use Authorization: See County Zoning Ordinance.

Flood and Furrow Irrigation: An agricultural irrigation technique in which the ground is graded with a very gentle, uniform slope and water is distributed down furrows. Most commonly used in orchards and row crops.

Indigenous Plant Species: Vegetation native to the region.

Land Conservation Act (LCA): A California statute which allows local government to enter into long-term contracts with agricultural landowners by lowering property taxes as an incentive to continue agricultural use of the land. Also known as the Williamson Act.

Locally Important Plant Communities: Southern Sycamore-Alder, Riparian Woodland, California Walnut Woodland, Southern Coast Live Oak Riparian Forest, Oak Woodlands, and Coastal Sage-Scrub Community.

***Ojai Valley*:** Approximately 74,000 acres governed by the Area Plan that is generally bound on the north by the Nordhoff Ridge, on the south by the Sulphur Mountain ridgeline, on the east by the mountain ridge between Bear Canyon and Santa Paula Canyon and on the west by the Lake Casitas/Ventura River watershed boundary. (see Figure 1).

Planned Development Permit (PD): See County Zoning Ordinance.

***Qualified Archaeological Monitor*:** A County-recognized Archaeologist or Native American who is trained to monitor trenching or earthmoving activities at a potentially or confirmed archaeologically sensitive area.

Retrofit: Replacement of less efficient plumbing fixtures in existing structures with new ultra-low volume (ULV) devices.

Slope, moderate: Any slope on a property, or portion of a property, which exceeds ten percent (10%) average slope, but is below twenty-five percent (25%) average slope.

Slope, steep: Any slope on a property, or portion of a property, which exceeds twenty-five percent (25%) average slope.

***Sphere of Influence*:** An area designated by the *Local Agency Formation Commission (LAFCO)* for each city or special district representing the probable, ultimate boundary of the city or special district. (c.f., *Area of Interest*)

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Appendix "A" - Urban And Rural Design Concept

The indigenous settlement pattern of the Ojai Valley consists of small towns and villages connected by country roads through intervening rural land. The scale, forms, materials and detailing of the roads, streets and buildings typical of the Valley prior to the 1950's define the unique design character which this Plan seeks to preserve and promote. In the near future, the essential characteristics of these design elements will be codified as Special Development Standards and Design Guidelines for all development within the Plan area requiring discretionary review, and for major public improvements. For clarity, existing prototypical examples of roads, streets and buildings are identified. These are intended to illustrate principles of scale, massing, materials, construction methods, and detailing which are appropriate to the Valley, but are not intended to require a particular "style".

General

Simple, rustic street, road and building types, designed in the local vernacular, are appropriate. Streets and public and private roads are narrow and often irregular, deflecting around natural features of terrain and vegetation, and closely following the natural contours of the land. Frontages are typically defined by low walls, fences and native plants. Building walls are typically made of or clad in wood siding, smooth stucco, or native stone. Doors and windows have vertical or square proportions. Roofs are gabled, with overhanging eaves, and are clad in wood shingles, clay tile, or dimensional composition shingles. Parking is to the side or rear of the lot except for single rows of parking spaces directly off the street at retail frontages.

Suburban street and building types - including standard arterial - and collector-type streets, strip-type retail buildings, chain-type architectural design and signage, parking lots fronting the street, and tract-type houses with garage doors visible from the public way - are specifically identified as destructive of the Valley's unique character and are strongly discouraged.

Towns and Villages

Communities are close-knit, each residence within walking distance of a store, a park or other public open space, and a bus stop. Buildings are scaled to the pedestrian, and enfront the public way with porches, colonnades or forecourts. The prototypical town center is Ojai Avenue from Ventura Street to Montgomery Street; the village center is Ventura Avenue in Casitas Springs; prototypical neighborhood streets are Canada Street and Grand Avenue in Ojai.

Countryside

Country roads are two-lane with a pavement of 16-20 feet, flanked by 4-8 foot gravel shoulders, ditches or earth banks. Frontage improvements include native stone walls, wood board or wire fences, and native shrubs and trees. Prototypical roads are Thacher Road, Carne Road and Ojai-Santa Paula Road. Houses are typically obscured from public views by frontage elements or are well set back in groves of trees. Grading is strictly minimized. Local-serving general merchandise stores and restaurants are located at selected crossroads -Boccali's at Ojai-Santa Paula and Reeves Roads is the prototype.

Appendix C

Ventura County Watershed Protection District

Annual Rainfall Data

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Monthly and Seasonal Rainfall

Ventura County Watershed Protection District

Station: 153a - Ojai-Barrett Ranch
Lattitude: 34:26:29 **ongitude:** 119:13:19 **Elevation:** 780 **Type:** S

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	6.46	0.07	10.16	17.94	11.32	3.11	0.59	1.06	0.00	0.00	0.00	0.30	51.01
2005-2006	1.11	1.39	0.60	5.60	4.33	4.96	5.43	1.16	0.00	0.00	0.00	0.00	24.58
2006-2007	0.23	0.13	0.88	2.40	2.23	0.17	0.84	0.00	0.00	0.00	0.00	0.76	7.64
2007-2008	0.32	0.15	2.85	16.36	2.15	0.00	0.09	0.39	0.00	0.00	0.00	0.00	22.31
2008-2009	0.37	2.75	2.62	0.99	5.85	0.65	0.17	0.00	0.16	0.00	0.00	0.00	13.56
	1.70	0.90	3.42	8.66	5.18	1.78	1.42	0.52	0.03	0.00	0.00	0.21	23.82

Station: 140 - Oak View-County Fire Station
Lattitude: 34.23:42.5 **ongitude:** 19:18:00.7 **Elevation:** 520 **Type:** R

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	5.40	0.04	9.79	15.03	8.93	3.82	0.62	0.59	0.00	0.00	0.00	0.30	44.52
2005-2006	0.83	0.75	0.73	4.15	3.42	4.26	7.18	1.15	0.00	0.00	0.00	0.00	22.47
2006-2007	0.18	0.17	0.68	2.15	1.48	0.06	0.68	0.00	0.00	0.00	0.00	0.23	5.63
2007-2008	0.37	0.06	2.33	14.42	2.20	0.00	0.05	0.03	0.00	0.00	0.20	0.01	19.67
2008-2009	0.05	2.65	2.49	0.61	4.58	0.85	0.20	0.00	0.00	0.00	0.00	0.00	11.43
	1.37	0.73	3.20	7.27	4.12	1.80	1.75	0.35	0.00	0.00	0.04	0.11	20.74

Monthly and Seasonal Rainfall

Ventura County Watershed Protection District

Station: 163c - Sulphur Mountain
Lattitude: 34:24:33 **ongitude:** 119:10:27 **Elevation:** 2450 **Type:** R

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	10.23	0.09	11.16	24.15	14.17	3.69	0.79	1.32	0.01	0.00	0.00	0.35	65.96
2005-2006	1.26	2.01	0.68	7.38	4.02	5.43	6.21	1.52	0.02	0.03	0.02	0.03	28.61
2006-2007	0.15	0.13	0.78	3.42	2.04	0.23	1.10	0.01	0.00	0.00	0.00	0.60	8.46
2007-2008	0.42	0.22	4.44	18.65	2.49	0.02	0.13	0.32	0.00	0.00	0.00	0.01	26.70
2008-2009	0.23	3.11	2.82	1.25	6.14	1.08	0.22	0.00	0.34	0.00	0.00	0.00	15.19
	2.46	1.11	3.98	10.97	5.77	2.09	1.69	0.63	0.07	0.01	0.00	0.20	28.98

Station: 165 - Ojai-Stewart Canyon
Lattitude: 34:27:37.7 **ongitude:** 19:14:51.6 **Elevation:** 960 **Type:** R

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	5.95	0.07	8.64	16.90	9.46	2.93	0.58	1.00	0.00	0.00	0.00	0.24	45.77
2005-2006	1.16	1.13	0.55	4.35	4.36	4.75	5.96	1.10	0.02	0.02	0.00	0.04	23.44
2006-2007	0.16	0.11	0.78	1.86	1.93	0.28	0.73	0.00	0.00	0.00	0.00	0.57	6.42
2007-2008	0.33	0.05	3.26	14.95	2.44	0.00	0.03	0.17	0.00	0.00	0.02	0.00	21.25
2008-2009	0.28	3.18	2.50	1.07	5.73	0.68	0.22	0.00	0.10	0.00	0.00	0.00	13.76
	1.58	0.91	3.15	7.83	4.78	1.73	1.50	0.45	0.02	0.00	0.00	0.17	22.13

Monthly and Seasonal Rainfall

Ventura County Watershed Protection District

Station: 204 - Lake Casitas-Upper
Lattitude: 34:24:55 **ongitude:** 119:20:12 **Elevation:** 600 **Type:** R

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	7.09	0.02	10.37	17.30	10.22	4.47	0.90	0.60	0.00	0.00	0.00	0.31	51.28
2005-2006	0.97	0.87	0.79	4.93	3.73	4.87	8.21	1.47	0.00	0.00	0.00	0.00	25.84
2006-2007	0.22	0.10	1.03	2.68	1.66	0.10	1.01	0.00	0.00	0.00	0.00	0.35	7.15
2007-2008	0.46	0.04	3.40	17.93	2.49	0.00	0.09	0.06	0.00	0.00	0.00	0.00	24.47
2008-2009	0.16	3.19	2.64	0.43	5.43	0.84	0.19	0.00	0.03	0.00	0.00	0.00	12.91
	1.78	0.84	3.65	8.65	4.71	2.06	2.08	0.43	0.01	0.00	0.00	0.13	24.33

Station: 020b - Ventura River County Water District
Lattitude: 34:25:45 **ongitude:** 119:17:48 **Elevation:** 570 **Type:** S

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	6.40	0.01	9.73	16.94	10.03	3.30	0.82	0.69	0.01	0.00	0.00	0.32	48.25
2005-2006	0.87	0.71	0.68	4.88	4.37	5.00	7.26	1.19	0.00	0.00	0.00	0.00	24.96
2006-2007	0.19	0.14	0.68	2.54	1.87	0.11	0.68	0.00	0.00	0.00	0.00	0.22	6.43
2007-2008	0.40	0.09	3.35	16.92	2.57	0.00	0.09	0.28	0.00	0.00	0.10	0.00	23.80
2008-2009	0.08	3.40	2.49	0.86	5.13	0.76	0.30	0.00	0.00	0.00	0.00	0.00	13.02
	1.59	0.87	3.39	8.43	4.79	1.83	1.83	0.43	0.00	0.00	0.02	0.11	23.29

Monthly and Seasonal Rainfall

Ventura County Watershed Protection District

Station: 218 - Meiners Oaks-County Fire Station
Lattitude: 34:26:40.5 **ongitude:** 19:17:03.3 **Elevation:** 730 **Type:** S

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	7.29	0.05	9.71	18.14	10.20	3.35	0.74	0.90	0.00	0.00	0.00	0.97	51.35
2005-2006	0.98	0.76	0.68	5.06	5.40	5.20	7.01	0.82	0.00	0.00	0.00	0.00	25.91
2006-2007	0.23	0.13	0.78	2.48	1.94	0.17	0.74	0.00	0.00	0.00	0.00	0.53	7.00
2007-2008	0.61	0.00	3.56	17.14	2.43	0.00	0.07	0.05	0.00	0.00	0.00	0.00	23.86
2008-2009													
	2.28	0.24	3.68	10.71	4.99	2.18	2.14	0.44	0.00	0.00	0.00	0.38	27.03

Station: 30d - Ojai County Fire Station
Lattitude: 34:26:52.9 **ongitude:** **Elevation:** 760 **Type:** RS

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	5.24	0.06	8.57	15.46	9.74	2.87	0.62	0.93	0.00	0.00	0.00	0.35	43.84
2005-2006	1.08	1.15	0.58	5.38	4.27	4.84	5.46	1.06	0.00	0.02	0.00	0.03	23.87
2006-2007	0.24	0.11	0.99	2.40	2.08	0.21	0.80	0.00	0.00	0.04	0.00	0.56	7.43
2007-2008	0.32	0.07	2.71	15.08	2.14	0.01	0.06	0.17	0.00	0.00	0.03	0.00	20.59
2008-2009	0.10	2.80	2.43	0.91	5.67	0.58	0.19	0.01	0.21	0.01	0.00	0.00	12.91
	1.40	0.84	3.06	7.85	4.78	1.70	1.43	0.43	0.04	0.01	0.01	0.19	21.73

Monthly and Seasonal Rainfall

Ventura County Watershed Protection District

Station: 064b - Upper Ojai-Happy Valley
Lattitude: 34:26:14.1 **ongitude:** 19:11:20.4 **Elevation:** 1320 **Type:** R

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Total
2004-2005	8.11	0.04	10.42	19.47	11.81	3.27	0.58	0.94	0.00	0.00	0.00	0.29	54.93
2005-2006	1.11	1.27	0.55	5.85	4.28	4.58	5.98	1.19	0.00	0.02	0.01	0.07	24.91
2006-2007	0.12	0.11	0.84	2.70	1.92	0.09	0.74	0.00	0.00	0.00	0.00	0.55	7.07
2007-2008	0.36	0.09	3.26	19.47	2.32	0.05	0.08	0.24	0.00	0.00	0.00	0.00	25.87
2008-2009	0.14	2.65	2.75	1.37	5.79	0.68	0.16	0.00	0.11	0.00	0.00	0.00	13.65
	1.97	0.83	3.56	9.77	5.22	1.73	1.51	0.47	0.02	0.00	0.00	0.18	25.29

Appendix D

Ojai Valley Sanitary District

Sewage Spill Prevention and Response Plans

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OJAI VALLEY
SANITARY DISTRICT

SEWAGE SPILL PREVENTION
and
RESPONSE PLANS

Updated

October 2010

OJAI VALLEY SANITARY DISTRICT

Sewage Spill Prevention
and
Response Plans

The Ojai Valley Sanitary District is a public agency dedicated to serving the people of the District by collecting and treating residential and commercial sewage. It is the policy of the District to use every reasonable means to protect and safeguard public health in the event of a wastewater related emergency within the District's service area. The purpose of this spill prevention and response plan is to identify those actions to be taken by District personnel in responding to wastewater spills, overflows, line breaks, and other situations involving wastewater that create a threat to the health and safety of the general public.

SEWAGE SPILL PREVENTION PLAN

General Information

The District operates a wastewater collection system which consists of approximately 120 miles of gravity sewer lines, six pumping stations, and associated force mains that are required for the collection and conveyance of sewage. Every effort is taken to ensure that these facilities are well maintained to prevent sewage overflows and spills. An experienced and knowledgeable crew, modern line maintenance equipment, and an aggressive preventative maintenance program support these efforts.

Preventative Measures

The District operates six pumping stations that are monitored 24-hours a day via a radio-based telemetry system connected directly into the District's treatment plant SCADA system. This telemetry system transmits up-to-the-minute operational information such as: pumping status, wetwell levels, metered flows, and individual components performance alarms to the treatment plant's SCADA system, which is equipped with a callout system that receives alarms and automatically contacts standby personnel during off-hours. In addition, to prevent or reduce the impact of short-term power failures, the five largest pumping stations have been provided with emergency standby power capability.

Commercial and residential dischargers whose plumbing fixtures are identified as being lower in elevation than the rim of the upstream manhole are notified of the need for a backflow prevention device.

To minimize sewage overflows and spills, the District schedules the cleaning of all main sewer lines over a three-year period, while known "hot spots" (those line segments that have root, grease, or odor problems) are cleaned more frequently.

To facilitate this effort the District uses state-of-the-art maintenance and data storage equipment. The maintenance equipment includes a sewer cleaning machine that uses high pressure water for line cleaning and is equipped with a centrifugal vacuum system for removing debris; and video inspection equipment that records in a digital format for clear images and ease of use to document the collection system's line condition. The District has an up-to-date sewer atlas, a GIS (Geographical Information System) that provides a visual overview of District facilities, selected maintenance activities, access to as-built drawings, and is connected to a CMMS (Computerized Maintenance Management System) database. The CMMS is used for storing and tracking sewer line information and scheduled maintenance activities. Information for the CMMS database was initially collected and entered from as-built drawings, sewer system evaluation surveys, historical line cleaning and video inspection records, and is continually updated as new information is obtained. This CMMS is integrated with the GIS and allows the District to conduct detailed assessments of collection system sewer line conditions and includes:

- Identifying and scheduling line cleaning and maintenance requirements;
- Evaluating and classifying line segments for their potential overflow risk;
- Prioritizing and scheduling those line segments requiring rehabilitation and/or repair.

Safety and Public Awareness

All employees assigned to line cleaning and maintenance duties are trained in sewer line cleaning techniques, safety considerations, and proper use of sewer cleaning equipment.

SEWAGE SPILL REPSONSE PLAN

Sewer backups into homes and businesses are one of the District's greatest general liability exposures. Effective risk management following a sewer backup event requires preplanning and coordinated efforts between the:

- Collection System Crew
- Emergency Restoration Services Contractor
- Claims Management Coordinator
- Carl Warren & Company (Insurance claims administrator)

The Administrative Officer serves as the District's Claims Management Coordinator and is the primary on-going point of contact between the District and Carl Warren & Company.

Communication with Carl Warren & Company during any necessary clean-up and/or restoration will be a combined responsibility between the Claims Management Coordinator and Collection System Supervisor. The Collection System Supervisor will coordinate any communication between any third party vendors and the affected individuals.

A "Sewer Backup Incident/Claim Report" form **must** be completed by District personnel following all sewer backup/spill events. The backside of this form is a "Livability Assessment Guide" to be used to determine if the occupants of the affected structure should vacate premises during cleanup.

The following sewage spill response plan is provided as a "guide" to District personnel to facilitate a timely and technically-correct response, which may help to reduce:

- the spill volume,
- damage to the homeowners' property, and
- potentially adverse public and environmental impacts.

Sewage Spill Containment

When a sewage spill occurs (regardless of spill volume) public health and employee safety is of the utmost importance. In order to protect public health and employee safety the following steps should be followed:

1. The Collection System Supervising Operator or lead operator on-site shall immediately perform an on-the-spot evaluation of the problem to determine the source of the sewage spill and request any equipment, tools, safety equipment, or additional personnel required to provide for containment of the sewage spill; and then clear the blockage or cause of the spill.
   Photographs are to be taken of the spill **to include the area not impacted by the spill both inside the home and outside areas** throughout the cleanup.

2. Containment should be performed in a safe and orderly manner before any repair work begins. Personnel are to implement the following safety procedures as appropriate:

   - Use of personal protective equipment;
   - Cordon off the spill area to minimize the risk of public contact with raw sewage;
   - Initiate the use of traffic control procedures for the site;

3. Selection of the containment plan and its implementation will take into consideration all reasonable steps to minimize or prevent any discharge that has a likelihood of adversely affecting human health or the environment. Examples of containment plans include:

   (a) Blockages:
   - Prevent the sewage spill from flowing into storm drains and/or streams.
   - If sewage has entered a drainage swale, storm drain, etc., and spill volume is small enough, proceed downstream and dam the flow in an attempt to prevent sewage from traveling further.
   - Clear the sewer line blockage, or make the necessary mechanical or electrical repairs as applicable.
   - Vacuum up spilled sewage, and clean up by removing debris and sanitizing the immediate area.

     NOTE: VC-EHD has requested that all sewage spills occurring on concrete or asphalt surfaced areas be sanitized with a hospital grade type disinfectant. At no time shall any disinfectant or residual disinfectant be allowed to enter a storm drain or waterway.

   (b) Line Failures:
   - Line failures may require bypass pumping from an upstream manhole to a manhole downstream of the line failure.
   - When the volume of sewage overflow allows, vacuum trucks may be utilized to transport wastes around the line failure until bypass pumping is initiated, or repairs are completed.

   (c) Spill Within a Structure:
   - When a sewage spill occurs within a structure, District personnel will be sympathetic to the occupants.
   - Regardless of the cause of the spill, the goal of District personnel will be to assist in stopping the overflow and minimizing damage.
   - The Collection System Supervisor or lead operator will take the time needed to determine the cause of the sewer back-up.
   - Photographs shall be taken of the damaged, and undamaged areas.
   - The Collection System Supervisor has the authority from the District to act on all necessary emergency services to mitigate damages from the incident and may delegate such authority to the lead operator at the incident scene.
   - If the problem is related to the District's system, the Collection System Supervisor or lead operator shall immediately contact the District's sewage cleanup management firm currently **All Seasons Restorations, Inc. at (800) 988-1249,** this is a 24/7 response number to respond to the location. All Seasons will manage the cleanup thereafter, and maintain close communication with District personnel to ensure the cleanup is adequately performed, the home owners' needs are met, and the District is protected.
   - If the cause of the sewer spill is or may be related to the District's system the Collection System Supervisor or lead operator will call the **Carl Warren 24 hour telephone number 1st: (707) 732-6728, 2nd: (805) 509-1426, or 3rd: (925) 639-5674** to report the incident **<u>within four hours</u>** of becoming aware of the sewer backup into private property.

- The Collection System Supervisor or Operator III shall evaluate the livability of the affected property by referencing the District's "Livability Assessment Flow-Chart. If the evaluation determines the property is not livable, then lodging at a local hotel/motel may be offered. The "Motel/Hotel Authorization Form" must be utilized if lodging is necessary.
- Provide resident with "Customer Information Regarding Sewer Backup Claims" form. Provide resident with a "Claim Form" if they request it.
- **Any Services needed or desired beyond those identified as "Emergency Services" are to be authorized only by Carl Warren & Company.**

Regulatory Agency Notification

Notification to regulatory agencies shall be done immediately, or as soon as the situation is stabilized in the case of an extreme emergency. In the event any sewage from a spill enters a drainage channel or waterway the State Office of Emergency Services shall be notified within two (2) hours. District personnel authorized to contact regulatory agencies are (in the order of responsibility): the Operations Superintendent, CS & TP Supervisor's, and the General Manager.

Ventura County Environmental Health Department (VC-EHD) is to be contacted for **all** sewage spills, and a Proposition 65 Report is to be filled out and submitted to VC-EHD. The location and severity of the sewage spill shall determine additional regulatory agencies that are to be notified (Attachment A).

Contact shall begin with:

1. Ventura County Environmental Health Department (VC-EHD), at:
   Regular hours: 654-2813 – (If you get the message center, Press 3 for a live person) -– Send a Fax of the Proposition 65 Report to 654-2480
   After hours: Call 320-6244, VC-EHD's On-call person, or
   Call 911 – Specify this is a "sewage spill" and Request VC-EHD's Sewage Discharge Response
   (Particularly if additional assistance is required)

Unless:

- The spill is in or flowing into the Ventura River and/or San Antonio Creek above Foster Park; then due to the potential for potable water contamination, first contact the City of Ventura, Avenue Water Treatment Plant at:
  Regular hours: 652-4548 7 days/week 7a—3:30p
  Or 652-4500 Mon-Friday 8a—5p
  After hours: 339-4399 Police & Fire Dispatch
- And then notify VC-EHD second.

2. State Office of Emergency Services (OES) at: 800-852-7550.

   Call OES within (2) hours for all spills that reach a drainage channel and/or waterway, or is greater than 1,000 gallons. OES will provide a "Report Number" that is to be used for subsequent contacts with the following agencies:

   a. Los Angeles Regional Water Quality Control Board (LA-RWQCB) at: Normal Bus hours: 213-576-6657
      After Hours: 213-305-2284, or 213-305-2253; Fax 213-620-6140

   b. Department of Fish & Game (DFG will be contacted by OES)

District' Liability Insurance Notification

If a sewage backup or spill occurs within a structure on private property the District's Liability Insurance adjuster, Carl Warren & Company, must be **notified within four hours** of the incident. The Supervisor or lead operator is responsible for making this call. Carl Warren & Company's 24 hour number is 1st:Janice Yardley-(707) 732-6728, 2nd: Mauri McGuire-(805) 509-1426, or 3rd: Brandon Schlenker-(925) 639-5674.

On the first workday following the spill, facts about the spill and the communication with Carl Warren & Company shall be communicated to the District's Claims Management Coordinator.

Coliform Sampling Requirements

The District's Treatment Plant Supervisor and/or Operator III are responsible, following notification of a sewage spill by CS personnel, for setting up a sampling and analysis program as appropriate for the sewage spill conditions.

The District's NPDES permit issued by the LA-RWQCB requires coliform sampling any time a sewage spill enters a stream or waterway containing flowing water. The requirements are as follows:

- In the event of a spill or discharge of raw sewage, total and fecal coliform analyses shall be performed on grab samples collected at all potentially affected downstream receiving water areas (based on size and duration of spill, and waterway flows) and at least one unaffected area immediately upstream of the spill.
- At minimum, coliform samples shall be collected on the date of the spill or discharge, and daily on each of the following four days. The severity (volume and duration) of the spill dictates the distance downstream sampling is to be performed. Sampling must be continued until test results indicate coliform levels are, or have returned, to background levels. (upstream sample analysis results are the control)
- The VC-EHD may require the District to perform additional coliform sampling, and request that they be informed of the results of coliform sampling to assist in their determination of the monitoring efforts effectiveness.

Posting of Warning Signs

Warning signs may be required any time a sewage spill enters a stream or waterway. The VC-EHD is the agency responsible for determining whether warning signs are to be posted when a sewage spill occurs. VC-EHD has developed specific criteria, based on the estimated spill volume, for evaluating and determining the extent of warning sign posting and sampling requirements. In general:

- When warning signs are required by the VC-EHD, typically the District collection system personnel will post the warning signs along the inland waterways downstream of the spill, while VC-EHD personnel will post warning signs as necessary along the beaches.
- When warning signs are required along inland waterways, signs are to be conspicuously posted in all areas utilized by the general public for gaining access to the waterway, such as:
    - Roads leading into the affected area;
    - Bridges on watercourses downstream of the affected area;
    - Parking areas and parks in the affected area.

- When warning signs are posted, **the sign location shall be recorded and photographed for documentation of posting, and to ensure retrieval**.
- Once signs are posted they shall remain until such time the VC-EHD has determined that the water quality no longer poses a threat to the public.
  Note: This is normally the result of the District demonstrating through test results that the coliform levels have returned to background levels.
- The District is responsible for removing its own signs. VC-EHD will typically remove their own signs unless, due to their workload, they may request District assistance.

Should a sewage spill occur in a residential neighborhood that cannot be immediately contained and cleaned up, the recommended interval for posting signs is every 200 feet.

Regulatory Agency Reporting

District personnel responding to a sewage spill shall document the occurrence by completing the District's Callout Report Form and Sewer Backup Incident/Claim Report and the Proposition 65 Report Form.

- All sewage spills outside of a structure are to be reported to VC-EHD immediately.
- The Proposition 65 Report form is to be faxed to the VC-EHD at 654-2480 within 24 hours of a spill.
- New WDR (Waste Discharge Requirements) require: 1) a spill into a drainage channel or waterway be reported to State OES **within (2) hours**; 2) all spills be reported electronically within three (3) days; 3) a final certified report must be completed **within (15) days** of the conclusion of SSO response and remediation
- LA-RWQCB requires notification within (2) hours; certification within (24) hours that State OES and VC-EHD have been notified; and a written report within five working days of a major spill. This initial report is then to be followed by a complete report of the incident and the steps taken to prevent a recurrence of a similar incident.

Public Notification

The General Manager is the District's designated person to contact and/or respond to the news media regarding sewage spills.

Members of the Board of Directors must be made aware of major spills so they can be prepared to respond with information relating to the spill in the event they are contacted by the media. The General Manager, Operations Superintendent, Administrative Officer, CS & TP Supervisors, as available in that order are responsible for notifying the Board of Directors regarding all major spills.

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Appendix E

Project Photographs

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Field Observations for Watershed Sanitary Survey

F2: Green waste compost in 2005

F2: Green waste compost in 2010

F4: OVSD Station near sewer siphon crossing of Ventura River near Highway 150 in 2005

F4: OVSD Station near sewer siphon crossing of Ventura River near Highway 150 in 2010

F5: Ventura County Environment and Energy Division Monitoring Well near River in 2005

F5: Ventura County Environment and Energy Division Monitoring Well near River in 2010

F6: Ventura County Environment and Energy Division Monitoring Well near Green Waste entrance in 2005

F6: Ventura County Environment and Energy Division Monitoring Well near Green Waste entrance in 2010

F7: Signs to discourage dumping at Old Baldwin Road and Highway 150 in 2005

F7: Signs to discourage dumping at Old Baldwin Road and Highway 150 in 2010

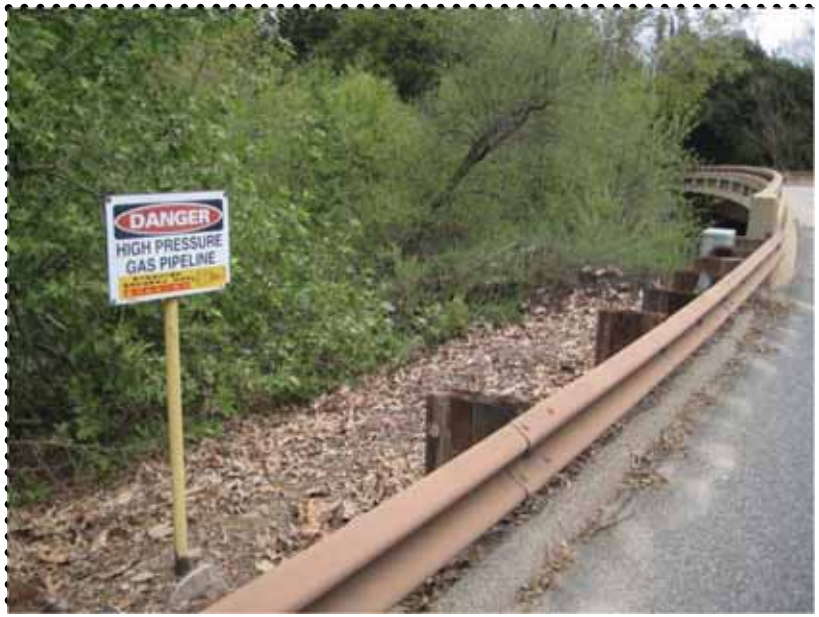
F8: Scour and graffiti under Highway 150 Bridge in 2005

F8: Scour and graffiti under Highway 150 Bridge in 2010

F9: Lower fields of Honor Farm Looking toward Ventura River in 2005

F9: Lower fields of Honor Farm Looking toward Ventura River in 2010

F20: Gas pipeline crossing San Antonio Creek near Country Club Drive in 2005



F20: Gas pipeline crossing San Antonio Creek near Country Club Drive in 2010

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Appendix F

Ojai Valley Sanitary District NPDES Permit

(Board Order No. R4-2008-0039; NPDES No. CA0053961)

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

REGION 4, LOS ANGELES REGION

320 W. West 4th Street, Suite 200, Los Angeles, California 90013
(213) 576-6600 • Fax (213) 576-6640
http://www.waterboards.ca.gov

ORDER NO. R4-2008-0039
NPDES NO. CA0053961

WASTE DISCHARGE REQUIREMENTS FOR OJAI VALLEY SANITARY DISTRICT (Ojai Valley Wastewater Treatment Plant)

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	**Ojai Valley Sanitary District**
Name of Facility	**Ojai Valley Wastewater Treatment Plant**
Facility Address	**6363 North Ventura Avenue**
	Ventura, CA 93001
	Ventura County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the Ojai Valley Sanitary District from the points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Tertiary treated wastewater	34º, 20', 33" N	119º, 17', 26" W	Ventura River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**July 10, 2008**
This Order shall become effective on:	**August 29, 2008**
This Order shall expire on:	**June 10, 2013**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, CCR, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date** (Title 40, Code of Federal Regulations, part 122.21(d))

I, Tracy J. Egoscue, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on July 10, 2008.

_____

Tracy J. Egoscue, Executive Officer

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Attachment C – Flow Schematic (Ojai Valley WWTP) C-1
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Attachment G – Generic Toxicity Reduction Evaluation Workplan G-1
Attachment H – Biosolids/Sludge Use and Disposal Requirements H-1
Attachment I – Pretreatment Reporting Requirements I-1

I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	Ojai Valley Sanitary District
Name of Facility	Ojai Valley Wastewater Treatment Plant
Facility Address	6363 North Ventura Avenue
	Ventura, CA 93001
	Ventura County
FACILITY CONTACT, TITLE, AND PHONE	Ronald Sheets, Operations Superintendent, (805) 646-5548
MAILING ADDRESS	1072 Tico Road, Ojai Valley, CA 93023
Type of Facility	Publicly-Owned Treatment Works
Facility Design Flow	3 million gallons per day (MGD)

II. FINDINGS

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter Regional Water Board), finds:

A. Background. Ojai Valley Sanitary District (hereinafter OVSD or Discharger) is currently discharging pursuant to Order No. R4-2003-0087 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA 0053961. The Discharger submitted a Report of Waste Discharge, dated November 21, 2007, and applied for a NPDES permit renewal to discharge up to 3 MGD of tertiary-treated wastewater from the Ojai Valley Wastewater Treatment Plant, hereinafter Ojai Valley WWTP. The application was deemed complete on March 24, 2008.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates the Ojai Valley Wastewater Treatment Plant, a Publicly-Owned Treatment Works (POTW). The treatment system consists of comminution, primary sedimentation, activated sludge treatment with using an oxidation ditch with an anaerobic-anoxic and aerobic zones for BOD, nitrogen, and phosphorus removal, secondary sedimentation, tertiary filtration, ultraviolet disinfection, (with chlorination/dechlorination as backup), and reaeration. Primary screenings are hauled off-site for disposal. Secondary sludge is pumped either to the oxidation ditches (return activated sludge) or to the belt press for dewatering (waste activated sludge) and composted in the sludge drying beds. Wastewater is discharged from Discharge Point 001 (see Table on cover page) to Ventura River, a water of the United States. Attachment B provides a map of the area around the facility. Attachment C provides a flow schematic of the facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under California Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at part 122.44, title 40 of the Code of Federal Regulations[1], require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at Part 133 and Best Professional Judgment (BPJ) in accordance with Part 125, section 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. Water Quality-Based Effluent Limitations. Section 301(b) of the CWA and part 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, that are necessary to achieve water quality standards. The Regional Board has considered the factors listed in California Water Code section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements or other provisions, is discussed in Section IV.C.2. of the Fact Sheet.

Part 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in part 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a Water Quality Control Plan for the Los Angeles Region (hereinafter Basin Plan) on June 13, 1994, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to Ventura River are as follows:

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated and will be abbreviated as "40 C.F.R. part number".

Table 5a. Basin Plan Beneficial Uses- Surface Water

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Ventura River (Hydro. Unit No. 402.10)	Existing: Industrial service supply (IND), agricultural supply (AGR), groundwater recharge (GWR), freshwater replenishment (FRSH), contact and non-contact water recreation (REC-1 and REC2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), wild life habitat (WILD), rare, threatened or endangered species (RARE), migration of aquatic organisms (MIGR), spawning, reproduction, and early development (SPWN), and wetland habitat(WET). Potential*: Municipal and domestic water supply (MUN).
001	Ventura River Estuary (Hydro. Unit No. 402.10)	Existing: Navigation (NAV), commercial and sport fishing(COMM), contact and non-contact water recreation (REC-1 and REC-2), warm freshwater habitat (WARM), estuarine habitat (EST), marine habitat (MAR), wild life habitat (WILD), rare threatened or endangered species (RARE), migration of aquatic organisms (MIGR), spawning, reproduction, and early development (SPWN), shellfish harvesting (SHELL), and wetland habitat (WET).

Table 5b Basin Plan Beneficial Uses- Ground Water

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Lower Ventura Groundwater Basin	Existing: Industrial service supply (IND), agricultural supply (AGR). Potential: Municipal and domestic water supply (MUN), industrial process supply (PROC).

Requirements of this Order implement the Basin Plan and subsequent amendments.

The 1994 Basin Plan provided water quality objectives for ammonia to protect aquatic life, in Tables 3-1 through Tables 3-4. However, those ammonia objectives were revised on April 25, 2002, by the Regional Water Board with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (Including Enclosed Bays, Estuaries and Wetlands) with Beneficial Use Designations for Protection of Aquatic Life*. The ammonia Basin Plan amendment was approved by the State Water Board, the Office of Administrative Law, and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively. On December 1, 2005, Resolution No. 2005-014, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Early Life Stage Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands)*

* The potential MUN beneficial use for the water body is consistent with Regional Board Resolution 89-03; however, the Regional Board has only conditionally designated the MUN beneficial uses and at this time cannot establish effluent limitation designed to protect the conditional designation.

for Protection of Aquatic Life, was adopted by the Regional Water Board. Resolution No. 2005-014 was approved by the State Water Board, the Office of Administrative Law, and USEPA on July 19, 2006, August 31, 2006, and April 5, 2007, respectively. Although the revised ammonia water quality objectives may be less stringent than those contained in the 1994 Basin Plan, they are still protective of aquatic life and are consistent with USEPA's 1999 ammonia criteria update.

On October 25, 2006, the State Water Resources Control Board adopted a revised 303(d) list. The 2006 303(d) list was partially approved by the USEPA on November 30, 2006. However, on March 8, 2007, USEPA partially disapproved the State's 303(d) list by disapproving the State's omission of impaired waters that met federal listing regulations or guidance. USEPA is adding 64 waters and 37 associated pollutants to the State's 303(d) list. On June 28, 2007, USEPA transmitted the final approved 2004-2006 Section 303(d) list, which serves as the State's most recent list of impaired waterbodies. The list (hereinafter referred to as the 303(d) list) was prepared in accordance with section 303(d) of the Federal Clean Water Act to identify specific impaired waterbodies where water quality standards are not expected to be met after the implementation of technology-based effluent limitations on point sources.

Ventura River and Ventura Estuary are on the 303(d) list. The following pollutants/ stressors, from point and non-point sources, were identified as impacting the receiving waters:

Upstream of the Discharge Point 001:

<u>Ventura River Reach 3</u> (Weldon Canyon to Confluence with Coyote Creek) -- Hydrologic unit 402.20
Pumping, water diversion

<u>Ventura River Reach 4</u> (Coyote Creek to Camino Cielo Road) -- Hydrologic unit 402.20
Pumping, water diversion

Downstream of the Discharge Point 001:

<u>Ventura River Reach 1 and 2</u> (Estuary to Weldon Canyon) -- Hydrologic unit 402.10
Algae

<u>Ventura Estuary</u>--Hydrologic unit 402.10
Algae, eutrophic, coliform bacteria, and trash

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the

state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. **Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules or interim effluent limitations.

L. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. **Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD, TSS, pH, and percent removal of BOD and TSS. Restrictions on BOD, TSS and pH are discussed in Section IV.B. of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. The rationale for including these limitations is explained in the Fact Sheet.

In addition, the Regional Board has considered the factors in California Water Code section 13241 in establishing these requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. § 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. part 131.21(c)(1).

This Order contains pollutant restrictions that are more stringent than applicable federal requirements and standards. Specifically, this Order includes effluent limitations for BOD and TSS that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in Section IV.B. of the Fact Sheet.

N. **Antidegradation Policy.** Part 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy, which requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of part 131.12 and State Water Board Resolution No. 68-16.

O. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations part 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

P. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

Q. Monitoring and Reporting. Part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. California Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

R. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with part 122.41, and additional conditions applicable to specified categories of permits in accordance with part 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under part 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/ requirements in subsections VI.C. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

T. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

U. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R4-2003-0087 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location different from that described in this Order is prohibited.

B. The bypass or overflow of untreated wastewater or wastes to surface waters or surface water drainage courses is prohibited, except as allowed in Standard Provision I.G. of Attachment D, Standard Provisions.

C. The monthly average effluent dry weather discharge flow rate from the facility shall not exceed the design capacity.

D. The Discharger shall not cause degradation of any water supply, except as consistent with State Water Board Resolution No. 68-16.

E. The treatment or disposal of wastes from the facility shall not cause pollution or nuisance as defined in section 13050, subdivisions (l) and (m) of the CWC.

F. The discharge of any substances in concentrations toxic to animal or plant is prohibited.

G. The discharge of any radiological, chemical, or biological warfare agent or high level radiological waste is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Effluent Limitations Applicable to Discharge Point 001

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001 into Ventura River, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP.

b. The ammonia nitrogen effluent limitation is the translated effluent limitation based on the water quality objective for ammonia in the current Basin Plan, Table 3-1 and Table 3-2, which resulted from Resolution No. 2002-011, and Resolution No. 2005-014 adopted by the Regional Water Board on April 25, 2002, and December 1, 2005, respectively. This effluent limitation is derived according to the Implementation Section of Resolution No. 2002-011.

c. The effluent limitations for Bis(2-ethylhexyl)phthalate will apply immediately on the effective date of this permit. The effluent limitation for Bis(2-ethylhexyl)phthalate is based on USEPA Technical Support Document procedures. Bis(2-ethylhexyl)phthalate shows reasonable potential to exceed the criteria (B>C), therefore effluent limits are required.

Table 6a. Effluent Limitations Applicable to Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$BOD_5 20°C$	mg/L	10	--	15		
	lbs/day[1]	250		380		
Total Suspended Solids (TSS)	mg/L	10		15		
	lbs/day[1]	250		380		
pH	standard units	--	--	--	6.5	8.5
Removal Efficiency for BOD and TSS	%	85	--	--		
Oil and Grease	mg/L	10	--	15		
	lbs/day[1]	250	--	380		
Settleable Solids	ml/L	0.1	--	0.2		
Total Residual Chlorine	mg/L	--	--	0.1		
Total Dissolved Solids	mg/L	1500	--	--		

[1] The mass emission rates are based on the plant design flow rate of 3 MGD, and are calculated as follows: Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
	lbs/day[1]	38,000	--	--		
Sulfate	mg/L	500	--	--		
	lbs/day[1]	13,000	--	--		
Chloride	mg/L	300	--	--		
	lbs/day[1]	7,500	--	--		
Boron	mg/L	1.5	--	--		
	lbs/day[1]	38.0	--	--		
MBAS	mg/L	0.5	--	--		
	lbs/day[1]	13.0	--	--		
Ammonia Nitrogen[2]	mg/L	3.0	--	4.6		
	lbs/day[1]	75	--	120		
Nitrate + Nitrite (as N)	mg/L	--	--	10		
	lbs/day[1]	--	--	251		
Nitrite (as N)	mg/L	--	--	1		
	lbs/day[1]		--	25		
Bis(2-ethylhexyl)phthalate	µg/L	4.0	--	--		
	lbs/day[1]	0.10		--		

2. Other Effluent Limitations Applicable to Discharge Point 001

a. **Percent removal**: The average monthly removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.

b. The temperature of wastes discharged shall not exceed 86°F except when the ambient temperature of the receiving waters is higher than 86°F, in which case the temperature of the wastes discharged shall not exceed the ambient temperature of the receiving waters.

c. The radioactivity of the wastes discharged shall not exceed the limits specified in Title 22, Chapter 15, Article 5, Section 64443, of the California Code of Regulations (CCR), or subsequent revisions.

d. The wastes discharged to water courses shall at all times be adequately disinfected. For the purpose of this requirement, the wastes shall be considered adequately disinfected if the median number of total coliform

[2] This is the translated effluent limitation for ammonia based on the water quality objective for ammonia in the current Basin Plan, Table 3-1 and Table 3-2, which resulted from Resolution Nos. 2002-011 and 2005-014 adopted by the Regional Water Board on April 25, 2002, and December 1, 2005, respectively. This effluent limitation is derived according to the Implementation Section of Resolution No. 2002-011.

bacteria at the end of the UV channel during normal operation when the UV backup system is in use, and at the end of the chlorine contact chamber when the back up method is used, does not exceed a 7-day median of 2.2 MPN or CFU per 100 milliliters, and the number of total coliform bacteria does not exceed 23 MPN or CFU per 100 milliliters in more than one sample within any 30-day period. No sample shall exceed 240 MPN or CFU of total coliform bacteria per 100 milliliters in more than one sample in any 30 day period. The median value shall be determined from the bacteriological results of the last seven (7) days for which an analysis has been completed. Samples shall be collected at a time when wastewater flow and characteristics are most demanding on treatment facilities and disinfection processes.

e. For the protection of the water contact recreation beneficial use, the wastes discharged to water courses shall have received adequate treatment, so that the turbidity of the treated wastewater does not exceed any of the following: (a) an average of 2 Nephelometric turbidity units (NTUs) within a 24-hour period; (b) 5 NTUs more than 5 percent of the time (72 minutes) within a 24-hour period; and (c) 10 NTU at any time.

f. To protect the underlying ground water basins, pollutants shall not be present in the wastes discharged at concentrations that pose a threat to ground water quality.

g. Acute Toxicity Limitation and Requirements:

a. The acute toxicity of the effluent shall be such that:

(i) The average survival in the undiluted effluent for any three (3) consecutive 96-hour static renewal bioassay tests shall be at least 90%, and

(ii) No single test producing less than 70% survival.

b. If either of the above requirements g.a.(i) or g.a.(ii) is not met, the Discharger shall conduct six additional tests over a 12-week period, approximately one test every two weeks. The Discharger shall ensure that results of a failing acute toxicity test are received by the Discharger within 24 hours of completion of the test, and the additional tests shall begin within 5 business days of receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume testing at the regular frequency as specified in the monitoring and reporting program. However, if the results of any two of the six accelerated tests are less than 90% survival, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the sources of toxicity. Once the sources are

identified, the Discharger shall take all reasonable steps to reduce toxicity to meet the objective.

c. If the initial test and any of the additional six acute toxicity bioassay tests results are less than 70% survival, the Discharger shall immediately implement the Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan.

d. The Discharger shall conduct acute toxicity monitoring as specified in Attachment E - Monitoring and Reporting Program (MRP).

h. Chronic Toxicity Trigger and Requirements:

a. The chronic toxicity of the effluent shall be expressed and reported in toxic units, where:

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

b. There shall be no chronic toxicity in the effluent discharge.

c. If the chronic toxicity of the effluent exceeds the monthly median trigger of 1.0 TU_c, the Discharger shall immediately implement an accelerated chronic toxicity testing according to Attachment E - MRP, Section V.B.3. If any three out of the initial test and the six accelerated tests results exceed 1.0 TU_c, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan, as specified in Attachment E – MRP, Section V.D and V.E.

d. The Discharger shall conduct chronic toxicity monitoring as specified in Attachment E – MRP.

B. Land Discharge Specifications

Not applicable.

C. Reclamation Specifications

The production, distribution, and reuse of recycled water are presently regulated under Water Reclamation Requirements (WRRs) Order No. 88-107, adopted by this Board on October 24, 1988, continued in Board Order No. 97-072, adopted on May 12, 1997. Pursuant to California Water Code section 13523, these

WRRs were revised in 1997 and were readopted without change in Order No. 97-072, adopted May 12, 1997.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Ventura River:

1. For waters designated with a warm freshwater habitat (WARM) or cold freshwater habitat (COLD) beneficial use, the temperature of the receiving water at any time or place and within any given 24-hour period shall not be altered by more than 5°F above the natural temperature (or above 70°F if the ambient receiving water temperature is less than 60°F) at the receiving water station located downstream of the discharge, as a result of the waste discharged. Natural conditions shall be determined on a case-by-case basis.

2. The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of wastes discharged. Ambient pH levels shall not be changed more than 0.5 units from natural conditions as a result of wastes discharged. Natural conditions shall be determined on a case-by-case basis.

3. The dissolved oxygen in the receiving water shall not be depressed below 7 mg/L as a result of the wastes discharged.

4. The total residual chlorine shall not exceed 0.1 mg/L in the receiving waters and shall not persist in the receiving water at any concentration that causes impairment of beneficial uses as a result of the wastes discharged.

5. The fecal coliform concentration in the receiving water shall not exceed the following, as a result of wastes discharged:

    a. Geometric Mean Limits

        i. E.coli density shall not exceed 126/100 mL.

        ii. Fecal coliform density shall not exceed 200/100 mL.

    b. Single Sample Limits

        i. E.coli density shall not exceed 235/100 mL.

        ii. Fecal coliform density shall not exceed 400/100 mL.

6. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits, as a result of wastes discharged:

a. Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%, and

b. Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.

7. The wastes discharged shall not produce concentrations of substances in the receiving water that are toxic to or cause detrimental physiological responses in human, animal, or aquatic life.

8. The wastes discharged shall not cause concentrations of contaminants to occur at levels that are harmful to human health in waters which are existing or potential sources of drinking water.

9. The concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses as a result of the wastes discharged.

10. The wastes discharged shall not contain substances that result in increases in BOD, which adversely affect the beneficial uses of the receiving waters.

11. Waters discharged shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

12. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions as a result of waters discharged.

13. The wastes discharged shall not cause the receiving waters to contain any substance in concentrations that adversely affect any designated beneficial use.

14. The wastes discharged shall not degrade surface water communities and populations, including vertebrate, invertebrate, and plant species.

15. The wastes discharged shall not alter the natural taste, odor, and color of fish, shellfish, or other surface water resources used for human consumption.

16. The wastes discharged shall not result in problems due to breeding of mosquitoes, gnats, black flies, midges, or other pests.

17. The wastes discharged shall not result in visible floating particulates, foams, and oil and grease in the receiving waters.

18. The wastes discharged shall not cause objectionable aquatic growths or degrade indigenous biota.

19. The wastes discharged shall not alter the color of the receiving waters; not create a visual contrast with the natural appearance of the water; nor cause aesthetically undesirable discoloration of the receiving waters.

20. No physical evidence of wastes discharged shall be visible at any time in the water or on beaches, shores, rocks, or structures.

21. The wastes discharged shall not contain any individual pesticide or combination of pesticides in concentrations that adversely affect beneficial uses of the receiving waters. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life as a result of the wastes discharged.

22. The natural hydrologic conditions necessary to support the physical, chemical, and biological characteristics present in wetlands shall be protected to prevent significant adverse effects on: (a) natural temperature, pH, dissolved oxygen, and other natural physical and chemical conditions; (b) movement of aquatic fauna; (c) survival and reproduction of aquatic flora and fauna; and (d) water levels.

23. The existing habitats and associated populations of wetlands fauna and flora shall be maintained by: (a) maintaining substrate characteristics necessary to support flora and fauna, which would be present naturally; (b) protecting food supplies for fish and wildlife; (c) protecting reproductive and nursery areas; and (d) protecting wildlife corridors.

24. Ammonia shall not be present at levels that, when oxidized to nitrate, pose a threat to groundwater quality.

25. Acute Toxicity Receiving Water Quality Objective

    a. There shall be no acute toxicity in ambient waters as a result of wastes discharged.

    b. Receiving water and effluent toxicity testing shall be performed on the same day as close to concurrently as possible.

    c. The acute toxicity of the receiving water, at monitoring location RSW-004, located approximately 50 feet downstream of the discharge, shall be such that: (i) the average survival in the undiluted receiving water for any three (3) consecutive 96-hour static, static-renewal, or continuous flow bioassay tests shall be at least 90%, and (ii) no single test producing less than 70% survival. Static-renewal bioassay tests may be used, as allowed by the most current USEPA test method for measuring acute toxicity.

    d. If the upstream acute toxicity of the receiving water is greater than the downstream acute toxicity but the effluent acute toxicity is in compliance, acute toxicity accelerated monitoring in the receiving water according to MRP Section V.A.2.d does not apply.

26. Chronic Toxicity Receiving Water Quality Objective

    a. There shall be no chronic toxicity in ambient waters as a result of wastes discharged.

    b. Receiving water and effluent toxicity testing shall be performed on the same day as close to concurrently as possible.

    c. If the chronic toxicity in the receiving water at the monitoring station immediately downstream of the discharge, exceeds the monthly median of 1.0 TU_c trigger in a critical life stage test and the toxicity cannot be attributed to upstream toxicity, as assessed by the Discharger, then the Discharger shall immediately implement an accelerated chronic toxicity testing according to Monitoring and Reporting Program CI 4245, Section V.B.3. If two of the six tests exceed a 1.0 TU_c trigger, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan.

    d. If the chronic toxicity of the receiving water upstream of the discharge is greater than the downstream and the TUc of the effluent chronic toxicity test is less than or equal to a monthly median of 1 TU_c trigger, then accelerated monitoring need not be implemented.

27. The wastes discharged shall not cause the ammonia water quality objective in the Basin Plan to be exceeded in the receiving waters. Compliance with the ammonia water quality objectives shall be determined by comparing the receiving water ammonia concentration to the ammonia water quality objective in the Basin Plan. The ammonia water quality objective can also be calculated using the pH and temperature of the receiving water at the time of collection of the ammonia sample.

B. Groundwater Limitations

1. The discharge shall not cause the underlying groundwater to be degraded, to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

VI. PROVISIONS

A. Standard Provisions

1. **Standard Provisions**
   The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. **Regional Water Board Standard Provisions**
   The Discharger shall comply with the Regional Water Board-specific Standard Provisions as follows:

   a. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.

   b. Odors, vectors, and other nuisances of sewage or sludge origin beyond the limits of the treatment plant site or the sewage collection system due to improper operation of facilities, as determined by the Regional Water Board, are prohibited.

   c. All facilities used for collectionand transport of "wastes" shall be adequately protected against damage resulting from overflow, washout, or inundation. The treatment plant shall be protected from a 100-year return, 24-hour duration storm.

   d. Collection, treatment, and disposal systems shall be operated in a manner that precludes public contact with wastewater.

   e. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer of the Regional Water Board.

   f. The provisions of this order are severable. If any provision of this order is found invalid, the remainder of this Order shall not be affected.

   g. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the CWA.

   h. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities or penalties to which the discharger is or may be subject to under Section 311 of the CWA.

   i. The Discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of

storm water to storm drain systems or other water courses under their jurisdiction, including applicable requirements in municipal storm water management programs developed to comply with NPDES permits issued by the Regional Water Board to local agencies.

j. Discharge of wastes to any point other than specifically described in this Order is prohibited, and constitutes a violation thereof.

k. The Discharger shall comply with all applicable effluent limitations, national standards of performance, toxic effluent standards, and all federal regulations established pursuant to Sections 301, 302, 303(d), 304, 306, 307, 316, 403, and 405 of the Federal CWA and amendments thereto.

l. These requirements do not exempt the operator of the waste disposal facility from compliance with any other laws, regulations, or ordinances which may be applicable; they do not legalize this waste disposal facility, and they leave unaffected any further restraints on the disposal of wastes at this site which may be contained in other statutes or required by other agencies.

m. Oil or oily material, chemicals, refuse, or other polluting materials shall not be stored or deposited in areas where they may be picked up by rainfall and carried off of the property and/or discharged to surface waters. Any such spill of such materials shall be contained and removed immediately.

n. A copy of these waste discharge specifications shall be maintained at the discharge facility so as to be available at all times to operating personnel.

o. If there is any storage of hazardous or toxic materials or hydrocarbons at this facility and if the facility is not manned at all times, a 24-hour emergency response telephone number shall be prominently posted where it can easily be read from the outside.

p. The Discharger shall file with the Regional Water Board a report of waste discharge at least 120 days before making any proposed change in the character, location or volume of the discharge.

q. In the event of any change in name, ownership, or control of these waste disposal facilities, the discharger shall notify the Regional Water Board of such change and shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Regional Water Board.

r. The CWC section 13385 provides that any person who violates a waste discharge requirement or a provision of the California Water Code is subject to civil penalties of: up to $5,000 per day, $10,000 per day, or $25,000 per day of violation; or when the violation involves the discharge of pollutants, is subject to civil penalties of up to $10 per gallon per day or $25 per gallon per day of violation; or some combination thereof, depending on the violation, or upon the combination of violations. Violation of any of the provisions of the NPDES

program or of any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalty may be applied for each kind of violation.

s. Pursuant to CWC 13387(e), any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this order, including monitoring reports or reports of compliance or noncompliance, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained in this order and is subject to a fine of not more than $25,000 or imprisonment for not more than two years, or both. For a subsequent conviction, such a person shall be punished by a fine of not more than $25,000 per day of violation, by imprisonment of not more than four years, or by both.

t. The discharge of any waste resulting from the combustion of toxic or hazardous wastes to any waste stream that ultimately discharges to waters of the United States is prohibited, unless specifically authorized elsewhere in this permit.

u. The Discharger shall notify the Executive Officer in writing no later than 6 months prior to planned discharge of any chemical, other than the products previously reported to the Executive Officer, which may be toxic to aquatic life. Such notification shall include:
(1) Name and general composition of the chemical,
(2) Frequency of use,
(3) Quantities to be used,
(4) Proposed discharge concentrations, and
(5) USEPA registration number, if applicable.

v. In the event the Discharger does not comply or will be unable to comply for any reason with any prohibition, maximum daily effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Watershed Regulatory Section Chief at the Regional Water Board by telephone (213) 576-6616, or by fax at (213) 576-6660 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing to the Regional Water Board within five business days, unless the Regional Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and the measures to prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. This Order may be modified, revoked and reissued, or terminated for cause, including, but not limited to:

(1) Violation of any term or condition contained in this Order;

(2) Obtaining this Order by misrepresentation, or by failure to disclose fully all relevant facts; or

(3) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the Discharger for an Order modification, revocation, and issuance or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

c. This Order may be modified, in accordance with the provisions set forth in 40 C.F.R. parts 122 and 124 to include requirements for the implementation of the watershed protection management approach.

d. The Board may modify, or revoke and reissue this Order if present or future investigations demonstrate that the discharge(s) governed by this Order will cause, have the potential to cause, or will contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters.

e. This Order may also be modified, revoked, and reissued or terminated in accordance with the provisions of 40 C.F.R. parts 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this Order, endangerment to human health or the environment resulting from the permitted activity, or acquisition of newly obtained information which would have justified the application of different conditions if known at the time of Order adoption. The filing of a request by the Discharger for an Order modification, revocation and issuance or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

f. This Order may be modified, in accordance with the provisions set forth in 40 C.F.R. parts 122 to 124, to include new minimum levels (MLs).

g. If an applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the Regional Water Board may institute proceedings under these regulations to modify or revoke and reissue the Orders to conform to the toxic effluent standard or prohibition.

h. The waste discharged shall not cause a violation of any applicable water quality standard for receiving waters. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments, thereto, the Regional Water Board will revise and modify this Order in accordance with such standards.

i. This Order may be reopened and modified, to revise effluent limitations as a result of future Basin Plan Amendments, such as an update of a water quality objective, or the adoption of a TMDL for the Ventura River Watershed.

j. This Order may be reopened and modified, to revise effluent limitations as a result of the delisting of a pollutant from the 303(d) list.

k. This Order may be reopened and modified to revise the chronic toxicity effluent limitation, and/or total residual chlorine limitations, to the extent necessary, to be consistent with State Water Board precedential decisions, new policies, new laws, or new regulations.

l. This Order may be reopened and modified to revise the chronic toxicity effluent limitation or the residual chlorine effluent limitation, to the extent necessary, to be consistent with State Water Board precedential decisions, new policies, new laws, or new regulations.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Toxicity Reduction Requirements

The Discharger shall prepare and submit a copy of the Discharger's Initial Investigation Toxicity Reduction Evaluation (TRE) workplan to the Executive Officer of the Regional Water Board for approval within 90 days of the effective date of this permit. If the Executive Officer does not disapprove the workplan within 60 days from the date in which it was received, the workplan shall become effective. The Discharger shall use USEPA manual EPA/833B-99/002 (municipal), or the most current version, as guidance. At a minimum, the Initial Investigation TRE workplan must contain the provisions in Attachment G. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

(1) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

(2) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the facility; and,

(3) If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor).

If the effluent toxicity test result exceeds the 1.0 TUc monthly median toxicity trigger, then the Discharger shall immediately implement accelerated toxicity testing that consists of six additional tests over a12-week period, i.e. approximately one test every two weeks. Effluent sampling for the first test of the six additional tests shall commence within 5 business days of receipt of the test results exceeding the toxicity trigger.

If the results of any two of the six tests (any two tests in a 12-week period) exceed the limitation, the Discharger shall initiate a Toxicity Reduction Evaluation (TRE).

If results of the implementation of the facility's initial investigation TRE workplan (as described above) indicate the need to continue the TRE/TIE, the Discharger shall expeditiously develop a more detailed TRE workplan for submittal to the Executive Officer within 15 days of completion of the initial investigation TRE.

Detailed toxicity testing and reporting requirements are contained in Section V of the MRP, (Attachment E).

b. Treatment Plant Capacity

The Discharger shall submit a written report to the Executive Officer of the Regional Water Board within 90 days after the "30-day (monthly) average" daily dry-weather flow equals or exceeds 75 percent of the design capacity of waste treatment and/or disposal facilities. The Discharger's senior administrative officer shall sign a letter, which transmits that report and certifies that the discharger's policy-making body is adequately informed of the report's contents. The report shall include the following:

(1) The average daily flow for the month, the date on which the peak flow occurred, the rate of that peak flow, and the total flow for the day;

(2) The best estimate of when the monthly average daily dry-weather flow rate will equal or exceed the design capacity of the facilities; and

(3) A schedule for studies, design, and other steps needed to provide additional capacity for waste treatment and/or disposal facilities before the waste flow rate equals the capacity of present units.

This requirement is applicable to those facilities which have not reached 75 percent of capacity as of the effective date of this Order. For those facilities that have reached 75 percent of capacity by that date but for which no such report has been previously submitted, such report shall be filed within 90 days of the issuance of this Order.

3. Best Management Practices and Pollution Prevention

a. Storm Water Pollution Prevention Plan (SWPPP)

Not applicable

b. Spill Clean-up Contingency Plan (SCP)

Within ninety days, the Discharger is required to submit a Spill Clean-up Contingency Plan, which describes the activities and protocols to address clean-up of spills, overflows, and bypasses of untreated or partially treated wastewater from the Discharger's collection system or treatment facilities that reach water bodies, including dry channels and beach sands. At a minimum, the Plan shall include sections on spill clean-up and containment measures, public notification, and monitoring. The Discharger shall review and amend the Plan as appropriate after each spill from the facility or in the service area of the facility. The Discharger shall include a discussion in the annual summary report of any modifications to the Plan and the application of the Plan to all spills during the year.

c. Pollutant Minimization Program (PMP)

Reporting protocols in the Monitoring and Reporting Program, Attachment E, Section X.B.4 describe sample results that are to be reported as Detected but Not Quantified (DNQ) or Not Detected (ND). Definitions for a reported Minimum Level (ML) and Method Detection Limit (MDL) are provided in Attachment A. These reporting protocols and definitions are used in determining the need to conduct a Pollution Minimization Program (PMP) as follows:

The Discharger shall be required to develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a pollutant is present in the effluent above an effluent limitation and either:

(1) The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported ML; or

(2) The concentration of the pollutant is reported as ND and the effluent limitation is less than the MDL.

The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost-effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC section 13263.3(d), shall be considered to fulfill the PMP requirements.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

(1) An annual review and semi-annual monitoring of potential sources of the reportable pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

(2) Quarterly monitoring for the reportable pollutant(s) in the influent to the wastewater treatment system;

(3) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant(s) in the effluent at or below the effluent limitation;

(3) Implementation of appropriate cost-effective control measures for the reportable pollutant(s), consistent with the control strategy; and

(5) An annual status report that shall be sent to the Regional Water Board including:

(a) All PMP monitoring results for the previous year;

(b) A list of potential sources of the reportable pollutant(s);

(c) A summary of all actions undertaken pursuant to the control strategy; and

(d) A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

a. Wastewater treatment facilities subject to this Order shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to CCR, title 23, chapter 3, subchapter 14 (Section 13625 of the California Water Code).

b. The Discharger shall maintain in good working order a sufficient alternate power source for operating the wastewater treatment and disposal facilities. All equipment shall be located to minimize failure due to moisture, liquid spray, flooding, and other physical phenomena. The alternate power source shall be designed to permit inspection and maintenance and shall provide for periodic testing. If such alternate power source is not in existence, the discharger shall halt, reduce, or otherwise control all discharges upon the reduction, loss, or failure of the primary source of power.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Sludge Disposal Requirements**

(1) All sludge generated at the wastewater treatment plant will be disposed of, treated, or applied to land in accordance with federal regulations contained in 40 C.F.R. Part 503, in general, and in particular with the requirements in Attachment H of this Order, (Biosolids, Sludge Management]. These requirements are enforceable by USEPA.

(2) The Discharger shall ensure compliance with the requirements in SWRCB Order No. 2004- 10-DWQ, General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural and Land Reclamation Activities" for those sites receiving the Discharger's biosolids which a Regional Water Board has placed under this general order, and with the requirements in individual WDRs issued by a Regional Water Board for sites receiving the Discharger's biosolids.

(3) The Discharger shall comply, if applicable, with WDRs issued by other Regional Water Boards to which jurisdiction the biosolids are transported and applied.

(4) The Discharger shall furnish this Regional Water Board with a copy of any report submitted to USEPA, State Water Board or other Regional Water Board, with respect to municipal sludge or biosolids.

b. **Pretreatment Requirements**

(1) This Order includes the Discharger's Pretreatment Program as previously submitted to this Regional Water Board. Any change to the Program shall be reported to the Regional Water Board in writing and shall not become effective until approved by the Executive Officer in accordance with procedures established in 40 C.F.R. 403.18.

(2) The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the Federal Clean Water Act with timely, appropriate, and effective enforcement actions. The Discharger shall require industrial users to comply with Federal Categorical Standards and shall initiate enforcement actions against those users who do not comply with the standards. The Discharger shall require industrial users subject to the Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.

(3) The Discharger shall perform the pretreatment functions as required in Federal Regulations 40 C.F.R. Part 403 including, but not limited to:

A. Implement the necessary legal authorities as provided in 40 C.F.R. 403.8(f)(1);

B. Enforce the pretreatment requirements under 40 C.F.R. 403.5 and 403.6;

C. Implement the programmatic functions as provided in 40 C.F.R. 403.8(f)(2); and

D. Provide the requisite funding of personnel to implement the Pretreatment Program as provided in 40 C.F.R. 403.8(f)(3).

(4) The Discharger shall submit semiannual and annual reports to the Regional Water Board, with copies to the State Water Board, and USEPA Region 9, describing the Discharger's pretreatment activities over the period. The annual and semiannual reports shall contain, but not be limited to, the information required in the attached *Pretreatment Reporting Requirements* (Attachment I), or an approved revised version thereof. If the Discharger is not in compliance with any conditions or requirements of this Order, the Discharger shall include the reasons for noncompliance and shall state how and when the Discharger will comply with such conditions and requirements.

(5) The Discharger shall be responsible and liable for the performance of all control authority pretreatment requirements contained in 40 C.F.R. Part 403, including subsequent regulatory revisions thereof. Where Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within six months from the effective date of this Order or the effective date of Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by the Regional Water Board, USEPA, or other appropriate parties, as provided in the Federal Clean Water Act. The Regional Water Board or USEPA may initiate enforcement action against an industrial user for

noncompliance with acceptable standards and requirements as provided in the Federal Clean Water Act and/or the California Water Code.

c. The Discharger's collection system is part of the system that is subject to this Order. As such, the Discharger must properly operate and maintain its collection system (40 C.F.R. § 122.41(e)). The Discharger must report any non-compliance (40 C.F.R. § 122.41(l), subsections (6) and (7)) and mitigate any discharge from the collection system in violation of this Order (40 C.F.R. § 122.41(d)). See Attachment D, subsections I.D, V.E, V.H, and I.C., and the following section (Spill Reporting Requirements) of this Order.

6. Other Special Provisions

A. Notification

Although State and Regional Water Board staff do not have duties as first responders, this requirement is an appropriate mechanism to ensure that the agencies that do have first responder duties are notified in a timely manner in order to protect public health and beneficial uses. For certain spills, overflows and bypasses, the Discharger shall make notifications as required below:

a. For any discharges of sewage that results in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but no later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services, the local health officer or directors of environmental health with jurisdiction over affected water bodies, and the Regional Water Quality Control Board.

b. As soon as possible, but no later than twenty-four (24) hours after becoming aware of a discharge to a drainage channel or a surface water, the Discharger shall submit to the Regional Water Quality Control Board a certification that the State Office of Emergency Services and the local health officer or directors of environmental health with jurisdiction over the affected water bodies have been notified of the discharge.

B. Monitoring

For certain spills, overflows and bypasses, the Discharger shall monitor as required below:

a. To define the geographical extent of spill's impact the Discharger shall obtain grab samples (if feasible, accessible, and safe) for spills, overflows or bypasses of any volume that reach receiving waters. The Discharger shall analyze the samples for total and fecal coliforms or *E. coli*, and *enterococcus*, and relevant pollutants of concern, upstream and downstream of the point of entry of the spill (if feasible, accessible and safe). This monitoring shall be done on a daily basis from time the spill is known until the results of two consecutive sets of bacteriological

monitoring indicate the return to the background level or the County Department of Public Health or appropriate local agency authorizes cessation of monitoring.

b. The Discharger shall obtain a grab sample (if feasible, accessible, and safe) for spills, overflows or bypasses of any volume that flowed to receiving waters, entered a shallow ground water aquifer, or have the potential for public exposure; and for all spills, overflows or bypasses of 1,000 gallons or more. The Discharger shall characterize the sample for total and fecal coliforms or *E. coli*, and *enterococcus*, and analyze relevant pollutants of concern depending on the area and nature of spills or overflows (if feasible, accessible and safe).

C. Reporting

The initial notification to the Regional Water Board shall be followed by:

a. A written preliminary report five working days after disclosure of the incident (submission to the Regional Water Board of the log number of the Sanitary Sewer Overflow database entry shall satisfy this requirement). Within 30 days after submitting the preliminary report, the Discharger shall submit the final written report to this Regional Water Board. (A copy of the final written report, for a given incident, already submitted pursuant to a Statewide General Waste Discharge Requirements for Wastewater Collection System Agencies, may be submitted to the Regional Water Board to satisfy this requirement.) The written report shall document the information required in paragraph D. below, monitoring results and any other information required in provisions of the Standard Provisions document including corrective measures implemented or proposed to be implemented to prevent/minimize future occurrences. The Executive Officer for just cause can grant an extension for submittal of the final written report.

b. The Discharger shall include a certification in the annual summary report (due according to the schedule in the Monitoring and Reporting Program) stating that the sewer system emergency equipment, including alarm systems, backup pumps, standby power generators, and other critical emergency pump station components were maintained and tested in accordance with the Discharger's Preventative Maintenance Plan. Any deviations from or modifications to the Plan shall be discussed.

D. Records

The Discharger shall develop and maintain a record of all spills, overflows or bypasses of raw or partially treated sewage from its collection system or treatment plant. This record shall be made available to the Regional Water Board upon request and a spill summary shall be included in the annual summary report. The records shall contain:

a. the date and time of each spill, overflow or bypass;

b. the location of each spill, overflow or bypass;

c. the estimated volume of each spill, overflow or bypass including gross volume, amount recovered and amount not recovered, monitoring results as required by Section VI.C.6.B;

d. the cause of each spill, overflow or bypass;

e. whether each spill, overflow or bypass entered a receiving water and, if so, the name of the water body and whether it entered via storm drains or other man-made conveyances;

f. mitigation measures implemented; and,

g. corrective measures implemented or proposed to be implemented to prevent/minimize future occurrences.

E. Activities Coordination

In addition, Regional Water Board expects that the POTW's owners/operators will coordinate their compliance activities for consistency and efficiency with other entities that have responsibilities to implement: (i) this NPDES permit, including the Pretreatment Program, (ii) a Municipal Separate Storm Sewer (MS4) NPDES permit that may contain spill prevention, sewer maintenance, reporting requirements and (iii) the Sanitary Sewer Overflows (SSOs) WDR.

F. Consistency with Sanitary Sewer Overflows WDRs

The Clean Water Act prohibits the discharge of pollutants from point sources to surface waters of the United States unless authorized under an NPDES permit. (33 U.S.C. §§1311, 1342). The State Water Board adopted a General WDR for SSOs, (WQ Order No. 2006-0003) on May 2, 2006, to provide a consistent, statewide regulatory approach to address SSOs. The SSOs WDR requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Board's online SSOs database.

The requirements contained in this Order in Sections VI.C.3.b. (Spill Contingency Plan Section), VI.C.4. (Construction, Operation and Maintenance Specifications Section), and VI.C.6. (Spill Reporting Requirements) are intended to be consistent with the requirements of the SSOs WDR. The Regional Water Board recognizes that there may be some overlap between the NPDES permit provisions and SSOs WDR requirements. The requirements of the SSOs WDR are considered the minimum thresholds (see Finding 11 of WQ Order No. 2006-0003). The Regional Water Board will accept the

documentation prepared by the Permittees under the SSOs WDR for compliance purposes, as satisfying the requirements in Sections VI.C.3.b., VI.C.4., and VI.C.6. provided any more specific or stringent provisions enumerated in this Order, have also been addressed.

G. The Discharger shall provide standby or emergency power facilities and/or storage capacity or other means so that in the event of plant upset or outage due to power failure or other cause, discharge of raw or inadequately treated sewage does not occur.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data

When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND), the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Average Monthly Effluent Limitation (AMEL).

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single alleged violation, though the Discharger may be considered out of compliance for each day of that month for that parameter

(e.g., resulting in 31 days of non-compliance in a 31-day month). If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger may be considered out of compliance for that calendar month. The Discharger will only be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month with respect to the AMEL.

If the analytical result of a single sample, monitored monthly, quarterly, semiannually, or annually, does not exceed the AMEL for a given parameter, the Discharger will have demonstrated compliance with the AMEL for each day of that month for that parameter.

If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger shall collect up to four additional samples within the same calendar month. All analytical results shall be reported in the monitoring report for that month. The concentration of pollutant (an arithmetic mean or a median) in these samples estimated from the "Multiple Sample Data Reduction" Section above, will be used for compliance determination.

In the event of noncompliance with an AMEL, the sampling frequency for that parameter shall be increased to weekly and shall continue at this level until compliance with the AMEL has been demonstrated.

D. Average Weekly Effluent Limitation (AWEL).

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar week exceeds the AWEL for a given parameter, this will represent a single alleged violation, though the Discharger may be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Discharger may be considered out of compliance for that calendar week. The Discharger will only be considered out of compliance for days when the discharge occurs. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week with respect to the AWEL.

A calendar week will begin on Sunday and end on Saturday. Partial weeks consisting of four or more days at the end of any month will include the remaining days of the week, which occur in the following month in order to calculate a consecutive seven-day average. This value will be reported as a weekly average or seven-day average on the SMR for the month containing the partial week of four or more days. Partial calendar weeks consisting of less than four days at the end of any month will be carried forward to the succeeding month and reported as a weekly average or a seven-day average for the calendar week that ends with the first Saturday of that month.

E. Maximum Daily Effluent Limitation (MDEL).

If a daily discharge exceeds the MDEL for a given parameter, the Discharger may be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day with respect to the MDEL.

F. Instantaneous Minimum Effluent Limitation.

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Discharger may be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

G. Instantaneous Maximum Effluent Limitation.

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Discharger may be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

H. Six-month Median Effluent Limitation.

If the median of daily discharges over any 180-day period exceeds the six-month median effluent limitation for a given parameter, an alleged violation will be flagged and the discharger may be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the six-month median, the discharger may be considered out of compliance for the 180-day period. For any 180-period during which no sample is taken, no compliance determination can be made for the six-month median effluent limitation.

I. Percent Removal.

The average monthly percent removal is the removal efficiency expressed in percentage across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of pollutant concentrations (C in mg/L) of influent and effluent samples collected at about the same time using the following equation:
Percent Removal (%) = [1-(CEfluent/CInfluent)] x 100 %
When preferred, the Discharger may substitute mass loadings and mass emissions for the concentrations.

J. Mass and Concentration Limitations

Compliance with mass and concentration effluent limitations for the same parameter shall be determined separately with their respective limitations. When the concentration of a constituent in an effluent sample is determined to be ND or DNQ, the corresponding mass emission rate determined from that sample concentration shall also be reported as ND or DNQ.

K. Compliance with single constituent effluent limitations

Dischargers may be considered out of compliance with the effluent limitation if the concentration of the pollutant (see Section B "Multiple Sample Data Reduction" above) in the monitoring sample is greater than the effluent limitation and greater than or equal to the Reporting Level (RL).

L. Compliance with effluent limitations expressed as a sum of several constituents

Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB's) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

M. Mass Emission Rate.

The mass emission rate shall be obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.34}{N}\sum_{i=1}^{N} Q_i C_i$$

$$\text{Mass emission rate (kg/day)} = \frac{3.79}{N}\sum_{i=1}^{N} Q_i C_i$$

in which 'N' is the number of samples analyzed in any calendar day. 'Qi' and 'Ci' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples, which may be taken in any calendar day. If a composite sample is taken, 'Ci' is the concentration measured in the composite sample and 'Qi' is the average flow rate occurring during the period over which samples are composited.

The daily concentration of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste streams as follows:

$$\text{Daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

in which 'N' is the number of component waste streams. 'Qi' and 'Ci' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Qt' is the total flow rate of the combined waste streams.

N. Bacterial Standards and Analysis.

1. The geometric mean used for determining compliance with bacterial standards is calculated with the following equation:

   Geometric Mean = (C1 x C2 x ... x Cn)1/n

   where n is the number of days samples were collected during the period and C is the concentration of bacteria (MPN/100 mL or CFU/100 mL) found on each day of sampling.

2. For bacterial analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 ml for total and fecal coliform, at a minimum, and 1 to 1000 per 100 ml for enterococcus). The detection methods used for each analysis shall be reported with the results of the analyses.

3. Detection methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 C.F.R. part 136 (revised March 12, 2007), unless alternate methods have been approved by USEPA pursuant to 40 C.F.R. part 136, or improved methods have been determined by the Executive Officer and/or USEPA.

4. Detection methods used for *enterococcus* shall be those presented in Table 1A of 40 C.F.R. part 136 (revised March 12, 2007) or in the USEPA publication EPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water By Membrane Filter Procedure* or any improved method determined by the Executive Officer and/or USEPA to be appropriate.

O. Single Operational Upset

A single operational upset (SOU) that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation and limits the Discharger's liability in accordance with the following conditions:

1. A single operational upset is broadly defined as a single unusual event that temporarily disrupts the usually satisfactory operation of a system in such a way that it results in violation of multiple pollutant parameters.

2. A Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in Provision V.E.2(b) of Attachment D – Standard Provisions.

3. For purposes outside of CWC section 13385, subsections (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the

requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" (September 27, 1989).

4. For purposes of CWC section 13385, subsections (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with CWC section 13385(f)(2).

Appendix G

2008 Annual Pesticide Use Reports, Ventura County

Indexed by Commodity

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Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
ANIMAL PREMISE					
PIPERONYL BUTOXIDE		34.6717		24.00	U
		3.1594		3.00	A
TOTAL POUNDS OF THIS CHEMICAL	37.8311				
PIPERONYL BUTOXIDE, OTHER RELATED		8.6679		24.00	U
		0.7899		3.00	A
TOTAL POUNDS OF THIS CHEMICAL	9.4578				
PYRETHRINS		4.3340		24.00	U
		0.3949		3.00	A
TOTAL POUNDS OF THIS CHEMICAL	4.7289				
Site Total		52.0178			
APPLE					
ALUMINUM PHOSPHIDE		11.5500	3	26.00	A
BOSCALID		1.8270	1	8.00	A
DIPHACINONE		0.0015	2	18.00	A
FLONICAMID		0.6250	1	8.00	A
KAOLIN		4,476.8750	7	163.50	A
LIME-SULFUR		61.5810	1	8.00	A
MYCLOBUTANIL		0.5000	1	8.00	A
PYRACLOSTROBIN		0.9280	1	8.00	A
PYRETHRINS		0.0336	1	0.63	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		11.3877	1	100.00	A
SPINOSAD		2.0892	2	16.00	A
STREPTOMYCIN SULFATE		6.8096	2	16.00	A
SULFUR		2,964.0000	3	247.00	A
Site Total		7,538.2076	25		
ARRUGULA					
ALPHA-ALKYL (C10-C12)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		0.0937	1	2.00	A
AZADIRACHTIN		0.7550	15	76.70	A
BENSULIDE		51.5569	3	9.60	A
CYFLUTHRIN		0.2125	1	5.80	A
BETA-CYFLUTHRIN		0.1516	4	9.00	A
CYPERMETHRIN		0.2541	1	5.60	A
(S)-CYPERMETHRIN		0.6353	3	13.70	A
DIMETHYLPOLYSILOXANE		0.0104	1	2.00	A
EMAMECTIN BENZOATE		0.1203	10	16.00	A
FLONICAMID		0.0625	1	1.00	A
INDOXACARB		0.1313	1	2.00	A
PROPYLENE GLYCOL		0.0208	1	2.00	A
PYRACLOSTROBIN		2.2250	4	15.80	A
SPINETORAM		1.7724	4	28.40	A
THIAMETHOXAM		1.2344	11	22.00	A
Site Total		59.2362	59		
ARTICHOKE, GLOBE					
AZADIRACHTIN		11.3806	13	423.10	A
AZOXYSTROBIN		22.9780	2	125.00	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		178.2000	8	202.40	A
BIFENTHRIN		270.9504	22	1,118.20	A
N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL) ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS		17.7788	5	278.00	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		238.8159	1	125.00	A
DELTAMETHRIN		27.7204	20	986.40	A
DIMETHYLPOLYSILOXANE		97.7204	11	458.70	A
ESFENVALERATE		25.9190	12	636.95	A
FATTY ACIDS, METHYL ESTERS		66.3743	5	278.00	A
FATTY ACIDS, MIXED		7.0578	13	435.60	A
GIBBERELLINS		16.6467	20	695.85	A
IMIDACLOPRID		71.3800	13	589.20	A
LECITHIN		271.7595	37	1,532.55	A
METHIDATHION		159.0323	3	159.00	A

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ARTICHOKE, GLOBE				
METHOXYFENOZIDE	69.4446	9	400.90	A
METHYLATED SOYBEAN OIL	186.5967	7	507.00	A
MYCLOBUTANIL	39.3000	7	393.00	A
4-NONYLPHENOL, FORMALDEHYDE RESIN, PROPOXYLATED	22.5199	5	278.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	105.5746	44	2,039.55	A
OXYFLUORFEN	179.1641	14	511.30	A
PERMETHRIN	161.4022	11	626.90	A
POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	2.0500	3	91.80	A
POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	198.9592	21	1,490.70	A
POLYBUTENES	11.8526	5	278.00	A
POLY-I-PARA-MENTHENE	10.5059	1	44.00	A
POLYOXYETHYLENE POLYOXYPROPYLENE	22.5897	10	344.70	A
POTASSIUM PHOSPHITE	84.4072	1	54.00	A
PROPIONIC ACID	271.7595	37	1,532.55	A
PYRETHRINS	11.2494	9	234.20	A
SPINETORAM	1.5058	1	32.00	A
SPINOSAD	44.3795	13	379.00	A
SULFUR	520.0000	2	65.00	A
THIAMETHOXAM	27.2016	13	580.30	A
Site Total	3,454.1766	272		
AVOCADO				
ABAMECTIN	125.8667	357	7,478.96	A
	0.0074	1	3.00	U
TOTAL POUNDS OF THIS CHEMICAL 125.8741				
ALPHA-ALKYL (C9-C11)-OMEGA-HYDROXYPOLY(OXYETHYLENE)	20.2853	6	214.00	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	3.4659	4	21.40	A
ALUMINUM PHOSPHIDE	2.2000	2	93.00	A
AMMONIUM SULFATE	1.5000	1	1.50	A
AZOXYSTROBIN	2.0793	1	10.00	A
BENTONITE	45.9000	4	50.50	A
CASEIN	3.3285	4	50.50	A
CHLOROPHACINONE	0.0055	16	303.00	A
COCONUT DIETHANOLAMIDE	0.0143	1	2.00	A
COPPER HYDROXIDE	32.2700	1	20.00	A
COPPER SULFATE (BASIC)	26.5000	1	10.00	A
COTTONSEED OIL	0.4381	1	4.00	A
DAZOMET	0.4950	1	32.62	A
DIETHYLENE GLYCOL	0.0092	1	5.00	A
DIMETHYLPOLYSILOXANE	119.6568	28	1,009.60	A
DIPHACINONE	0.0662	60	523.28	A
	0.0009	5	3,200.00	S
TOTAL POUNDS OF THIS CHEMICAL 0.0671				
DODECYLBENZENE SULFONIC ACID	0.0622	1	2.00	A
EDTA, TETRASODIUM SALT	0.0038	1	2.00	A
FATTY ACIDS, MIXED	8.3857	24	1,152.00	A
FATTY ACIDS DERIVED FROM TALLOW	1.3863	4	21.40	A
FOSETYL-AL	0.2000	1	2.00	A
GLYPHOSATE	20.7997	1	21.00	A
GLYPHOSATE, DIAMMONIUM SALT	3.7466	1	7.67	A
GLYPHOSATE, ISOPROPYLAMINE SALT	11,134.4100	1,165	14,280.64	A
GLYPHOSATE, MONOAMMONIUM SALT	4,190.1234	26	3,177.90	A
GLYPHOSATE, POTASSIUM SALT	14,224.4618	861	10,069.92	A
IRON PHOSPHATE	0.3500	1	2.00	A
ISOPROPYL ALCOHOL	0.0354	2	6.00	A
ISOPROPYLAMINE DODECYLBENZENE SULFONATE	0.3263	22	1,125.00	A
KAOLIN	285.0000	3	18.75	A
	11.8750	1	40.00	U
TOTAL POUNDS OF THIS CHEMICAL 296.8750				
LACTOSE	3.4125	4	50.50	A
METALDEHYDE	309.5325	48	848.66	A
METAM-SODIUM	5,079.9672	2	16.00	A
METHYL BROMIDE	13.5258	1	4.17	A

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AVOCADO					
	MINERAL OIL	118,578.0000	268	6,728.40	A
		0.3553	1	3.00	U
	TOTAL POUNDS OF THIS CHEMICAL 118,578.3553				
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	46.7257	32	1,192.40	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), BRANCHED	0.0239	1	5.00	A
	ORYZALIN	27.9978	2	28.00	A
	OXYFLUORFEN	0.6249	1	2.50	A
	PARAQUAT DICHLORIDE	88.4344	14	126.02	A
	PETROLEUM DISTILLATES	4.9527	3	15.00	A
	PETROLEUM OIL, PARAFFIN BASED	53.0976	22	1,125.00	A
	PETROLEUM OIL, UNCLASSIFIED	21,083.9947	104	1,164.30	A
	PHOSPHORIC ACID	0.0122	1	2.00	A
	POLYACRYLAMIDE POLYMER	0.2812	14	243.00	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	2.5039	1	17.00	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	262.7994	65	1,901.31	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	32.0177	14	375.60	A
	POLYOXYETHYLENE SORBITAN MONOOLEATE	1.3050	22	1,125.00	A
	POLYOXYETHYLENE SORBITAN TRIOLEATE	8.5916	22	1,125.00	A
	POTASSIUM PHOSPHITE	617.0963	5	238.00	A
	PROPYLENE GLYCOL	17.1521	8	174.00	A
	SABADILLA ALKALOIDS	1.6420	3	104.79	A
	SILICONE DEFOAMER	0.0016	1	2.00	A
	SIMAZINE	397.3972	73	1,518.65	A
	SODIUM XYLENE SULFONATE	0.0191	1	2.00	A
	SPINETORAM	0.8106	2	8.30	A
	SPINOSAD	16.3378	9	112.40	A
	STRYCHNINE	0.5184	64	553.50	A
	SUGAR	437.5000	1	35.00	A
	SULFAQUINOXALINE	0.0100	1	20.00	A
		0.0045	9	5,760.00	S
	TOTAL POUNDS OF THIS CHEMICAL 0.0145				
	TALL OIL FATTY ACIDS	0.0163	1	5.00	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.0729	1	2.00	A
	TETRAPOTASSIUM PYROPHOSPHATE	0.0096	1	2.00	A
	TRIETHANOLAMINE	0.0244	1	2.00	A
	ALPHA-2,6,8-TRIMETHYL-4-NONYLOXY-OMEGA-HYDROXYPOLY (OXYETHYLENE)	62.8910	8	174.00	A
	ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.0239	1	5.00	A
	WARFARIN	0.0300	3	65.00	A
		0.0045	9	5,760.00	S
	TOTAL POUNDS OF THIS CHEMICAL 0.0345				
	Site Total	177,414.9735	3,279		
BARLEY					
	BROMOXYNIL HEPTANOATE	7.7944	1	22.00	A
	BROMOXYNIL OCTANOATE	8.0830	1	22.00	A
	CARFENTRAZONE-ETHYL	4.9849	1	170.00	A
	Site Total	20.8623	2		
BASIL, SWEET					
	IMIDACLOPRID	0.4451	2	3.13	A
	Site Total	0.4451	2		
BEAN, SUCCULENT					
	ACEPHATE	203.7325	5	207.00	A
	ALACHLOR	862.5317	11	380.00	A
	COTTONSEED OIL	5.8290	3	15.00	A
	DIAZINON	23.9904	2	12.00	A
	DIMETHOATE	100.8578	5	207.00	A
	EPTC	415.7385	3	155.05	A
	ESFENVALERATE	0.6101	3	15.00	A

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BEAN, SUCCULENT				
IMIDACLOPRID	113.5843	14	510.00	A
ISOPROPYL ALCOHOL	0.2186	3	15.00	A
LAMBDA-CYHALOTHRIN	4.1487	1	139.33	A
LECITHIN	10.0318	3	107.00	A
MYCLOBUTANIL	1.5000	3	15.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	4.1049	6	122.00	A
PROPIONIC ACID	10.0318	3	107.00	A
THIOPHANATE-METHYL	146.2930	2	139.33	A
TRIFLURALIN	71.5398	1	143.05	A
Site Total	1,974.7429	56		
BEAN, UNSPECIFIED				
ACEPHATE	651.5819	23	707.56	A
ALACHLOR	1,505.8744	16	502.00	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	57.1830	8	247.00	A
(S)-CYPERMETHRIN	8.7679	6	192.41	A
DIAZINON	117.4730	14	58.75	A
DIMETHOATE	339.7653	22	677.56	A
DIMETHYLPOLYSILOXANE	0.0598	1	47.11	A
EPTC	220.5764	15	63.25	A
FATTY ACIDS DERIVED FROM TALLOW	22.8732	8	247.00	A
IMIDACLOPRID	274.5208	14	59.25	A
ISOPROPYL ALCOHOL	1.2342	1	47.11	A
S-METOLACHLOR	56.9979	1	30.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	71.4743	9	294.11	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	77.3646	9	249.02	A
PENDIMETHALIN	72.9779	2	50.00	A
POLYETHYLENE GLYCOL	7.7952	1	47.11	A
TRIFLURALIN	81.4063	4	135.00	A
Site Total	3,567.9261	135		
BEET				
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	9.5354	17	30.43	A
AZADIRACHTIN	0.1642	6	7.12	A
AZOXYSTROBIN	6.5497	5	55.36	A
BACILLUS PUMILUS, STRAIN QST 2808	0.4801	1	4.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	1.9766	12	22.26	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	13.6026	9	20.69	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	5.7658	10	15.72	A
BENTONITE	0.8280	1	1.84	A
CASEIN	0.0621	1	1.84	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	2.9988	2	8.00	A
COPPER HYDROXIDE	132.8250	25	123.50	A
COPPER OXIDE (OUS)	3.6497	1	2.90	A
CYCLOATE	255.3722	36	90.00	A
CYFLUTHRIN	0.2587	2	6.64	A
DIAZINON	56.2892	26	129.00	A
DIMETHYLPOLYSILOXANE	0.1431	4	12.00	A
FATTY ACIDS DERIVED FROM TALLOW	3.8142	17	30.43	A
IMIDACLOPRID	6.7549	22	85.46	A
ISOPROPYL ALCOHOL	0.3484	3	10.00	A
LACTOSE	0.0621	1	1.84	A
LECITHIN	1.5318	6	16.50	A
MALATHION	12.5133	1	10.00	A
MEFENOXAM	80.3757	15	157.56	A
	0.5596		7,447.14	P
TOTAL POUNDS OF THIS CHEMICAL 80.9353				

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BEET					
	MEFENOXAM, OTHER RELATED	2.3640	15	157.56	A
		0.0173		7,447.14	P
	TOTAL POUNDS OF THIS CHEMICAL 2.3813				
	METHOXYFENOZIDE	3.1175	12	28.36	A
	METHYLATED SOYBEAN OIL	0.7277	3	2.88	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	14.1442	29	59.81	A
	PHENMEDIPHAM	17.6360	9	44.00	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	0.0364	3	2.88	A
	POLYETHYLENE GLYCOL	2.2007	3	10.00	A
	POLY-I-PARA-MENTHENE	27.4441	8	58.32	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	0.0421	1	2.00	A
	POTASH SOAP	77.9610	13	19.29	A
	POTASSIUM PHOSPHITE	20.7427	2	8.00	A
	PROPIONIC ACID	1.5318	6	16.50	A
	PYRACLOSTROBIN	2.9340	8	18.36	A
	PYRETHRINS	0.1394	4	8.24	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	2.6280	2	6.00	A
	SPINETORAM	0.6023	8	12.16	A
	SPINOSAD	6.6645	21	81.12	A
	SULFUR	84.0400	8	29.21	A
	THIRAM	154.1591		61,739.18	P
		24.1272		4.83	T
	TOTAL POUNDS OF THIS CHEMICAL 178.2863				
	TRIFLOXYSTROBIN	0.2813	1	3.00	A
	Site Total	1,040.0025	300		
BLACKBERRY					
	ALPHA-PINENE BETA-PINENE COPOLYMER	2.1650	1	12.00	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	0.3770	1	3.66	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	12.9600	1	12.00	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	0.9000	1	12.00	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	38.4398	4	23.01	A
	ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.1155	1	12.00	A
	KAOLIN	95.0000	1	4.00	A
	LIME-SULFUR	566.6483	2	18.47	A
	MINERAL OIL	0.6062	1	12.00	A
	PETROLEUM DISTILLATES, REFINED	372.7464	3	20.37	A
	POTASSIUM BICARBONATE	9.8400	1	6.00	A
	SOYBEAN OIL	186.4715	1	12.99	A
	Site Total	1,286.2697	16		
BLUEBERRY					
	ALUMINUM PHOSPHIDE	0.5500	1	3.03	A
	CHLOROPICRIN	279.6497	1	5.00	A
	1,3-DICHLOROPROPENE	510.5917	1	5.00	A
	DIMETHYLPOLYSILOXANE	5.6790	1	58.00	A
	FENHEXAMID	23.6250	3	31.00	A
	GLYPHOSATE, POTASSIUM SALT	2.9308	2	0.69	A
	IMIDACLOPRID	9.1095	1	18.00	A
	NAPROPAMIDE	1.2500	1	12.00	A
	POLY-I-PARA-MENTHENE	14.6930	3	31.00	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	1.8930	1	58.00	A
	STRYCHNINE	0.4250	9	25.79	A
	Site Total	850.3967	22		
BOK CHOY					
	ABIETIC ANHYDRIDE	0.3758	2	6.25	A
	ACETAMIPRID	3.2620	6	30.22	A
	AZOXYSTROBIN	1.5179	1	6.00	A
	BACILLUS PUMILUS, STRAIN QST 2808	4.0944	6	34.11	A

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BOK CHOY					
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	1.6122	7	10.75	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	127.6182	52	212.94	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B	0.0640	1	1.00	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	66.7980	19	123.70	A
	BENSULIDE	338.7881	19	77.60	A
	ALPHA-(PARA-TERT-BUTYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.0320	1	3.00	A
	ALPHA-(PARA-TERT-BUTYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE) PHOSPHATE	2.5248	1	3.00	A
	CHLORTHAL-DIMETHYL	601.5000	47	69.00	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	9.0762	12	16.95	A
	CYPERMETHRIN	5.8753	11	70.63	A
	(S)-CYPERMETHRIN	11.3709	50	238.71	A
	CYROMAZINE	3.9075	6	31.38	A
	DIAZINON	5.0000	1	2.00	A
	DIETHYLENE GLYCOL ABIETATE	0.3758	2	6.25	A
	DIMETHYLPOLYSILOXANE	19.5163	52	215.48	A
	DINOTEFURAN	3.9970	5	27.91	A
	EMAMECTIN BENZOATE	0.0640	1	4.28	A
	ETHYL ALCOHOL	0.3099	2	6.25	A
	FLONICAMID	1.0500	3	12.05	A
	FOSETYL-AL	40.0000	5	10.00	A
	FREE FATTY ACIDS AND/OR AMINE SALTS	0.4418	2	6.25	A
	IMIDACLOPRID	55.8364	42	233.57	A
	INDOXACARB	3.3150	12	50.39	A
	ISOPROPYL ALCOHOL	3.9378	43	163.75	A
	MANEB	246.2322	42	248.03	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	45.5958	43	163.75	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	1.3929	2	3.50	A
	PARAFFIN WAX	0.2559	2	6.25	A
	PERMETHRIN	1.5311	2	7.65	A
	POLYETHYLENE GLYCOL	24.8705	43	163.75	A
	PYRACLOSTROBIN	9.5340	11	47.67	A
	PYRETHRINS	0.4312	13	17.05	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	27.6728	14	63.18	A
	SPINETORAM	3.0216	15	56.73	A
	SPINOSAD	2.6778	15	28.26	A
	TEBUFENOZIDE	0.9200	1	2.00	A
	Site Total	1,676.3971	476		
BROCCOLI					
	ACETAMIPRID	32.0845	27	516.50	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	176.3150	46	777.00	A
	AZADIRACHTIN	3.5377	3	83.50	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	3.8796	4	36.97	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	167.4000	11	156.00	A
	BENOMYL	0.0350		0.01	A
		0.0300		11.99	P
	TOTAL POUNDS OF THIS CHEMICAL 0.0650				
	CHLORANTRANILIPROLE	3.1833	4	67.00	A
	CHLOROTHALONIL	7.2000	4	5.00	A
	CHLORPYRIFOS	495.6100	37	673.00	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	59.0771	12	155.87	A
	COPPER OXIDE (OUS)	45.1500	2	62.50	A
	(S)-CYPERMETHRIN	5.5594	7	137.00	A
	DIMETHYLPOLYSILOXANE	3.2812	3	36.50	A
	EMAMECTIN BENZOATE	0.0391	1	5.00	A
	ESFENVALERATE	0.9761	4	20.00	A

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BROCCOLI					
	FATTY ACIDS DERIVED FROM TALLOW	70.5260	46	777.00	A
	FLONICAMID	2.9575	3	37.00	A
	FLUDIOXONIL	0.0011		8.53	P
	IMIDACLOPRID	0.9041	4	20.00	A
	INDOXACARB	44.8336	37	683.00	A
	IPRODIONE	0.0640		12.79	P
	LAMBDA-CYHALOTHRIN	1.9860	7	78.50	A
	MALATHION	300.5970	8	163.00	A
	MEFENOXAM	0.0005		5.68	P
	MEFENOXAM, OTHER RELATED	0.0000		5.68	P
	METALAXYL	0.9000	4	5.00	A
	METHOXYFENOZIDE	30.7237	13	221.50	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	176.3150	46	777.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	33.0232	12	105.50	A
	NOVALURON	1.2063	3	15.00	A
	OXYDEMETON-METHYL	89.4611	10	177.00	A
	OXYFLUORFEN	65.9695	15	319.50	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	2.6215	4	117.00	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	26.7918	7	137.00	A
	POLY-I-PARA-MENTHENE	2.7406	5	6.00	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	1.0937	3	36.50	A
	POTASSIUM PHOSPHITE	89.1589	3	57.00	A
	PYMETROZINE	2.1500	1	25.00	A
	PYRACLOSTROBIN	0.4200	1	2.10	A
	PYRETHRINS	6.7465	14	212.87	A
	SOYBEAN OIL	35.4041	5	38.97	A
	SPINOSAD	50.8531	16	346.40	A
	SPIROTETRAMAT	0.1323	3	15.00	A
	THIRAM	106.3804		42,607.07	P
		4.1218		0.82	T
	TOTAL POUNDS OF THIS CHEMICAL 110.5022				
	Site Total	2,151.4413	336		
CABBAGE					
	ACETAMIPRID	67.1542	85	973.97	A
	ALCOHOLS, C4-C12, NORMAL	0.2039	2	19.20	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	1,173.6410	297	4,695.20	A
	ALKYL (C8,C10) POLYGLYCOSIDE	5.1252	36	372.33	A
	AZADIRACHTIN	18.1157	15	389.70	A
	AZOXYSTROBIN	67.8516	28	283.30	A
	BACILLUS PUMILUS, STRAIN QST 2808	56.8642	34	497.04	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	78.2775	81	758.50	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	1,310.8500	102	1,929.60	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B	0.8280	2	13.05	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	98.8200	17	183.00	A
	BENOMYL	15.0000	1	20.00	A
		0.0116		4.63	P
	TOTAL POUNDS OF THIS CHEMICAL 15.0116				
	BENSULIDE	142.8126	17	72.00	A
	BIFENTHRIN	0.4000	1	4.00	A
	BOSCALID	106.5581	18	174.54	A
	CAPSICUM OLEORESIN	0.0242	1	2.00	A
	CHLORANTRANILIPROLE	139.9560	119	1,441.72	A
	CHLOROTHALONIL	1,267.3448	73	1,053.90	A
	CHLORPYRIFOS	2,673.0463	173	2,240.00	A
	CHLORTHAL-DIMETHYL	231.0000	7	31.00	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	1,392.2323	21	269.50	A
	CLETHODIM	0.3904	1	3.00	A
	COCONUT DIETHANOLAMIDE	0.6521	9	172.00	A
	COPPER HYDROXIDE	119.3022	38	337.35	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CABBAGE						
	COTTONSEED OIL		30.7474	8	77.78	A
	CRYOLITE		360.0000	3	30.00	A
	CYFLUTHRIN		6.7438	15	138.00	A
	BETA-CYFLUTHRIN		1.8865	5	60.50	A
	CYPERMETHRIN		39.2542	26	513.00	A
	(S)-CYPERMETHRIN		55.1300	143	1,324.30	A
	DIAZINON		155.2879	12	203.50	A
	DIMETHOATE		104.9458	9	219.00	A
	DIMETHOMORPH		0.1160	1	5.00	A
	DIMETHYLPOLYSILOXANE		132.2385	157	1,999.50	A
	DINOTEFURAN		18.4345	14	123.82	A
	DISULFOTON		1,036.1524	53	517.63	A
	DODECYLBENZENE SULFONIC ACID		2.8256	9	172.00	A
	EDTA, TETRASODIUM SALT		0.1739	9	172.00	A
	EMAMECTIN BENZOATE		12.8255	82	1,250.29	A
	ESFENVALERATE		56.4547	99	1,237.53	A
	FATTY ACIDS, MIXED		0.9342	7	73.50	A
	FATTY ACIDS DERIVED FROM TALLOW		469.4564	297	4,695.20	A
	FLONICAMID		55.8550	54	670.00	A
	FLUBENDIAMIDE		1.4559	4	48.53	A
	FLUDIOXONIL		0.4200		17,077.35	P
	FOSETYL-AL		160.8000	3	67.00	A
	GLYPHOSATE, ISOPROPYLAMINE SALT		38.6921	2	12.00	A
	GLYPHOSATE, POTASSIUM SALT		71.4067	2	17.25	A
	IMIDACLOPRID		205.7234	91	1,302.63	A
	INDOXACARB		200.3260	233	3,105.28	A
	IPRODIONE		14.5035	3	15.00	A
			0.0181		3.63	P
	TOTAL POUNDS OF THIS CHEMICAL	14.5216				
	ISOPROPYL ALCOHOL		38.2592	144	1,757.24	A
	LAMBDA-CYHALOTHRIN		17.1616	56	977.40	A
	LECITHIN		130.3430	110	962.44	A
	MALATHION		3,633.1066	147	1,920.88	A
	MANDIPROPAMID		35.4454	24	272.03	A
	MANEB		2,582.5132	160	1,847.00	A
	MEFENOXAM		12.4726	7	137.57	A
			0.0048		15.88	P
	TOTAL POUNDS OF THIS CHEMICAL	12.4774				
	MEFENOXAM, OTHER RELATED		0.3316	7	137.57	A
			0.0001		15.88	P
	TOTAL POUNDS OF THIS CHEMICAL	0.3317				
	METALAXYL		0.1800	2	2.00	A
	METHOMYL		32.6610	3	36.29	A
	METHOXYFENOZIDE		199.8793	116	1,218.30	A
	METHYLATED SOYBEAN OIL		42.1464	5	89.00	A
	METHYL SILICONE RESINS		13.2295	3	46.70	A
	MINERAL OIL		2,738.2018	10	289.00	A
	NALED		1,186.6015	70	1,111.90	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		1,588.0692	513	6,978.75	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		314.2936	111	1,199.75	A
	NOVALURON		236.9121	282	3,228.52	A
	OLEIC ACID, METHYL ESTER		23.4319	1	24.00	A
	OXYDEMETON-METHYL		265.4191	21	282.03	A
	OXYFLUORFEN		778.3044	199	2,174.07	A
	PARAQUAT DICHLORIDE		24.3376	4	28.20	A
	PERMETHRIN		102.7216	60	572.17	A
	PHOSPHORIC ACID		0.5564	9	172.00	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE		12.3361	56	555.25	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE		147.7507	87	836.10	A
	POLYETHYLENE GLYCOL		199.8142	123	1,467.66	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER		7.8851	4	36.00	A
	POLY-I-PARA-MENTHENE		10.3202	9	35.97	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		4.5012	9	97.46	A
	POLYSILOXANE		0.2050	36	372.33	A
	POTASSIUM HYDROXIDE		6.0067	36	372.33	A

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CABBAGE						
	POTASSIUM PHOSPHITE		1,511.8314	31	588.93	A
	PROPICONAZOLE		0.0177	1	20.00	A
	PROPIONIC ACID		115.9926	110	962.44	A
	PYMETROZINE		1.1150	1	13.00	A
	PYRACLOSTROBIN		76.2040	32	394.52	A
	PYRETHRINS		16.8616	23	326.60	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		59.8600	9	138.00	A
	SILICONE DEFOAMER		0.0739	9	172.00	A
	SODIUM XYLENE SULFONATE		0.8694	9	172.00	A
	SOYBEAN OIL		17.2834	4	19.35	A
	SPINETORAM		85.3477	145	1,608.47	A
	SPINOSAD		120.8765	88	1,058.20	A
	SPIROMESIFEN		13.0682	2	52.78	A
	SPIROTETRAMAT		1.7896	28	246.60	A
	STREPTOMYCES LYDICUS WYEC 108		0.0037	2	20.00	A
	TALL OIL FATTY ACIDS		5.0211	1	24.00	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		3.3124	9	172.00	A
	TETRAPOTASSIUM PYROPHOSPHATE		0.4347	9	172.00	A
	THIAMETHOXAM		5.9950	12	112.75	A
	THIODICARB		1.2215	1	2.00	A
	THIRAM		42.3793		16,972.10	P
			2.7915		0.55	T
	TOTAL POUNDS OF THIS CHEMICAL	45.1708				
	TRIETHANOLAMINE		1.1085	9	172.00	A
	TRIFLURALIN		15.4072	8	26.50	A
	ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		66.5230	37	396.33	A
	Site Total		28,750.0615	4,089		
CANTALOUPE						
	THIRAM		141.8823		47,347.42	P
			2.9934		1.06	T
	TOTAL POUNDS OF THIS CHEMICAL	144.8757				
	Site Total		144.8757			
CARROT						
	AZOXYSTROBIN		12.8984	5	68.51	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		3.7800	1	3.50	A
	CLETHODIM		8.2860	6	66.18	A
	COPPER HYDROXIDE		157.8660	17	206.30	A
	COPPER SULFATE (BASIC)		169.0000	3	33.50	A
	FLUDIOXONIL		0.0186		0.38	T
	IMIDACLOPRID		4.6241	1	14.25	A
			0.7845		0.15	T
	TOTAL POUNDS OF THIS CHEMICAL	5.4086				
	IPRODIONE		600.2122		121,123.37	P
			167.7925		33,599.83	U
			105.3205	14	167.05	A
			11.5681		1.15	T
	TOTAL POUNDS OF THIS CHEMICAL	884.8933				
	LINURON		202.0000	38	347.70	A
	MEFENOXAM		96.8019	32	373.96	A
			0.1113		0.37	T
			0.0023		15.00	P
	TOTAL POUNDS OF THIS CHEMICAL	96.9155				
	MEFENOXAM, OTHER RELATED		3.0019	32	373.96	A
			0.0034		0.37	T
			0.0001		15.00	P
	TOTAL POUNDS OF THIS CHEMICAL	3.0054				
	METAM-SODIUM		27,250.8490	1	143.05	A
	MINERAL OIL		475.1994	7	79.30	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		28.5120	7	79.30	A
	POLY-I-PARA-MENTHENE		89.4814	14	177.13	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		31.9296	5	329.60	A

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CARROT					
	SETHOXYDIM	1.8085	8	7.00	A
	TALL OIL FATTY ACIDS	51.9924	7	79.30	A
	THIRAM	756.6041		303,020.69	P
		104.3799		20.90	T
	TOTAL POUNDS OF THIS CHEMICAL 860.9840				
	Site Total	30,334.8281	135		
CAULIFLOWER					
	BENOMYL	0.0516		0.01	T
	FLUDIOXONIL	0.0135		556.67	P
	IPRODIONE	0.0009		0.17	P
	MEFENOXAM	0.0000		0.17	P
	MEFENOXAM, OTHER RELATED	0.0000		0.17	P
	THIRAM	88.0140		35,249.80	P
		8.7343		1.74	T
	TOTAL POUNDS OF THIS CHEMICAL 96.7483				
	Site Total	96.8143			
CELERY					
	ABAMECTIN	18.9749	58	1,270.41	A
	ACEPHATE	4,327.3626	214	4,626.54	A
	ACETAMIPRID	456.0548	335	7,776.36	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	3,054.9475	477	10,245.00	A
	ALKYL (C8,C10) POLYGLYCOSIDE	15.6818	29	1,004.05	A
	AMMONIUM SULFATE	18.3435	1	9.50	A
	AZADIRACHTIN	51.2656	199	2,152.12	A
	AZOXYSTROBIN	951.6645	215	4,415.73	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, GC-91 PROTEIN	1.2160	1	16.00	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	167.4842	87	1,758.91	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	4,660.6914	337	6,254.30	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	852.6546	116	1,122.45	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	73.3125	4	57.50	A
	N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL) ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS	23.0541	1	18.30	A
	BOSCALID	607.0879	72	1,537.82	A
	CALCIUM HYDROXIDE	0.0615	1	11.45	A
	CARBARYL	795.9190	26	491.73	A
	CHLORANTRANILIPROLE	200.9170	163	3,479.71	A
	CHLOROPICRIN	1,848.0000	1	16.00	A
	CHLOROTHALONIL	21,775.1456	570	12,366.39	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	950.9821	41	582.30	A
	CLETHODIM	94.3813	38	758.40	A
	COCONUT DIETHANOLAMIDE	0.7898	4	57.62	A
	COPPER HYDROXIDE	4,158.9138	348	6,163.63	A
	COPPER OCTANOATE	1,373.9410	69	1,040.65	A
	COPPER OXIDE (OUS)	313.0729	27	285.90	A
	COTTONSEED OIL	42.2324	6	217.58	A
	COUMAFURYL, SODIUM SALT	0.0010	1	32.96	A
	CYFLUTHRIN	2.0499	3	42.60	A
	BETA-CYFLUTHRIN	30.2826	97	1,202.38	A
	CYPERMETHRIN	1.1089	2	27.00	A
	(S)-CYPERMETHRIN	195.9741	215	4,674.45	A
	CYPRODINIL	170.9285	19	552.28	A
	CYROMAZINE	1,740.7750	625	13,841.93	A
	DICLORAN	26,671.4775	493	10,314.24	A
	DIMETHOATE	672.9554	42	1,377.93	A
	DIMETHYLPOLYSILOXANE	786.0552	222	5,498.09	A
	DINOTEFURAN	73.2083	19	562.50	A
	DODECYLBENZENE SULFONIC ACID	3.4225	4	57.62	A

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Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CELERY					
	EDTA, TETRASODIUM SALT	0.2106	4	57.62	A
	EMAMECTIN BENZOATE	12.8297	74	1,156.79	A
	ENDOSULFAN	0.0235	1	3.00	A
	FATTY ACIDS, MIXED	18.0588	76	1,226.30	A
	FATTY ACIDS DERIVED FROM TALLOW	1,221.9790	477	10,245.00	A
	FLONICAMID	514.9757	345	6,716.34	A
	FLUBENDIAMIDE	3.5898	3	93.04	A
	FLUDIOXONIL	113.9524	19	552.28	A
	GLYPHOSATE, ISOPROPYLAMINE SALT	120.8958	2	30.50	A
	GLYPHOSATE, POTASSIUM SALT	53.8034	1	13.00	A
	HEPTAMETHYLTRISILOXANE-1,3-PROPANEDIOL ETHER, ETHOXYLATED PROPOXYLATED	0.9928	1	37.73	A
	HYDROGEN PEROXIDE	40.1724	1	16.30	A
	IMIDACLOPRID	96.5048	12	335.36	A
	INDOXACARB	52.3940	37	793.90	A
	IRON PHOSPHATE	4.0000	1	20.00	A
	ISOPROPYL ALCOHOL	49.3418	86	2,323.74	A
	LECITHIN	1,000.2536	324	7,960.85	A
	LIGNIN SULFONIC ACID, CALCIUM SALT	58.7360	1	16.30	A
	LINURON	2,332.0600	321	5,967.29	A
	MALATHION	1,675.7566	55	1,117.61	A
	METHOMYL	40.5000	2	45.00	A
	METHOXYFENOZIDE	1,481.0649	494	10,206.41	A
	METHYLATED SOYBEAN OIL	2,286.7027	350	5,840.67	A
	METHYL BROMIDE	3,752.0000	1	16.00	A
	METHYL SILICONE RESINS	76.2270	11	189.80	A
	MINERAL OIL	935.5434	5	75.70	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	4,261.2460	1,205	25,348.59	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	1,236.3047	184	4,454.47	A
	OLEIC ACID, METHYL ESTER	72.8991	2	56.00	A
	OXAMYL	6,702.8282	349	8,331.91	A
	OXYFLUORFEN	0.2000	1	3.00	A
	PERMETHRIN	2,778.2375	759	15,545.16	A
	PETROLEUM DISTILLATES	36.2255	1	40.00	A
	PETROLEUM OIL, UNCLASSIFIED	67.8734	3	45.50	A
	PHOSPHORIC ACID	0.6740	4	57.62	A
	PIPERONYL BUTOXIDE	10.1499	1	26.67	A
	PIPERONYL BUTOXIDE, OTHER RELATED	2.5375	1	26.67	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	6.8858	23	370.67	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	176.0149	373	6,426.17	A
	POLYETHYLENE GLYCOL	291.7379	72	2,044.54	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	10.0660	2	51.00	A
	POLY-I-PARA-MENTHENE	54.3205	11	176.71	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	57.7154	77	1,369.15	A
	POLY(OXYETHYLENE) POLY(OXYPROPYLENE) GLYCOL MONOALLYL ETHER	3.9710	1	37.73	A
	POLYSILOXANE	0.6273	29	1,004.05	A
	POTASH SOAP	155.1979	7	65.00	A
	POTASSIUM HYDROXIDE	18.3790	29	1,004.05	A
	POTASSIUM PEROXYMONOSULFATE	0.0278	1	5.50	A
	POTASSIUM PHOSPHITE	17.1940	2	11.00	A
	PROMETRYN	9,300.4633	506	8,030.34	A
	PROPICONAZOLE	1,949.0937	769	17,448.49	A
	PROPIONIC ACID	956.3446	324	7,960.85	A
	PYMETROZINE	308.8626	171	3,585.70	A
	PYRACLOSTROBIN	511.9230	112	2,615.32	A
	PYRETHRINS	35.3449	78	872.72	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	366.3286	63	1,003.65	A
	ROTENONE	1.9137	13	214.80	A
	ROTENONE, OTHER RELATED	1.9137	13	214.80	A
	SETHOXYDIM	38.9318	8	148.00	A
	SILICONE DEFOAMER	0.0895	4	57.62	A
	SODIUM BISULFATE	0.3824	2	64.23	A
	SODIUM CARBONATE	47.8497	3	54.80	A
	SODIUM XYLENE SULFONATE	1.0531	4	57.62	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CELERY					
SPINETORAM		179.1432	131	3,258.74	A
SPINOSAD		801.2071	374	6,987.50	A
SPIROTETRAMAT		3.0818	20	388.87	A
STREPTOMYCES LYDICUS WYEC 108		0.0132	2	47.60	A
SULFUR		19.9680	1	12.48	A
SULFURYL FLUORIDE		28.0388	2	40.00	A
TALL OIL FATTY ACIDS		15.6212	2	56.00	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		4.0122	4	57.62	A
TETRAPOTASSIUM PYROPHOSPHATE		0.5265	4	57.62	A
THIAMETHOXAM		5.6532	8	128.85	A
THIODICARB		70.7521	5	109.80	A
THIRAM		0.7360		0.14	T
		0.0574		23.04	P
TOTAL POUNDS OF THIS CHEMICAL	0.7934				
TRIETHANOLAMINE		1.3427	4	57.62	A
TRIFLOXYSTROBIN		254.9069	151	2,918.80	A
TRIFLURALIN		91.7228	6	153.00	A
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		203.8025	31	1,060.05	A
VEGETABLE OIL		22.0056	1	27.00	A
Site Total		124,309.3590	10,975		
CHICORY					
ABIETIC ANHYDRIDE		1.1125	1	19.00	A
AZADIRACHTIN		1.1908	6	26.10	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		52.5150	4	60.50	A
CHLOROPHACINONE		0.0000	1	19.00	A
DIETHYLENE GLYCOL ABIETATE		1.1125	1	19.00	A
DIMETHYLPOLYSILOXANE		5.0865	6	154.00	A
ETHYL ALCOHOL		0.9172	1	19.00	A
FLONICAMID		2.8000	1	32.00	A
FREE FATTY ACIDS AND/OR AMINE SALTS		1.3078	1	19.00	A
IMIDACLOPRID		36.6614	5	116.00	A
ISOPROPYL ALCOHOL		3.5474	5	135.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		41.0753	5	135.00	A
PARAFFIN WAX		0.7575	1	19.00	A
POLYETHYLENE GLYCOL		22.4047	5	135.00	A
POTASSIUM NITRATE		2.8479	1	19.00	A
PROPYZAMIDE		14.2500	1	19.00	A
PYRETHRINS		1.2071	5	22.10	A
SAWDUST		0.5363	1	19.00	A
SPINETORAM		4.2061	3	84.00	A
SPINOSAD		3.3200	5	22.10	A
SULFUR		2.1451	1	19.00	A
Site Total		199.0011	39		
CHINESE CABBAGE (NAPPA)					
ACETAMIPRID		4.1782	10	49.50	A
ALPHA-PINENE BETA-PINENE COPOLYMER		0.9237	1	5.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		1.0558	3	4.50	A
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		149.3127	54	279.13	A
BENSULIDE		1,041.9941	32	243.60	A
CHLORTHAL-DIMETHYL		223.5000	9	37.00	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		1.6868	2	2.25	A
COCONUT DIETHANOLAMIDE		0.0544	3	13.00	A
CYFLUTHRIN		0.1000	1	4.00	A
BETA-CYFLUTHRIN		0.2021	3	10.00	A
CYPERMETHRIN		15.1443	40	239.30	A
(S)-CYPERMETHRIN		20.0284	64	435.53	A
DIAZINON		3.4727	1	7.00	A
DIMETHOATE		10.8829	4	46.00	A
DODECYLBENZENE SULFONIC ACID		0.2359	3	13.00	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CHINESE CABBAGE (NAPPA)				
ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.0493	1	5.00	A
EDTA, TETRASODIUM SALT	0.0145	3	13.00	A
EMAMECTIN BENZOATE	0.0469	2	6.00	A
FOSETYL-AL	22.0000	2	5.50	A
GLYPHOSATE, ISOPROPYLAMINE SALT	31.8087	1	8.00	A
IMIDACLOPRID	80.4923	36	274.50	A
INDOXACARB	0.1313	1	2.00	A
ISOPROPYL ALCOHOL	0.0719	3	13.00	A
MANEB	453.3371	72	476.40	A
MEFENOXAM	3.9455	14	31.50	A
MINERAL OIL	0.2586	1	5.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	1.6913	3	4.50	A
PHOSPHORIC ACID	0.0465	3	13.00	A
POTASSIUM PHOSPHITE	8.5009	1	5.00	A
PYRACLOSTROBIN	1.0000	2	8.00	A
PYRETHRINS	0.0656	2	2.25	A
SILICONE DEFOAMER	0.0062	3	13.00	A
SODIUM XYLENE SULFONATE	0.0726	3	13.00	A
SPINETORAM	0.2077	2	5.00	A
SPINOSAD	0.6869	5	7.75	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]- OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.2766	3	13.00	A
TETRAPOTASSIUM PYROPHOSPHATE	0.0363	3	13.00	A
THIAMETHOXAM	2.5672	13	42.50	A
TRIETHANOLAMINE	0.0926	3	13.00	A
Site Total	2,080.1785	383		
CHINESE GREENS				
ACETAMIPRID	0.2975	1	4.00	A
COCONUT DIETHANOLAMIDE	0.0341	2	8.00	A
CYPERMETHRIN	0.7819	3	12.00	A
DODECYLBENZENE SULFONIC ACID	0.1478	2	8.00	A
EDTA, TETRASODIUM SALT	0.0091	2	8.00	A
IMIDACLOPRID	0.2601	1	0.90	A
ISOPROPYL ALCOHOL	0.0450	2	8.00	A
PHOSPHORIC ACID	0.0291	2	8.00	A
SILICONE DEFOAMER	0.0039	2	8.00	A
SODIUM XYLENE SULFONATE	0.0455	2	8.00	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]- OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.1733	2	8.00	A
TETRAPOTASSIUM PYROPHOSPHATE	0.0227	2	8.00	A
TRIETHANOLAMINE	0.0580	2	8.00	A
Site Total	1.9080	7		
CHIVE				
ACETAMIPRID	0.8095	9	9.50	A
IMIDACLOPRID	0.4529	3	2.57	A
SPINOSAD	1.6381	7	9.27	A
Site Total	2.9005	19		
CHRISTMAS TREE				
ALUMINUM PHOSPHIDE	0.3750	1	2.00	A
ESFENVALERATE	1.2950	2	30.00	A
GLYPHOSATE, ISOPROPYLAMINE SALT	12.0844	6	12.06	A
GLYPHOSATE, POTASSIUM SALT	10.6055	3	2.80	A
OXYTHIOQUINOX	0.8769	2	4.80	A
PERMETHRIN	1.9657	3	10.00	A
POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1- (TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	1.9293	1	15.00	A
POLY-I-PARA-MENTHENE	2.0962	1	4.50	A

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Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CHRISTMAS TREE					
SIMAZINE		7.2563	3	3.22	A
TRIADIMEFON		0.6875	1	2.80	A
Site Total		39.1718	23		
CILANTRO					
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		2.2860	1	9.50	A
AZADIRACHTIN		0.5026	1	10.00	A
AZOXYSTROBIN		2.4119	1	20.00	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		24.8400	1	23.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		62.0585	3	49.67	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		38.2106	1	10.00	A
DIMETHYLPOLYSILOXANE		1.1626	46	215.27	A
FATTY ACIDS DERIVED FROM TALLOW		0.9144	1	9.50	A
IMIDACLOPRID		43.9501	15	454.50	A
ISOPROPYL ALCOHOL		3.3669	45	212.27	A
METHOXYFENOZIDE		17.9825	33	103.50	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		41.2708	46	221.77	A
POLYETHYLENE GLYCOL		21.2645	45	212.27	A
POTASSIUM PHOSPHITE		47.6049	1	7.00	A
PYRETHRINS		11.0276	46	205.87	A
SPINETORAM		2.5197	8	53.00	A
SPINOSAD		2.0265	3	23.10	A
THIRAM		16.3378		6,558.91	U
		3.7117		1,489.21	P
TOTAL POUNDS OF THIS CHEMICAL	20.0495				
Site Total		343.4496	160		
CITRUS					
ALUMINUM PHOSPHIDE		1.2650	1	0.10	A
2,4-D, ISOPROPYL ESTER		40.5738		47,400.00	T
		19.8443		87,120.00	U
		2.8033		12,540.00	C
TOTAL POUNDS OF THIS CHEMICAL	63.2214				
GIBBERELLINS		10.0243		563,311.55	U
		1.2095		67,968.13	C
TOTAL POUNDS OF THIS CHEMICAL	11.2338				
GLYPHOSATE, ISOPROPYLAMINE SALT		150.9887	4	152.00	A
IMAZALIL		334.8982		4,708,050.60	U
		305.3173		77,071.00	T
		47.7267		670,949.10	C
TOTAL POUNDS OF THIS CHEMICAL	687.9422				
IMIDACLOPRID		18.3218	1	37.10	A
SODIUM HYPOCHLORITE		3,789.7335		23,383,706.00	U
		1,892.3894		77,071.00	T
		249.9000		561,178.00	C
TOTAL POUNDS OF THIS CHEMICAL	5,932.0229				
THIABENDAZOLE		599.0278		1,594,558.79	U
		180.5210		688,465.70	C
TOTAL POUNDS OF THIS CHEMICAL	779.5488				
Site Total		7,644.5446	6		
COLLARD					
ACETAMIPRID		3.1225	5	42.22	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		209.8092	59	640.39	A
AZADIRACHTIN		0.1383	2	8.65	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		45.9872	29	264.56	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		17.2368	9	29.39	A

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Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
COLLARD					
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	53.8085	37	204.63	A
	BENSULIDE	509.0248	11	92.91	A
	BENTONITE	1.1400	3	2.07	A
	CASEIN	0.0855	3	2.07	A
	CHLORANTRANILIPROLE	12.1936	26	228.23	A
	CHLORPYRIFOS	6.8325	1	9.11	A
	CHLORTHAL-DIMETHYL	371.5200	4	61.92	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	8.8645	11	26.38	A
	CLETHODIM	0.9202	1	10.14	A
	COPPER HYDROXIDE	25.0150	13	27.50	A
	COPPER OXIDE (OUS)	11.1923	1	13.34	A
	CYFLUTHRIN	3.7560	6	65.79	A
	BETA-CYFLUTHRIN	2.2207	10	102.64	A
	CYPERMETHRIN	14.4191	22	192.02	A
	(S)-CYPERMETHRIN	0.3475	3	8.00	A
	DIATOMACEOUS EARTH	9.4982	1	3.84	A
	DIAZINON	94.9642	25	215.40	A
	DIMETHOATE	2.8647	1	9.08	A
	DIMETHYLPOLYSILOXANE	12.8093	9	88.38	A
	EMAMECTIN BENZOATE	3.7693	33	347.12	A
	ESFENVALERATE	6.0259	13	131.42	A
	FATTY ACIDS DERIVED FROM TALLOW	83.9237	59	640.39	A
	FLUBENDIAMIDE	0.6969	2	23.23	A
	IMIDACLOPRID	12.7064	25	239.71	A
	INDOXACARB	27.2707	39	415.60	A
	ISOPROPYL ALCOHOL	2.7432	2	18.07	A
	LACTOSE	0.0855	3	2.07	A
	LECITHIN	0.1802	1	2.00	A
	MALATHION	214.5787	13	114.82	A
	MANDIPROPAMID	22.7625	17	175.06	A
	MEFENOXAM	24.0383	19	195.51	A
	MEFENOXAM, OTHER RELATED	0.5266	14	146.49	A
	METHYLATED SOYBEAN OIL	76.4701	18	166.04	A
	METHYL SILICONE RESINS	13.1556	7	89.20	A
	MINERAL OIL	0.0980	1	2.56	A
	NALED	213.5047	16	193.54	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	232.4283	80	826.50	A
	PETROLEUM DISTILLATES, AROMATIC	0.8398	1	2.56	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	0.0429	1	2.00	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	4.2408	19	168.04	A
	POLY-I-PARA-MENTHENE	38.3693	11	134.17	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	4.2698	9	88.38	A
	POTASH SOAP	1,039.1091	48	265.67	A
	PROPIONIC ACID	0.1802	1	2.00	A
	PYMETROZINE	2.0144	2	23.44	A
	PYRACLOSTROBIN	36.0860	16	180.46	A
	PYRETHRINS	1.8743	25	155.72	A
	ROTENONE	0.8492	8	115.19	A
	ROTENONE, OTHER RELATED	0.8492	8	115.19	A
	SODIUM CARBONATE	0.0521	2	17.94	A
	SOYBEAN OIL	5.7516	3	6.53	A
	SPINETORAM	7.6199	15	161.31	A
	SPINOSAD	2.5844	10	26.94	A
	SULFUR	342.7440	8	109.62	A
	TEBUFENOZIDE	0.5077	1	4.00	A
	THIAMETHOXAM	1.2091	2	23.48	A
	XYLENE RANGE AROMATIC SOLVENT	53.0782	13	146.61	A
	Site Total	3,895.0072	638		
COMMODITY FUMIGATION					
	METHYL BROMIDE	781.5168			
	Site Total	781.5168			

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CORN, HUMAN CONSUMPTION						
	ALACHLOR		1,496.5767	42	492.40	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		20.4821	23	90.25	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		3.2400	2	3.50	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		3.2400	2	6.00	A
	CARBARYL		648.0000	14	648.00	A
	CHLORPYRIFOS		39.8771	3	40.00	A
	CYPERMETHRIN		2.0654	3	42.00	A
	(S)-CYPERMETHRIN		93.7096	46	1,938.90	A
	DELTAMETHRIN		6.1584	6	253.00	A
	DIAZINON		98.5000	4	197.00	A
	DIMETHYLPOLYSILOXANE		0.0831	3	32.00	A
	ESFENVALERATE		79.5439	73	2,013.13	A
	FATTY ACIDS DERIVED FROM TALLOW		8.1928	23	90.25	A
	LAMBDA-CYHALOTHRIN		3.0287	23	90.25	A
	LECITHIN		408.8084	125	4,395.13	A
	MALATHION		480.4646	8	410.00	A
	METHOMYL		315.0000	18	848.00	A
	METHOXYFENOZIDE		140.6288	51	1,001.13	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		140.6084	151	4,517.38	A
	OXYDEMETON-METHYL		9.8919	1	20.00	A
	PERMETHRIN		28.9283	24	145.10	A
	PHOSPHORIC ACID		9.2241	3	32.00	A
	PROPIONIC ACID		408.8084	125	4,395.13	A
	SPINETORAM		23.8013	11	506.00	A
	SPINOSAD		53.6994	11	526.00	A
	UREA		14.7087	3	32.00	A
	Site Total		4,537.2701	493		
CUCUMBER						
	ABAMECTIN		0.1028	2	8.70	A
	ACETAMIPRID		2.4527	3	25.06	A
	AZADIRACHTIN		0.5378	6	12.50	A
	AZOXYSTROBIN		3.1786		122,584.74	P
			0.9914		19.89	T
			0.4158	2	3.50	A
	TOTAL POUNDS OF THIS CHEMICAL	4.5858				
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		1.9014	1	18.46	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		1.8560	4	10.00	A
	BENSULIDE		107.5557	9	54.25	A
	BIFENAZATE		26.2500	6	52.50	A
	CHLORPYRIFOS		151.2657		242,526.58	P
			38.6900		30.95	T
	TOTAL POUNDS OF THIS CHEMICAL	189.9557				
	BETA-CYFLUTHRIN		0.4312	1	18.46	A
	DIMETHOMORPH		0.2976	1	12.60	A
	DIMETHYLPOLYSILOXANE		15.2132	32	131.43	A
	DINOTEFURAN		0.5688	1	3.00	A
	FLONICAMID		1.9700	1	22.49	A
	FLUDIOXONIL		3.5544		120,668.60	P
			0.7804		15.88	T
	TOTAL POUNDS OF THIS CHEMICAL	4.3348				
	IMIDACLOPRID		38.2899	12	91.74	A
			0.4233		0.35	T
	TOTAL POUNDS OF THIS CHEMICAL	38.7132				
	ISOPROPYL ALCOHOL		1.6331	4	62.38	A
	LECITHIN		0.1802	1	2.00	A
	MANEB		3.2054	1	2.00	A
	MEFENOXAM		18.4757		245,935.73	P
			9.0355		31.31	T
			0.2398	1	3.00	A
	TOTAL POUNDS OF THIS CHEMICAL	27.7510				

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CUCUMBER						
	MEFENOXAM, OTHER RELATED		0.5720		245,935.73	P
			0.2797		31.31	T
			0.0071	1	3.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.8588				
	METHOMYL		3.6996	2	4.50	A
	METHYLATED SOYBEAN OIL		1.1522	1	2.00	A
	MINERAL OIL, PETROLEUM DISTILLATES, SOLVENT REFINED LIGHT		2.8669	1	12.60	A
	MYCLOBUTANIL		17.1710	22	147.30	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		19.1766	6	66.38	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), BRANCHED		0.5447	1	12.60	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		20.0337	5	69.58	A
	OCTANOL		0.6020	1	12.60	A
	OLEYL ALCOHOL		0.8314	1	12.60	A
	ALPHA-OLEYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		0.8887	1	12.60	A
	PERMETHRIN		1.8820	1	12.60	A
	PIPERONYL BUTOXIDE		1.2687	3	3.70	A
	PIPERONYL BUTOXIDE, OTHER RELATED		0.3172	3	3.70	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE		0.0576	1	2.00	A
	POLYETHYLENE GLYCOL		10.3141	4	62.38	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		5.0447	28	69.05	A
	POTASSIUM BICARBONATE		12.3000	1	6.00	A
	PROPAMOCARB HYDROCHLORIDE		15.9558	3	13.80	A
	PROPIONIC ACID		0.1802	1	2.00	A
	PYRACLOSTROBIN		4.0920	2	20.46	A
	PYRETHRINS		0.1586	3	3.70	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		12.7660	9	22.19	A
	SPINETORAM		2.5068	3	42.45	A
	SPINOSAD		2.3993	4	7.80	A
	SPIROMESIFEN		0.2574	1	2.00	A
	SULFUR		328.9600	4	62.38	A
	THIAMETHOXAM		0.9903	2	20.46	A
	THIOPHANATE-METHYL		6.6500	3	13.80	A
	THIRAM		654.1732		465,907.06	P
			58.0082		41,249.32	U
			48.6190		17.28	T
	TOTAL POUNDS OF THIS CHEMICAL	760.8004				
	TRICHODERMA HARZIANUM RIFAI STRAIN KRL-AG2		0.0916	5	12.00	A
	TRIFLUMIZOLE		6.6853	7	26.74	A
	Site Total		1,671.0000	163		
DAIKON						
	AZOXYSTROBIN		0.0653	1	1.00	A
	CHLORPYRIFOS		0.4985	2	4.00	A
	CHLORTHAL-DIMETHYL		36.0000	3	6.00	A
	DIAZINON		3.3021	4	7.50	A
	Site Total		39.8659	10		
DANDELION GREEN						
	MALATHION		3.0663	3	3.00	A
	Site Total		3.0663	3		
DILL						
	COPPER HYDROXIDE		20.4959	14	26.00	A
	IMIDACLOPRID		0.0938	1	2.00	A
	PROMETRYN		181.1687	20	173.76	A
	Site Total		201.7584	35		
DITCH BANK						
	ALPHA-ALKYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		2.9721	1	1.20	A
	AMMONIUM SULFATE		840.0000	21	56.00	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
DITCH BANK					
BRODIFACOUM		0.0000	1	0.17	A
CALCIUM HYPOCHLORITE		44,199.3200		531.00	U
DIMETHYLPOLYSILOXANE		0.2059	22	58.00	A
GLYPHOSATE, ISOPROPYLAMINE SALT		534.8857	28	58.35	A
GLYPHOSATE, POTASSIUM SALT		57.9420	4	10.50	A
ISOPROPYL ALCOHOL		4.2527	22	58.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		49.2416	22	58.00	A
POLYETHYLENE GLYCOL		26.8590	22	58.00	A
Site Total		45,715.6790	77		
EGGPLANT					
IMIDACLOPRID		1.0838	3	2.50	A
THIRAM		8.6835		4,244.32	P
		0.4670		0.11	T
		0.0265		13.14	A
TOTAL POUNDS OF THIS CHEMICAL	9.1770				
Site Total		10.2608	3		
ENDIVE (ESCAROLE)					
ACETAMIPRID		2.9969	5	66.00	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		12.5555	29	44.00	A
AZADIRACHTIN		0.4635	5	47.00	A
AZOXYSTROBIN		6.9687	3	31.50	A
COPPER HYDROXIDE		88.5689	15	182.50	A
CYFLUTHRIN		0.4500	1	12.20	A
CYPERMETHRIN		0.2541	1	5.50	A
(S)-CYPERMETHRIN		1.7558	3	40.50	A
DICLORAN		180.5813	26	133.50	A
DINOTEFURAN		0.6563	1	10.00	A
FATTY ACIDS DERIVED FROM TALLOW		5.0222	29	44.00	A
FENAMIDONE		0.5159	1	2.00	A
FLONICAMID		0.7000	1	8.00	A
IMIDACLOPRID		2.7231	3	26.90	A
INDOXACARB		0.6563	1	10.00	A
METHOXYFENOZIDE		9.0011	7	64.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		12.5555	29	44.00	A
PERMETHRIN		8.5809	29	44.00	A
PROPYZAMIDE		110.1600	9	72.80	A
PYRACLOSTROBIN		12.5125	30	71.00	A
SPINETORAM		0.6588	1	10.50	A
SPINOSAD		2.8726	2	22.00	A
THIRAM		23.0572		6.14	T
		0.9036		264.89	P
TOTAL POUNDS OF THIS CHEMICAL	23.9608				
Site Total		485.1707	173		
FENNEL					
AZOXYSTROBIN		7.0486	4	40.00	A
PERMETHRIN		6.8425	4	40.00	A
POLY-I-PARA-MENTHENE		17.2053	4	40.00	A
SPINOSAD		3.3886	4	40.00	A
Site Total		34.4850	16		
FORAGE HAY/SILAGE					
BROMOXYNIL HEPTANOATE		5.5836	1	21.00	A
BROMOXYNIL OCTANOATE		5.7904	1	21.00	A
ISOPROPYL ALCOHOL		2.1912	1	21.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		6.5735	1	21.00	A
Site Total		20.1387	2		

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
FUMIGATION, OTHER				
IMIDACLOPRID	21.4305			
METHYL BROMIDE	5,110.9703			
Site Total	5,132.4008			
GAI LON				
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	68.2560	70	127.60	A
BENSULIDE	260.4117	29	59.00	A
BOSCALID	65.5380	61	168.20	A
CHLOROTHALONIL	113.7240	41	105.30	A
CYPERMETHRIN	5.3043	43	83.00	A
(S)-CYPERMETHRIN	7.4544	57	161.30	A
IMIDACLOPRID	22.1403	35	77.40	A
MEFENOXAM	6.9498	41	105.30	A
MEFENOXAM, OTHER RELATED	0.1580	41	105.30	A
PYRACLOSTROBIN	4.5400	15	22.70	A
Site Total	554.4765	351		
GRAPE				
ALPHA-PINENE BETA-PINENE COPOLYMER	1.1295	15	8.90	A
ALUMINUM PHOSPHIDE	1.7319	7	4.40	A
BOSCALID	1.0500	6	3.50	A
CARBARYL	1.0000	1	0.50	A
CHLORPYRIFOS	8.0040	1	4.00	A
CYPRODINIL	2.2069	5	4.70	A
ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.0602	15	8.90	A
FENARIMOL	0.3172	10	10.51	A
FENPROPATHRIN	0.1564	1	0.40	A
GLYPHOSATE, ISOPROPYLAMINE SALT	4.5722	9	4.10	A
GLYPHOSATE, POTASSIUM SALT	0.9519	1	0.46	A
IMIDACLOPRID	2.6171	6	22.68	A
MALATHION	0.9814	1	0.50	A
MINERAL OIL	0.3163	15	8.90	A
MYCLOBUTANIL	0.7000	1	7.00	A
POLY-I-PARA-MENTHENE	3.3145	16	19.85	A
PYRACLOSTROBIN	0.2240	3	1.75	A
PYRIMETHANIL	0.6005	2	1.55	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	0.2088	3	2.85	A
QUINOXYFEN	0.5583	6	5.70	A
SULFUR	108.1120	20	39.96	A
TEBUCONAZOLE	0.7875	1	7.00	A
TRIFLOXYSTROBIN	0.4575	8	7.54	A
Site Total	140.0581	120		
GRAPE, WINE				
ACETAMIPRID	0.0634	1	0.50	A
ALPHA-PINENE BETA-PINENE COPOLYMER	0.3824	7	4.00	A
BOSCALID	0.1546	2	0.50	A
CARBARYL	1.0000	1	0.50	A
CYPRODINIL	0.3919	2	0.75	A
ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.0204	7	4.00	A
FENARIMOL	0.0773	5	2.75	A
FENPROPATHRIN	0.1955	1	0.50	A
IMIDACLOPRID	0.3241	4	3.00	A
MINERAL OIL	0.1071	7	4.00	A
POLY-I-PARA-MENTHENE	0.7804	8	4.00	A
PYRACLOSTROBIN	0.0358	1	0.25	A
PYRIMETHANIL	0.3821	1	1.00	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	0.0730	1	1.00	A
QUINOXYFEN	0.1791	4	1.75	A

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Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
GRAPE, WINE					
SULFUR		108.4000	10	22.25	A
TRIFLOXYSTROBIN		0.1013	3	1.75	A
Site Total		112.6684	50		
GRAPEFRUIT					
GLYPHOSATE, ISOPROPYLAMINE SALT		61.1551	5	43.04	A
Site Total		61.1551	5		
HERB, SPICE					
ABAMECTIN		0.3345	25	26.05	A
AZADIRACHTIN		0.4024	8	9.23	A
AZOXYSTROBIN		29.9970	33	27.77	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		24.7725	18	90.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B		0.1280	4	2.00	A
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		0.8100	1	0.75	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		1.4280	19	18.53	A
CHLOROPICRIN		223.7198	4	3.75	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		163.1588	30	42.62	A
CLETHODIM		0.1135	2	1.50	U
COPPER HYDROXIDE		3.7552	3	3.24	A
CYPRODINIL		2.6250	11	13.00	U
		2.2969	18	12.25	A
TOTAL POUNDS OF THIS CHEMICAL	4.9219				
1,3-DICHLOROPROPENE		408.4733	4	3.75	A
DIMETHYLPOLYSILOXANE		0.2466	4	2.00	A
FLUDIOXONIL		1.7500	11	13.00	U
		1.5313	18	12.25	A
TOTAL POUNDS OF THIS CHEMICAL	3.2813				
IMIDACLOPRID		1.3790	28	33.31	A
MANCOZEB		2.7000	2	2.10	A
POLYOXYETHYLENE POLYOXYPROPYLENE		0.0822	4	2.00	A
POTASH SOAP		123.3379	18	27.63	A
POTASSIUM BICARBONATE		49.7150	11	19.05	A
PYRETHRINS		0.2492	25	35.78	A
ROTENONE		0.2076	25	35.78	A
ROTENONE, OTHER RELATED		0.2076	25	35.78	A
SPINETORAM		0.9850	21	27.10	A
		0.0471	2	1.50	U
TOTAL POUNDS OF THIS CHEMICAL	1.0321				
SPINOSAD		1.5342	4	11.03	A
SULFURYL FLUORIDE		0.1238	1	0.50	U
Site Total		1,046.1114	292		
HOUSEHOLD					
ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE		2.0825		50,000.00	S
ALKYL (68%C12, 32%C14) DIMETHYLETHYLBENZYL AMMONIUM CHLORIDE		2.0825		50,000.00	S
Site Total		4.1650			
INDUSTRIAL SITE					
DIQUAT DIBROMIDE		5.9134	4	34.00	A
GLYPHOSATE, ISOPROPYLAMINE SALT		20.1498	1	20.00	A
GLYPHOSATE, MONOAMMONIUM SALT		18.3891	2	12.00	A
Site Total		44.4523	5		

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
KALE					
	ACETAMIPRID	1.8441	9	30.28	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	73.7182	57	184.01	A
	AZADIRACHTIN	3.2206	18	119.34	A
	BACILLUS PUMILUS, STRAIN QST 2808	4.7414	8	39.50	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	41.6247	65	241.56	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	146.5884	38	194.17	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B	0.5479	3	8.59	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	73.0925	36	155.20	A
	BENSULIDE	134.9997	7	25.27	A
	BENTONITE	1.0380	1	2.30	A
	CASEIN	0.0779	1	2.30	A
	CHLORANTRANILIPROLE	2.0322	12	37.78	A
	CHLORTHAL-DIMETHYL	220.8300	4	37.43	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	46.6793	35	126.49	A
	CLETHODIM	0.5231	2	5.70	A
	CYFLUTHRIN	0.1880	3	3.76	A
	BETA-CYFLUTHRIN	0.8947	10	36.51	A
	CYPERMETHRIN	29.3721	65	306.19	A
	(S)-CYPERMETHRIN	1.7464	7	36.10	A
	CYROMAZINE	1.2450	2	10.00	A
	DIAZINON	19.3818	14	41.05	A
	1,3-DICHLOROPROPENE	1,191.2674	1	10.00	A
	DIMETHOATE	7.5202	7	22.87	A
	DIMETHYLPOLYSILOXANE	10.7303	22	94.45	A
	EMAMECTIN BENZOATE	1.5206	30	110.49	A
	FATTY ACIDS DERIVED FROM TALLOW	29.4873	57	184.01	A
	FOSETYL-AL	20.0000	1	5.00	A
	IMIDACLOPRID	19.0050	64	290.32	A
	INDOXACARB	7.1509	30	110.35	A
	ISOPROPYL ALCOHOL	1.3056	10	49.50	A
	LACTOSE	0.0779	1	2.30	A
	MALATHION	493.4847	55	249.34	A
	MANDIPROPAMID	3.8527	7	29.69	A
	MEFENOXAM	3.6780	9	29.34	A
	MEFENOXAM, OTHER RELATED	0.0976	8	26.49	A
	METHOXYFENOZIDE	2.8916	3	14.35	A
	METHYLATED SOYBEAN OIL	19.5270	15	46.57	A
	METHYL SILICONE RESINS	15.0949	18	53.03	A
	NALED	89.8329	27	78.02	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	92.4971	82	280.08	A
	PHOSPHORIC ACID	0.1051	1	1.00	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	0.3143	2	14.10	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	2.1449	16	52.67	A
	POLYETHYLENE GLYCOL	8.2459	10	49.50	A
	POLY-I-PARA-MENTHENE	12.9418	16	46.99	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	0.8623	7	19.95	A
	POTASH SOAP	906.0996	54	242.57	A
	POTASSIUM PHOSPHITE	12.9642	1	5.00	A
	PROPYLENE GLYCOL	0.1282	1	1.00	A
	PYMETROZINE	0.3078	1	3.58	A
	PYRACLOSTROBIN	11.1820	16	57.17	A
	PYRETHRINS	41.0784	61	239.10	A
	ROTENONE	0.2267	15	41.06	A
	ROTENONE, OTHER RELATED	0.2267	15	41.06	A
	SOYBEAN OIL	33.0933	11	36.32	A
	SPINETORAM	3.1110	17	64.52	A
	SPINOSAD	12.2598	34	145.27	A
	STREPTOMYCES LYDICUS WYEC 108	0.0014	1	5.00	A
	SULFUR	72.3040	12	31.02	A
	THIAMETHOXAM	2.4256	9	39.48	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
KALE						
	TRISODIUM PHOSPHATE		0.0021	1	1.00	A
	XYLENE RANGE AROMATIC SOLVENT		3.0837	3	9.20	A
	Site Total		3,936.5165	922		
KIWI						
	GLYPHOSATE, ISOPROPYLAMINE SALT		8.2415	2	6.00	A
	Site Total		8.2415	2		
KOHLRABI						
	AZOXYSTROBIN		0.1307	2	2.00	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		1.0800	1	1.00	A
	CHLORTHAL-DIMETHYL		0.3750	2	2.00	A
	IMIDACLOPRID		0.0500	1	1.00	A
	MALATHION		7.1546	7	7.00	A
	PIPERONYL BUTOXIDE		0.1586	1	1.00	A
	PIPERONYL BUTOXIDE, OTHER RELATED		0.0396	1	1.00	A
	PYRETHRINS		0.0198	1	1.00	A
	Site Total		9.0083	14		
LANDSCAPE MAINTENANCE						
	ABAMECTIN		0.0089			
	ACEPHATE		8.9238			
			0.6360	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	9.5598				
	ACID BLUE 9, DIAMMONIUM SALT		10.9048			
	ALKYL (50%C14, 40%C12, 10%C16) DIMETHYLBENZYL AMMONIUM CHLORIDE		0.0032	1	100.00	A
	ALKYL (C8,C10) POLYGLYCOSIDE		0.0792			
	D-TRANS ALLETHRIN		0.0040	3	300.00	A
			0.0021			
	TOTAL POUNDS OF THIS CHEMICAL	0.0061				
	ALUMINUM PHOSPHIDE		1,642.0154			
			111.9243	35	2,054.69	A
			0.0688	2	600.00	S
	TOTAL POUNDS OF THIS CHEMICAL	1,754.0085				
	AMINOPYRALID, TRIISOPROPANOLAMINE SALT		3.8561			
	AMMONIUM SULFATE		60.8612			
	AZADIRACHTIN		0.6075			
			0.2585	2	28.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.8660				
	AZOXYSTROBIN		30.3054			
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. ISRAELENSIS, SEROTYPE H-14		76.5060			
	BENEFIN		50.2000			
			8.5000	2	200.00	A
	TOTAL POUNDS OF THIS CHEMICAL	58.7000				
	BENSULIDE		225.4135			
	BIFENAZATE		0.0390			
	BIFENTHRIN		22.3536			
			4.5091	10	1,400.00	A
	TOTAL POUNDS OF THIS CHEMICAL	26.8627				
	BISPYRIBAC-SODIUM		3.6000			
			0.0500	1	80.00	A
	TOTAL POUNDS OF THIS CHEMICAL	3.6500				
	BORAX		0.3798	2	200.00	A
	BORIC ACID		8.9846	7	700.00	A
	BRODIFACOUM		0.0098			
			0.0006	1	300.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0104				
	BROMADIOLONE		0.0757			
			0.0505	5	450.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.1262				

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LANDSCAPE MAINTENANCE						
	BROMETHALIN		0.0074			
			0.0008	2	400.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0082				
	BUTOPYRONOXYL		0.0081	1	14.00	A
	CARBARYL		185.3283	4	360.00	A
			113.3250			
	TOTAL POUNDS OF THIS CHEMICAL	298.6533				
	CARBON		0.0350			
	CARBON TETRACHLORIDE		0.0920	1	160.00	A
	CARFENTRAZONE-ETHYL		6.0096			
			0.3087	3	340.00	A
	TOTAL POUNDS OF THIS CHEMICAL	6.3183				
	CHLORANTRANILIPROLE		3.6343			
			3.3588	1	20.00	A
	TOTAL POUNDS OF THIS CHEMICAL	6.9931				
	CHLORFENAPYR		0.8846	2	200.00	A
			0.3378			
	TOTAL POUNDS OF THIS CHEMICAL	1.2224				
	CHLORFLURENOL, METHYL ESTER		0.2006			
	CHLOROPHACINONE		0.0271			
			0.0002	2	200.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0273				
	CHLOROTHALONIL		2,370.8159			
			126.5793	6	457.00	A
	TOTAL POUNDS OF THIS CHEMICAL	2,497.3952				
	CHLORPYRIFOS		25.7757			
			0.9805	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	26.7562				
	CHLORSULFURON		4.6719			
	CHOLECALCIFEROL		0.0087	1	100.00	A
	CITRIC ACID		3.4086			
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		0.4264			
	CLOPYRALID, MONOETHANOLAMINE SALT		7.6991			
	CLOPYRALID,TRIETHYLAMINE SALT		0.0900			
	COCONUT DIETHANOLAMIDE		1.6486			
	COPPER AMMONIUM COMPLEX		0.1968			
	COPPER CARBONATE, BASIC		443.6604			
	COPPER ETHANOLAMINE COMPLEXES, MIXED		1,031.5094			
	COPPER HYDROXIDE		58.1965			
	COPPER SULFATE (BASIC)		83.2842			
	COPPER SULFATE (PENTAHYDRATE)		645.4795			
	CYFLUTHRIN		0.1882	3	214.00	A
			0.0475			
	TOTAL POUNDS OF THIS CHEMICAL	0.2357				
	BETA-CYFLUTHRIN		1.8961	4	114.00	A
			1.5832			
	TOTAL POUNDS OF THIS CHEMICAL	3.4793				
	CYPERMETHRIN		12.2467	4	400.00	A
			6.0749			
	TOTAL POUNDS OF THIS CHEMICAL	18.3216				
	2,4-D		0.2736			
	2,4-D, DIMETHYLAMINE SALT		19.1769			
			0.3799	3	109.00	A
	TOTAL POUNDS OF THIS CHEMICAL	19.5568				
	2,4-D, 2-ETHYLHEXYL ESTER		115.1556			
			5.9972	3	340.00	A
	TOTAL POUNDS OF THIS CHEMICAL	121.1528				
	2,4-D, ISOOCTYL ESTER		0.2281			
	2,4-D, TRIISOPROPANOLAMINE SALT		2.4151			
	DEET		0.1870	1	14.00	A
	DEET, OTHER RELATED		0.0098	1	14.00	A
	DELTAMETHRIN		0.5728	8	703.50	A
			0.3551			
	TOTAL POUNDS OF THIS CHEMICAL	0.9279				
	DEXTRIN		0.0088			
	DIAZINON		1.8604			

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LANDSCAPE MAINTENANCE						
	DICAMBA		19.2809			
			1.0760	4	346.00	A
	TOTAL POUNDS OF THIS CHEMICAL	20.3569				
	DICAMBA, DIMETHYLAMINE SALT		6.4850			
			1.7073	6	141.00	A
	TOTAL POUNDS OF THIS CHEMICAL	8.1923				
	4,5-DICHLORO-2-N-OCTYL-3(2H)-ISOTHIAZOLONE		8.2217			
	DIETHYLENE GLYCOL		0.9522			
	DIFETHIALONE		0.0328			
			0.0003	3	300.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0331				
	DIGLYCOLAMINE SALT OF 3,6-DICHLORO-O-ANISIC ACID		22.2248			
	DIKEGULAC SODIUM		57.9536			
			1.6797	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	59.6333				
	DIMETHYL PHTHALATE		0.0098	1	14.00	A
	DIMETHYLPOLYSILOXANE		0.2625			
			0.0152	1	6.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.2777				
	DINOTEFURAN		0.0250			
	DIPHACINONE		0.6066			
			0.0106	5	400.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.6172				
	DIQUAT DIBROMIDE		803.7767			
			4.2850	4	426.50	A
	TOTAL POUNDS OF THIS CHEMICAL	808.0617				
	DISODIUM OCTABORATE TETRAHYDRATE		4.9000	1	100.00	A
	DISULFOTON		2.1500			
			0.2000	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	2.3500				
	DITHIOPYR		14.2671			
			0.1750	1	17,000.00	S
			0.1250	1	0.50	A
	TOTAL POUNDS OF THIS CHEMICAL	14.5671				
	DIURON		199.4662			
	DODECYLBENZENE SULFONIC ACID		7.1439			
	DODECYL GUANIDINE HYDROCHLORIDE		7.2971	1	160.00	A
	2-(2,4-DP), DIMETHYLAMINE SALT		0.0048			
	2,4-DP-P, ISOOCTYL ESTER		0.1144			
	EDTA, TETRASODIUM SALT		0.4396			
	ENDOTHALL, DIPOTASSIUM SALT		373.0693			
	ENDOTHALL, MONO [N,N-DIMETHYL ALKYLAMINE] SALT		4.5253			
	ETHEPHON		771.9856			
			19.9633	2	160.00	A
	TOTAL POUNDS OF THIS CHEMICAL	791.9489				
	ETHOFUMESATE		0.5412			
	ETHYLENE DICHLORIDE		0.2146	1	160.00	A
	ETOXAZOLE		0.0500			
	FATTY ACIDS, MIXED		4.2386			
	FATTY ACIDS, C16-C18 AND C18-UNSATURATED, METHYL ESTERS		12.4502			
	FIPRONIL		2.0178			
			1.5101	7	700.00	A
	TOTAL POUNDS OF THIS CHEMICAL	3.5279				
	FLUAZIFOP-P-BUTYL		35.1416			
			1.8436	3	206.50	A
	TOTAL POUNDS OF THIS CHEMICAL	36.9852				
	FLUDIOXONIL		15.7747			
			1.5000	1	85.00	A
	TOTAL POUNDS OF THIS CHEMICAL	17.2747				
	FLURECOL-METHYL		0.0479			
	FLURIDONE		41.9713			
	FLUROXYPYR		2.1742			
	FLUROXYPYR, 1-METHYLHEPTYL ESTER		1.4365			
	FLUTOLANIL		208.6000			
	TAU-FLUVALINATE		1.7228			

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LANDSCAPE MAINTENANCE						
	FORAMSULFURON		3.0713			
			0.0188	1	3.50	A
	TOTAL POUNDS OF THIS CHEMICAL	3.0901				
	FOSETYL-AL		58.9000			
	GLYPHOSATE, DIAMMONIUM SALT		17.9007			
			0.9294	1	6.50	A
	TOTAL POUNDS OF THIS CHEMICAL	18.8301				
	GLYPHOSATE, ISOPROPYLAMINE SALT		11,207.0308			
			76.3726	17	859.60	A
	TOTAL POUNDS OF THIS CHEMICAL	11,283.4034				
	GLYPHOSATE, MONOAMMONIUM SALT		874.5048			
			2.2678	2	126.50	A
	TOTAL POUNDS OF THIS CHEMICAL	876.7726				
	GLYPHOSATE, POTASSIUM SALT		42.5081			
			0.8461	1	6.50	A
	TOTAL POUNDS OF THIS CHEMICAL	43.3542				
	HALOSULFURON-METHYL		5.4666			
			0.1406	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	5.6072				
	HYDRAMETHYLNON		0.7500			
			0.1829	4	400.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.9329				
	HYDROPRENE		0.2092	2	200.00	A
			0.0766			
	TOTAL POUNDS OF THIS CHEMICAL	0.2858				
	IMAZAPYR, ISOPROPYLAMINE SALT		0.1297			
	IMIDACLOPRID		37.6261			
			1.6875	2	200.00	A
	TOTAL POUNDS OF THIS CHEMICAL	39.3136				
	INDOXACARB		0.0000	1	100.00	A
	IPRODIONE		98.9677			
	IRON PHOSPHATE		14.3578			
			0.9120	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	15.2698				
	ISOPROPYL ALCOHOL		6.9604			
			1.7549	3	26.50	A
	TOTAL POUNDS OF THIS CHEMICAL	8.7153				
	ISOXABEN		8.9494			
			0.5000	1	15,000.00	S
			0.5000	1	0.50	A
	TOTAL POUNDS OF THIS CHEMICAL	9.9494				
	LAMBDA-CYHALOTHRIN		2.1092	5	500.00	A
			0.2482			
	TOTAL POUNDS OF THIS CHEMICAL	2.3574				
	LECITHIN		60.5645			
	LIMONENE		62.2511			
	MALATHION		9.1988			
	MALEIC HYDRAZIDE, POTASSIUM SALT		4.5018	2	300.00	A
	MANCOZEB		1,150.0000			
			36.0000	1	120.00	A
	TOTAL POUNDS OF THIS CHEMICAL	1,186.0000				
	MCPA, DIMETHYLAMINE SALT		47.8897			
			17.0030	3	32.00	A
	TOTAL POUNDS OF THIS CHEMICAL	64.8927				
	MCPA, 2-ETHYL HEXYL ESTER		74.3995			
	MCPA, ISOOCTYL ESTER		110.4421			
			10.8061	1	6.00	A
	TOTAL POUNDS OF THIS CHEMICAL	121.2482				
	MCPP		0.1224			
	MCPP, DIMETHYLAMINE SALT		9.6586			
			0.1563	2	108.00	A
	TOTAL POUNDS OF THIS CHEMICAL	9.8149				
	MCPP-P, DIMETHYLAMINE SALT		10.4475			
			3.3610	3	32.00	A
	TOTAL POUNDS OF THIS CHEMICAL	13.8085				
	MECOPROP-P		37.4299			
			1.5207	3	340.00	A
	TOTAL POUNDS OF THIS CHEMICAL	38.9506				

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LANDSCAPE MAINTENANCE						
	MEFENOXAM		17.3564			
			0.4415	4	400.00	A
	TOTAL POUNDS OF THIS CHEMICAL	17.7979				
	MEFENOXAM, OTHER RELATED		0.4891			
			0.0093	2	200.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.4984				
	MEFLUIDIDE, DIETHANOLAMINE SALT		9.2030			
			0.2219	2	300.00	A
	TOTAL POUNDS OF THIS CHEMICAL	9.4249				
	METALAXYL		0.0470			
	METALDEHYDE		214.5953			
			15.0750	2	200.00	A
	TOTAL POUNDS OF THIS CHEMICAL	229.6703				
	METHIOCARB		0.0235	1	0.10	A
	METHOPRENE		0.3231			
	METHYLATED FATTY ACIDS FROM CANOLA OIL		2.4554			
	METHYLATED SOYBEAN OIL		127.3490			
	METHYL-2,7-DICHLORO-9-HYDROXYFLUORENE-9-CARBOXYLATE		0.0365			
	METHYLENE BIS(THIOCYANATE)		3.6485	1	160.00	A
	MINERAL OIL		268.5704			
	MSMA		59.2931			
	MYCLOBUTANIL		5.3311			
			1.0633	4	212.50	A
			0.4185	1	17,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	6.8129				
	NAA, AMMONIUM SALT		23.7361			
	NAPROPAMIDE		0.5000	1	100.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		57.7402			
			8.6479	3	26.50	A
	TOTAL POUNDS OF THIS CHEMICAL	66.3881				
	N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE		1.1331	5	313.00	A
			0.0054			
	TOTAL POUNDS OF THIS CHEMICAL	1.1385				
	ORYZALIN		938.7000			
			8.5000	2	200.00	A
	TOTAL POUNDS OF THIS CHEMICAL	947.2000				
	OXADIAZON		46.7100			
	OXYDEMETON-METHYL		0.1917			
	OXYFLUORFEN		2.9997			
	PACLOBUTRAZOL		48.6579			
			7.7598	2	160.00	A
	TOTAL POUNDS OF THIS CHEMICAL	56.4177				
	PCNB		274.7749	3	245.00	A
			85.5706			
	TOTAL POUNDS OF THIS CHEMICAL	360.3455				
	PENDIMETHALIN		264.7430			
	PENOXSULAM		1.0140			
	PERMETHRIN		131.7417			
			30.7632	4	400.00	A
	TOTAL POUNDS OF THIS CHEMICAL	162.5049				
	PETROLEUM DISTILLATES		0.2245	5	313.00	A
	PETROLEUM DISTILLATES, REFINED		45.7421			
	PETROLEUM OIL, PARAFFIN BASED		1.2047			
	PETROLEUM OIL, UNCLASSIFIED		1,612.6949			
			14.2474	2	112.00	A
	TOTAL POUNDS OF THIS CHEMICAL	1,626.9423				
	PHENOTHRIN		0.0037	3	300.00	A
			0.0020			
	TOTAL POUNDS OF THIS CHEMICAL	0.0057				
	PHOSPHORIC ACID		20.2395			
	PIPERONYL BUTOXIDE		11.7078			
			1.3241	14	1,213.00	A
	TOTAL POUNDS OF THIS CHEMICAL	13.0319				
	PIPERONYL BUTOXIDE, OTHER RELATED		2.9270			
			0.3133	10	813.00	A
	TOTAL POUNDS OF THIS CHEMICAL	3.2403				
	POLYACRYLIC POLYMER		1.7043			

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LANDSCAPE MAINTENANCE						
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE		6.7358			
	POLYETHYLENE GLYCOL		1.9886	1	6.00	A
	POLYOXIN D		4.9547			
			0.5500	1	85.00	A
	TOTAL POUNDS OF THIS CHEMICAL	5.5047				
	POLYOXYETHYLENE POLYOXYPROPYLENE		0.9531			
	POLYSILOXANE		0.0032			
	POTASH SOAP		0.0341			
	POTASSIUM HYDROXIDE		0.0928			
	POTASSIUM NITRATE		0.1969			
	POTASSIUM PHOSPHITE		10.6145			
			2.3498	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	12.9643				
	PRODIAMINE		265.3053			
			1.4862	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	266.7915				
	PROPICONAZOLE		94.3092			
			5.0962	3	87.00	A
	TOTAL POUNDS OF THIS CHEMICAL	99.4054				
	PROPIONIC ACID		60.3428			
	PYRACLOSTROBIN		18.8675			
	PYRETHRINS		1.4649			
			0.5028	13	1,113.00	A
	TOTAL POUNDS OF THIS CHEMICAL	1.9677				
	PYRIPROXYFEN		0.0115			
			0.0018	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0133				
	QUINCLORAC		41.3056			
			0.0171	1	1.00	A
	TOTAL POUNDS OF THIS CHEMICAL	41.3227				
	SILICA AEROGEL		1.6225	4	400.00	A
			0.0500			
	TOTAL POUNDS OF THIS CHEMICAL	1.6725				
	SILICONE DEFOAMER		0.1868			
	SIMAZINE		17.6000	1	100.00	A
			17.6000			
	TOTAL POUNDS OF THIS CHEMICAL	35.2000				
	SODIUM CARBONATE PEROXYHYDRATE		227.8000			
	SODIUM XYLENE SULFONATE		2.1981			
	SPINOSAD		0.3158			
			0.1405	1	14.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.4563				
	STRYCHNINE		2.8141			
			0.0801	5	500.00	A
	TOTAL POUNDS OF THIS CHEMICAL	2.8942				
	SULFAQUINOXALINE		0.0209			
	SULFENTRAZONE		0.0512			
			0.0021	1	1.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0533				
	SULFOMETURON-METHYL		11.4335			
			0.5625	1	100.00	A
	TOTAL POUNDS OF THIS CHEMICAL	11.9960				
	SULFOSULFURON		0.0981			
	SULFUR		0.1969			
	TALL OIL		1.2590			
			0.3790	2	20.50	A
	TOTAL POUNDS OF THIS CHEMICAL	1.6380				
	TARTRAZINE		1.1029			
	TEBUCONAZOLE		0.1064			
	TETRAMETHRIN		0.0004	1	100.00	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		8.3726			
	TETRAPOTASSIUM PYROPHOSPHATE		1.0991			
	THIABENDAZOLE		0.7696	1	85.00	A
	THIOPHANATE		20.0000			
	THIOPHANATE-METHYL		285.2150			
			43.4468	3	260.00	A
	TOTAL POUNDS OF THIS CHEMICAL	328.6618				

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LANDSCAPE MAINTENANCE					
THIRAM		11.6197			
TRIADIMEFON		8.3907			
		4.1250	1	20.00	A
TOTAL POUNDS OF THIS CHEMICAL	12.5157				
TRICLOPYR, BUTOXYETHYL ESTER		231.7344			
		3.0021	3	206.00	A
TOTAL POUNDS OF THIS CHEMICAL	234.7365				
TRICLOPYR, TRIETHYLAMINE SALT		2.3322			
TRIETHANOLAMINE		2.8026			
TRIFLOXYSTROBIN		10.5103			
TRIFLOXYSULFURON-SODIUM		0.6614			
TRIFLURALIN		22.8000			
		2.0000	1	15,000.00	S
		2.0000	1	0.50	A
TOTAL POUNDS OF THIS CHEMICAL	26.8000				
TRINEXAPAC-ETHYL		48.2225			
		1.1972	6	492.00	A
TOTAL POUNDS OF THIS CHEMICAL	49.4197				
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		11.7314			
WARFARIN		0.0209			
XYLENE RANGE AROMATIC SOLVENT		0.0207			
ZINC PHOSPHIDE		6.8393			
		1.3975	3	500.00	A
TOTAL POUNDS OF THIS CHEMICAL	8.2368				
Site Total		30,240.3693	266		
LEEK					
BOSCALID		12.1590	9	48.50	A
CHLOROTHALONIL		588.9698	49	278.30	A
CYPERMETHRIN		20.2465	35	206.80	A
PYRACLOSTROBIN		30.3200	44	256.30	A
SPINETORAM		3.1483	15	79.00	A
SPINOSAD		0.8774	2	13.50	A
Site Total		655.7210	145		
LEMON					
ABAMECTIN		156.3431	677	14,867.17	A
ACETAMIPRID		10.6427	6	111.80	A
ALCOHOLS, C4-C12, NORMAL		0.3011	1	30.00	A
ALCOHOLS, C6-C10		0.0772	1	22.00	A
ALPHA-ALKYL (C8-C18)-OMEGA-HYDROXYPOLY(OXYETHYLENE) POLY(OXYPROPYLENE)		49.9250	27	433.00	A
ALPHA-ALKYL (C9-C11)-OMEGA-HYDROXYPOLY(OXYETHYLENE)		667.7944	67	1,656.13	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		5.3852	2	27.60	A
AMMONIUM DODECYL POLY OXYETHYLENE SULFATE		1.1168	1	10.00	A
AMMONIUM LAURYL SULFATE		2.1943	1	10.00	A
AMMONIUM PROPIONATE		0.0000	2	4.00	A
AMMONIUM SULFATE		0.0000	2	4.00	A
BENTONITE		10,616.0060	256	7,381.12	A
BROMACIL		27.4000	3	44.30	A
BROMADIOLONE		0.0005	1	140.00	A
CALCIUM HYDROXIDE		21,944.3161	129	3,966.52	A
CARBARYL		819.6066	2	154.00	A
CASEIN		639.0768	246	6,927.94	A
CHLOROPHACINONE		0.0068	25	456.00	A
CHLORPYRIFOS		27,825.6458	310	8,388.17	A
CINNAMALDEHYDE		354.3083	13	556.00	A
CITRIC ACID		0.0000	2	4.00	A
COCONUT DIETHANOLAMIDE		0.6560	2	20.00	A
COPPER		15.6000	1	80.00	A
COPPER HYDROXIDE		7,031.6701	192	4,661.43	A
COPPER OXIDE (OUS)		41.9500	1	8.00	A
COPPER SULFATE (BASIC)		29,188.7597	173	5,407.21	A
COTTONSEED OIL		26.6687	1	30.00	A
2,4-D, DIMETHYLAMINE SALT		897.1305	60	2,493.58	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LEMON					
	2,4-D, ISOPROPYL ESTER	378.5900		293,311.69	T
		11.0656		9,581.00	U
	TOTAL POUNDS OF THIS CHEMICAL 389.6556				
	1,3-DICHLOROPROPENE	28,276.0616	6	85.10	A
	DICOFOL	53.8393	2	21.25	A
	DIETHYLENE GLYCOL	0.1283	1	16.00	A
	DIMETHOATE	6.8062	1	11.96	A
	DIMETHYLPOLYSILOXANE	94.4395	16	469.42	A
	DINOSEB	140.0496	2	43.06	A
	DIPHACINONE	0.0527	46	584.00	A
	DIURON	616.9340	13	284.56	A
	DODECYLBENZENE SULFONIC ACID	2.8426	2	20.00	A
	DRY MILK SOLIDS	10.7997	1	126.79	A
	EDTA, TETRASODIUM SALT	0.1749	2	20.00	A
	FATTY ACIDS, MIXED	13.1995	71	2,272.50	A
	FATTY ACIDS DERIVED FROM TALLOW	2.1541	2	27.60	A
	FENPYROXIMATE	1.4457	2	6.00	A
	FLUDIOXONIL	27.5000		5,474.54	T
	FOSETYL-AL	120.0000	2	30.00	A
	GIBBERELLINS	333.7666	248	6,613.06	A
		20.1626		103,375.91	T
	TOTAL POUNDS OF THIS CHEMICAL 353.9292				
	GLYPHOSATE	51.9993	1	50.00	A
	GLYPHOSATE, DIAMMONIUM SALT	292.5819	19	333.08	A
	GLYPHOSATE, ISOPROPYLAMINE SALT	23,787.3657	1,059	21,375.68	A
		7.9918		15.00	U
	TOTAL POUNDS OF THIS CHEMICAL 23,795.3575				
	GLYPHOSATE, MONOAMMONIUM SALT	2,287.4589	33	2,825.90	A
	GLYPHOSATE, POTASSIUM SALT	21,409.6765	856	12,822.14	A
	HYDROGEN PEROXIDE	418.5325		18,667.00	T
	HYDROGENATED WAX, NEUTRAL WAX AND ALKALI SOAPS OF FATTY ACIDS	148.1750	1	15.00	A
	IMAZALIL	2,815.6825		676,078.22	T
	IMIDACLOPRID	293.7681	34	813.27	A
	ISOPROPYL ALCOHOL	113.8157	29	812.50	A
	ISOPROPYLAMINE DODECYLBENZENE SULFONATE	0.3001	22	906.00	A
	LACTOSE	784.9220	255	7,254.33	A
	LAURYL DIMETHYLAMINE OXIDE	0.5290	1	10.00	A
	LECITHIN	0.5537	2	15.00	A
	LIME-SULFUR	1.7257	1	10.00	A
	MEFENOXAM	0.7494	4	106.87	A
	MEFENOXAM, OTHER RELATED	0.0220	4	106.87	A
	METALDEHYDE	8,930.6668	584	18,482.69	A
	METHIOCARB	0.5000	1	2.00	A
	METHOXYFENOZIDE	0.3177	1	3.00	A
	MINERAL OIL	658,374.0426	534	12,088.96	A
	MODIFIED PHTHALIC GLYCEROL ALKYD RESIN	4.3845	1	11.25	A
	MYROTHECIUM VERRUCARIA, DRIED FERMENTATION SOLIDS & SOLUBLES, STRAIN AARC-0255	216.0000	1	8.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	414.7153	103	3,147.60	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), BRANCHED	0.3344	1	16.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	0.0000	2	4.00	A
	NORFLURAZON	24.3660	1	48.60	A
	OIL OF JOJOBA	29.2500	1	10.00	A
	ORYZALIN	14.9988	2	12.50	A
	OXAMYL	9.9560	2	10.00	A
	OXYFLUORFEN	2.6244	3	10.50	A
	PARAQUAT DICHLORIDE	205.2247	22	528.54	A
	PEROXYACETIC ACID	77.3890		18,667.00	T
	PETROLEUM OIL, PARAFFIN BASED	65,095.6674	55	1,851.21	A
	PETROLEUM OIL, UNCLASSIFIED	666,659.9827	476	10,463.00	A
	PHOSPHORIC ACID	118.3202	4	118.00	A
	PIPERONYL BUTOXIDE	714.3890	116	3,057.54	A
	PIPERONYL BUTOXIDE, OTHER RELATED	178.5973	116	3,057.54	A
	POLYACRYLAMIDE POLYMER	0.0622	6	223.98	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LEMON					
	POLYBUTENES	45.0000	1	52.00	A
	POLYETHYLENE GLYCOL	1.6571	1	14.00	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	249.2733	58	896.09	A
	POLYMERIZED ACRYLIC ACID	0.0000	2	4.00	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	48.4766	13	420.42	A
	POLYOXYETHYLENE SORBITAN MONOOLEATE	1.2004	22	906.00	A
	POLYOXYETHYLENE SORBITAN TRIOLEATE	7.9027	22	906.00	A
	POTASSIUM PHOSPHITE	894.0340	8	320.00	A
	PROPIONIC ACID	0.5537	2	15.00	A
	PYRETHRINS	89.7190	119	3,081.54	A
	PYRIMETHANIL	113.6240		18,923.00	T
	PYRIPROXYFEN	4.3020	3	42.61	A
	RIMSULFURON	0.1550	1	2.50	A
	ROTENONE	0.1272	2	13.00	A
	ROTENONE, OTHER RELATED	0.1272	2	13.00	A
	SABADILLA ALKALOIDS	2.2824	5	101.94	A
	SILICONE DEFOAMER	0.0743	2	20.00	A
	SIMAZINE	960.1795	81	2,434.20	A
	SODIUM CARBONATE	70.5600	1	8.00	A
	SODIUM DODECYLBENZENE SULFONATE	0.9256	1	26.00	A
	SODIUM HYPOCHLORITE	23,949.9570		676,105.03	T
		124.9500		185,091.00	U
		0.0674	1	22.00	A
	TOTAL POUNDS OF THIS CHEMICAL 24,074.9744				
	SODIUM LAURYL SULFATE	0.8523	1	10.00	A
	SODIUM TETRATHIOCARBONATE	6,007.4975	4	132.70	A
	SODIUM XYLENE SULFONATE	0.8747	2	20.00	A
	SPINOSAD	98.2656	56	897.18	A
	SPIRODICLOFEN	16.3954	3	51.50	A
	SPIROTETRAMAT	0.6932	3	34.83	A
	STRYCHNINE	0.6067	37	287.25	A
	STYRENE BUTADIENE COPOLYMER	224.6623	27	433.00	A
	SUGAR	312.0000	2	30.00	A
	SULFAQUINOXALINE	0.0090	2	14.00	A
	SULFUR	1,304.8425	10	170.20	A
	TALL OIL FATTY ACIDS	0.2286	1	16.00	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)	3.3324	2	20.00	A
	TETRAPOTASSIUM PYROPHOSPHATE	0.4373	2	20.00	A
	THIABENDAZOLE	781.7914		226,683.73	T
		59.2248		189,556.40	U
	TOTAL POUNDS OF THIS CHEMICAL 841.0162				
	TRIETHANOLAMINE	1.1152	2	20.00	A
	ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.3344	1	16.00	A
	UREA INCLUSION ADDUCT OF POLYOXY(ETHYLENE)/POLYOXY(PROPYLENE) BLOCK COPOLYMER	1.0575	1	37.33	A
	VINYL POLYMER	209.5412	1	26.00	A
	WARFARIN	0.0090	2	14.00	A
	ZINC PHOSPHIDE	0.0045	1	1.80	A
	ZINC SULFATE	7.4044	1	26.00	A
	Site Total	1,619,516.5613	6,463		
LETTUCE, HEAD					
	ABAMECTIN	0.0198	1	2.00	A
	ACETAMIPRID	0.2975	2	4.00	A
	ACIBENZOLAR-S-METHYL	0.3125	5	10.00	A
	AZADIRACHTIN	0.0565	1	2.00	A
	AZOXYSTROBIN	1.9547	3	9.20	A
	BACILLUS PUMILUS, STRAIN QST 2808	0.0300	2	4.00	A
	BENEFIN	7.2000	2	6.00	A
	BOSCALID	33.1625	17	70.00	A
	CHLORANTRANILIPROLE	0.2099	2	4.00	A
	COPPER HYDROXIDE	2.3241	1	4.20	A
	COTTONSEED OIL	0.5829	1	2.00	A
	BETA-CYFLUTHRIN	0.0168	1	2.00	A
	CYPERMETHRIN	0.0231	1	2.00	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LETTUCE, HEAD				
(S)-CYPERMETHRIN	0.4731	2	12.00	A
DIAZINON	96.2827	19	52.66	A
DICLORAN	69.9832	7	28.00	A
DIMETHOATE	1.9360	1	6.00	A
DIMETHOMORPH	1.3216	9	52.00	A
DIMETHYLPOLYSILOXANE	0.0082	3	10.00	A
DINOTEFURAN	0.7000	1	2.00	A
FATTY ACIDS, MIXED	0.0155	1	2.00	A
FENAMIDONE	1.5685	1	6.00	A
FOSETYL-AL	110.7000	6	48.00	A
IMIDACLOPRID	29.5864	25	90.66	A
INDOXACARB	1.3500	2	12.00	A
ISOPROPYL ALCOHOL	0.1912	4	12.00	A
LECITHIN	1.5042	3	14.00	A
MALATHION	3.8410	1	2.00	A
MANDIPROPAMID	1.8327	3	14.00	A
MANEB	106.2728	17	71.00	A
METHOMYL	0.9000	1	2.00	A
METHOXYFENOZIDE	8.6128	7	44.20	A
METHYLATED SOYBEAN OIL	1.9406	1	6.85	A
METHYL BROMIDE	705.6000	2	2.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	2.8631	8	32.85	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	46.2635	22	135.00	A
PARAQUAT DICHLORIDE	0.3461	1	2.00	A
PERMETHRIN	26.8288	30	153.85	A
POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	0.0970	1	6.85	A
POLYETHYLENE GLYCOL	1.0697	3	10.00	A
POLY-I-PARA-MENTHENE	6.8993	3	29.00	A
POTASSIUM PHOSPHITE	18.7571	2	12.00	A
PROPAMOCARB HYDROCHLORIDE	7.3097	2	8.00	A
PROPIONIC ACID	1.5042	3	14.00	A
PROPYZAMIDE	56.7732	20	50.66	A
PYMETROZINE	0.1250	1	2.00	A
PYRACLOSTROBIN	0.4500	2	4.00	A
PYRETHRINS	0.0973	1	2.00	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	0.5840	2	4.00	A
SPINETORAM	3.2440	8	65.00	A
SPINOSAD	5.0485	16	50.05	A
THIRAM	14.5832		5,840.45	P
	2.6108		0.52	T
TOTAL POUNDS OF THIS CHEMICAL 17.1940				
Site Total	1,386.2653	260		
LETTUCE, LEAF				
ABAMECTIN	0.6084	7	54.44	A
ACETAMIPRID	17.5337	19	242.68	A
ACIBENZOLAR-S-METHYL	15.0625	53	507.04	A
ALCOHOLS, C4-C12, NORMAL	4.4209	38	440.71	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	49.3656	69	216.00	A
ALKYL (C8,C10) POLYGLYCOSIDE	2.1786	14	182.71	A
AZADIRACHTIN	2.2426	19	146.12	A
AZOXYSTROBIN	20.2253	8	89.13	A
BACILLUS PUMILUS, STRAIN QST 2808	38.6993	22	331.89	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	32.3121	27	317.46	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	705.0780	78	1,280.70	A
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	15.6600	3	29.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	0.7500	1	10.00	A
BENEFIN	34.2000	6	29.30	A
BENSULIDE	833.9622	32	212.30	A
BOSCALID	596.8542	167	1,469.73	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LETTUCE, LEAF				
CARBARYL	0.7875	1	3.50	A
CHLORANTRANILIPROLE	13.7264	24	211.93	A
CHLOROPICRIN	149.9741	2	17.00	A
COPPER HYDROXIDE	23.2407	9	40.00	A
COTTONSEED OIL	409.6899	48	532.49	A
COUMAFURYL, SODIUM SALT	0.0069	2	27.85	A
CYFLUTHRIN	1.4500	4	38.80	A
BETA-CYFLUTHRIN	6.0512	17	229.40	A
CYPERMETHRIN	1.0867	4	23.50	A
(S)-CYPERMETHRIN	68.4789	156	1,607.73	A
CYPRODINIL	4.4850	4	44.05	A
CYROMAZINE	9.8588	8	83.10	A
DIAZINON	226.3588	35	135.82	A
DICLORAN	619.1004	66	606.84	A
DIMETHOATE	5.1552	2	21.00	A
DIMETHOMORPH	50.0366	218	2,010.32	A
DIMETHYLPOLYSILOXANE	139.9802	116	1,769.23	A
DINOTEFURAN	3.9970	3	30.47	A
EMAMECTIN BENZOATE	0.0469	1	6.00	A
FATTY ACIDS, MIXED	0.0855	2	17.50	A
FATTY ACIDS DERIVED FROM TALLOW	19.7462	69	216.00	A
FENAMIDONE	145.1790	76	561.40	A
FLONICAMID	59.5300	81	756.76	A
FLUBENDIAMIDE	0.7962	2	26.54	A
FLUDIOXONIL	2.9900	4	44.05	A
FOSETYL-AL	1,108.1570	44	454.77	A
GLYPHOSATE, ISOPROPYLAMINE SALT	198.2653	4	115.00	A
IMIDACLOPRID	216.1442	96	888.76	A
INDOXACARB	8.2050	6	110.88	A
IPRODIONE	352.9497	35	393.16	A
ISOPROPYL ALCOHOL	34.6171	103	1,498.50	A
LAMBDA-CYHALOTHRIN	0.1805	1	6.00	A
LECITHIN	131.5629	155	1,342.31	A
MALATHION	218.0734	12	110.70	A
MANDIPROPAMID	25.0250	28	193.53	A
MANEB	3,036.6058	260	2,096.90	A
MEFENOXAM	17.4776	17	119.37	A
MEFENOXAM, OTHER RELATED	0.2556	5	48.37	A
METALAXYL	0.0500	1	0.50	A
METHOXYFENOZIDE	84.0885	76	616.92	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	502.0108	351	3,314.81	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	203.2968	88	832.27	A
OXYFLUORFEN	0.1120	1	0.50	A
PARAQUAT DICHLORIDE	188.1830	9	155.40	A
PERMETHRIN	344.4702	224	1,970.47	A
BETA-PINENE POLYMER	0.9285	1	2.00	A
POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	5.7002	34	281.40	A
POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	11.9353	4	58.00	A
POLYETHYLENE GLYCOL	214.3424	93	1,406.72	A
POLY-I-PARA-MENTHENE	3.9587	4	32.11	A
POLYOXYETHYLENE POLYOXYPROPYLENE	5.4897	2	20.81	A
POLYSILOXANE	0.0871	14	182.71	A
POTASSIUM BICARBONATE	38.4450	5	15.00	A
POTASSIUM HYDROXIDE	31.9281	16	220.37	A
POTASSIUM PHOSPHITE	2,864.0516	146	1,597.23	A
PROPAMOCARB HYDROCHLORIDE	814.4629	95	892.38	A
PROPIONIC ACID	125.4628	155	1,342.31	A
PROPYZAMIDE	2,100.1675	221	1,552.14	A
PYMETROZINE	10.5042	13	122.20	A
PYRACLOSTROBIN	43.1945	31	229.06	A
PYRETHRINS	0.0822	2	14.00	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	412.8836	49	949.99	A
ROTENONE	0.0685	2	14.00	A
ROTENONE, OTHER RELATED	0.0685	2	14.00	A
SETHOXYDIM	3.9394	1	15.00	A
SPINETORAM	47.0048	113	863.49	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
LETTUCE, LEAF					
SPINOSAD		36.7663	48	367.78	A
SPIROMESIFEN		5.4247	5	41.15	A
SPIROTETRAMAT		0.6370	8	80.64	A
SULFURYL FLUORIDE		45.0450	1	13.00	A
THIAMETHOXAM		1.3600	4	21.00	A
THIRAM		36.5668		14,649.90	P
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		26.1434	14	182.71	A
VINYL POLYMER		0.3224	1	2.00	A
Site Total		17,887.6930	3,235		
LIME					
ABAMECTIN		0.0819	2	7.50	A
ACETAMIPRID		0.4813	1	2.00	A
CHLORPYRIFOS		27.0642	3	8.50	A
GLYPHOSATE, ISOPROPYLAMINE SALT		40.2995	1	0.25	A
ISOPROPYL ALCOHOL		0.2174	1	1.00	A
MINERAL OIL		250.1576	1	5.50	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		0.6523	1	1.00	A
Site Total		318.9542	9		
MELON					
ALPHA-PINENE BETA-PINENE COPOLYMER		5.4194	2	30.00	A
AZOXYSTROBIN		0.1871	1	1.00	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		1.0800	1	1.00	A
COPPER HYDROXIDE		1.2000	1	1.00	A
ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		0.2890	2	30.00	A
MANEB		45.0000	2	30.00	A
MEFENOXAM		0.0960	1	1.00	A
MEFENOXAM, OTHER RELATED		0.0040	1	1.00	A
MINERAL OIL		1.5174	2	30.00	A
MYCLOBUTANIL		0.0120	1	1.00	A
POLY-I-PARA-MENTHENE		1.8633	2	4.00	A
Site Total		56.6682	10		
MINT					
AZADIRACHTIN		0.0080	2	0.20	A
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		2.4300	3	3.00	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		17.1947	5	4.50	U
		5.0749	2	1.07	A
TOTAL POUNDS OF THIS CHEMICAL	22.2696				
MALATHION		13.2872	7	8.00	A
METHOXYFENOZIDE		0.4942	3	3.50	A
MYCLOBUTANIL		1.0250	8	10.25	A
PYRETHRINS		0.0998	17	17.00	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		0.7483	3	3.50	A
		0.1095	1	0.50	U
TOTAL POUNDS OF THIS CHEMICAL	0.8578				
ROTENONE		0.0832	17	17.00	A
ROTENONE, OTHER RELATED		0.0832	17	17.00	A
SPINOSAD		0.0082	1	0.07	A
THIAMETHOXAM		0.1172	4	3.75	A
		0.0156	1	0.50	U
TOTAL POUNDS OF THIS CHEMICAL	0.1328				
Site Total		40.7790	57		

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
MIZUNA					
	AZADIRACHTIN	0.1194	2	10.60	A
	(S)-CYPERMETHRIN	0.5891	2	12.80	A
	PYRACLOSTROBIN	0.4750	1	3.80	A
	Site Total	1.1835	5		
MUSHROOM					
	AZADIRACHTIN	3.2755	12	87.00	A
	THIABENDAZOLE	1,473.2476	12	240.60	A
	Site Total	1,476.5231	24		
MUSTARD					
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	230.1532	86	813.84	A
	AZADIRACHTIN	0.1683	3	5.94	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	60.8596	8	97.22	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	5.7323	12	11.21	A
	BENSULIDE	2,219.2060	35	452.93	A
	CHLORANTRANILIPROLE	1.2597	3	26.55	A
	CHLORTHAL-DIMETHYL	1,328.2500	16	208.83	A
	COPPER HYDROXIDE	26.1700	14	35.00	A
	COPPER OXIDE (OUS)	66.0041	8	75.32	A
	CYFLUTHRIN	10.4674	23	213.89	A
	BETA-CYFLUTHRIN	20.2558	59	692.94	A
	CYPERMETHRIN	47.5508	35	514.45	A
	DIATOMACEOUS EARTH	6.5300	3	2.86	A
	DIAZINON	12.1487	12	28.50	A
	DIMETHOATE	11.2004	3	35.00	A
	EMAMECTIN BENZOATE	4.2288	39	493.53	A
	ESFENVALERATE	0.2147	2	4.70	A
	FATTY ACIDS DERIVED FROM TALLOW	92.0613	86	813.84	A
	FLONICAMID	8.3550	10	95.45	A
	IMIDACLOPRID	49.6905	77	764.92	A
	INDOXACARB	32.8707	56	502.05	A
	MALATHION	143.9704	10	63.98	A
	MEFENOXAM	5.2358	12	42.17	A
	MEFENOXAM, OTHER RELATED	0.1540	12	42.17	A
	METHYL SILICONE RESINS	4.0479	1	30.55	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	230.1532	86	813.84	A
	POLY-I-PARA-MENTHENE	9.7446	3	37.32	A
	POTASH SOAP	8.2107	4	2.52	A
	PYMETROZINE	1.1260	1	13.10	A
	PYRACLOSTROBIN	41.0340	36	272.41	A
	PYRETHRINS	0.2627	11	17.93	A
	ROTENONE	0.0548	1	5.60	A
	ROTENONE, OTHER RELATED	0.0548	1	5.60	A
	SPINETORAM	9.7383	25	212.67	A
	SPINOSAD	0.2521	2	4.00	A
	SULFUR	2.4000	1	3.00	A
	Site Total	4,689.8166	607		
N-GRNHS FLOWER					
	ABAMECTIN	2.7744	127	206.52	A
	ACEPHATE	21.9640	22	24.06	A
	ACEQUINOCYL	2.4259	18	12.32	A
	ACETAMIPRID	19.0473	88	163.25	A
	ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE	7.4745	1	0.25	A
	ALPHA-PINENE BETA-PINENE COPOLYMER	0.4262	4	3.10	A
	AZADIRACHTIN	30.3549	321	735.31	A
	AZOXYSTROBIN	11.5900	39	120.78	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	4.4805	19	70.70	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-GRNHS FLOWER					
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	8.6778	12	20.12	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	11.6316	15	42.28	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN HD-1	0.9334	11	15.50	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	17.7375	24	57.40	A
	BEAUVERIA BASSIANA STRAIN GHA	158.7153	153	374.63	A
	BIFENAZATE	7.6101	34	49.59	A
	BIFENTHRIN	2.0573	19	51.06	A
	BUPROFEZIN	10.2901	17	27.10	A
	CAPTAN	3.5758	12	3.88	A
	CAPTAN, OTHER RELATED	0.0804	12	3.88	A
	CHLORFENAPYR	8.2426	54	79.37	A
	CHLOROPICRIN	60.0000	1	10.00	A
	CHLOROTHALONIL	306.0539	105	340.25	A
	CHLORPYRIFOS	19.0188	22	47.20	A
	CITRIC ACID	0.5903	8	9.48	A
	CLETHODIM	0.0646	1	0.25	A
	COCONUT DIETHANOLAMIDE	1.1248	94	186.38	A
	COPPER HYDROXIDE	4.9120	4	8.00	A
	COPPER SULFATE (BASIC)	0.1810	6	7.77	A
	COPPER SULFATE (PENTAHYDRATE)	0.7514	6	4.75	A
	CREOSOTE	0.0371	1	1.00	A
	CYAZOFAMID	0.0026	1	0.10	A
	CYFLUTHRIN	1.5715	45	46.00	A
	CYPRODINIL	0.3900	2	4.14	A
	CYROMAZINE	72.6829	162	473.56	A
	DAMINOZIDE	171.6823	79	31.36	A
	DIATOMACEOUS EARTH	0.9948	1	0.20	A
	DIETHYLENE GLYCOL	1.8011	44	81.23	A
	DIFLUBENZURON	16.2675	60	10.78	A
	DIMETHOATE	2.1677	13	3.25	A
	DIMETHOMORPH	9.8800	34	42.70	A
	DIMETHYLPOLYSILOXANE	141.9672	288	452.58	A
	DINOSEB, TRIETHANOLAMINE SALT	0.3024	1	0.25	A
	DINOTEFURAN	7.0413	25	32.06	A
	DIQUAT DIBROMIDE	28.2571	16	15.81	A
	DIURON	9.9000	5	25.00	A
	DODECYLBENZENE SULFONIC ACID	4.8741	94	186.38	A
	ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.0227	4	3.10	A
	EDTA, TETRASODIUM SALT	0.2999	94	186.38	A
	ETOXAZOLE	0.6090	11	16.18	A
	FATTY ACIDS, MIXED	5.3270	115	193.22	A
	FENAMIDONE	4.4831	7	14.60	A
	FENARIMOL	1.9954	18	24.28	A
	FENHEXAMID	102.8919	93	261.34	A
	FENPYROXIMATE	0.0640	2	1.20	A
	FLONICAMID	13.3819	39	82.79	A
	FLUDIOXONIL	24.1003	135	158.41	A
	TAU-FLUVALINATE	40.4570	73	174.32	A
	FOSETYL-AL	208.9580	92	256.91	A
	GIBBERELLINS	0.0104	1	0.50	A
	GLYPHOSATE, ISOPROPYLAMINE SALT	38.0181	20	25.00	A
	HEPTAMETHYLTRISILOXANE-1,3-PROPANEDIOL ETHER, ETHOXYLATED PROPOXYLATED	0.2019	1	4.01	A
	HEXYTHIAZOX	1.2320	8	25.21	A
		0.0313	1	19,400.00	S
	TOTAL POUNDS OF THIS CHEMICAL 1.2633				
	IPRODIONE	43.6633	68	141.86	A
	IRON PHOSPHATE	1.7555	2	4.03	A
	ISOPROPYL ALCOHOL	5.1371	138	262.38	A
	ISOXABEN	0.3281	2	1.10	A
	KRESOXIM-METHYL	8.6338	64	91.53	A
	LAMBDA-CYHALOTHRIN	2.9554	37	67.02	A
	LECITHIN	130.5879	335	814.10	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-GRNHS FLOWER				
MANCOZEB	52.5415	64	50.29	A
MANEB	43.4255	25	18.13	A
MEFENOXAM	6.8450	102	59.76	A
MEFENOXAM, OTHER RELATED	0.1983	90	44.98	A
METALAXYL	0.0091	1	0.29	A
METALDEHYDE	3.3524	5	6.70	A
METHIOCARB	34.0800	14	43.76	A
METHYL BROMIDE	2,973.5400	17	21.00	A
MINERAL OIL	0.1193	4	3.10	A
MODIFIED PHTHALIC GLYCEROL ALKYD RESIN	96.6897	126	238.37	A
MYCLOBUTANIL	18.5714	82	197.27	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	62.0800	478	1,032.22	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	98.6866	140	247.10	A
NOVALURON	10.2891	45	120.27	A
ALPHA-OCTYLPHENYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.0406	1	2.00	A
ORYZALIN	1.6303	2	1.10	A
PACLOBUTRAZOL	0.0524	10	39.50	A
PERMETHRIN	14.3694	24	72.90	A
PETROLEUM DISTILLATES, REFINED	1,095.0976	46	106.84	A
PHOSPHORIC ACID	0.9820	95	188.38	A
PIPERALIN	94.7113	70	114.50	A
PIPERONYL BUTOXIDE	39.5746	98	119.10	A
PIPERONYL BUTOXIDE, OTHER RELATED	9.8936	98	119.10	A
POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	38.2710	80	96.30	A
POLYOXIN D	2.4055	16	66.40	A
POLYOXYETHYLENE POLYOXYPROPYLENE	24.3031	160	214.08	A
POLY(OXYETHYLENE) POLY(OXYPROPYLENE) GLYCOL MONOALLYL ETHER	0.8077	1	4.01	A
POTASH SOAP	427.0176	29	72.00	A
POTASSIUM BICARBONATE	18.2040	17	52.70	A
PROPICONAZOLE	2.1226	9	30.20	A
PROPIONIC ACID	130.5879	335	814.10	A
PYMETROZINE	45.8879	75	206.08	A
PYRACLOSTROBIN	0.9250	5	17.20	A
PYRETHRINS	5.0141	120	124.73	A
PYRIDABEN	0.3426	1	1.50	A
PYRIPROXYFEN	8.3320	37	97.15	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	63.1128	71	234.90	A
ROTENONE	0.0551	22	5.63	A
ROTENONE, OTHER RELATED	0.0551	22	5.63	A
SILICONE DEFOAMER	0.1275	94	186.38	A
SODIUM XYLENE SULFONATE	1.4997	94	186.38	A
SPINOSAD	55.1982	289	472.58	A
SPIROMESIFEN	3.6317	14	23.89	A
STREPTOMYCES LYDICUS WYEC 108	0.0014	3	15.00	A
STREPTOMYCIN SULFATE	1.4933	4	22.06	A
STRYCHNINE	0.0050	1	1.00	A
SULFUR	68.2400	4	15.00	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)	5.7112	94	186.38	A
TETRAPOTASSIUM PYROPHOSPHATE	0.7499	94	186.38	A
THIAMETHOXAM	1.7717	20	27.60	A
THIOPHANATE-METHYL	62.8958	113	240.34	A
TRIADIMEFON	4.2125	22	38.50	A
TRIETHANOLAMINE	1.9122	94	186.38	A
TRIFLOXYSTROBIN	0.1150	2	3.70	A
TRIFLUMIZOLE	11.5058	27	43.45	A
TRINEXAPAC-ETHYL	0.0035	6	22.00	A
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	4.6927	44	81.23	A
VINCLOZOLIN	3.0000	17	47.00	A
Site Total	7,478.7418	4,820		

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-GRNHS PLANTS IN CONTAINERS						
	ABAMECTIN		0.8422	60	47.72	A
			0.7817	25	2,450,600.00	S
	TOTAL POUNDS OF THIS CHEMICAL	1.6239				
	ACEPHATE		24.2860	28	17.30	A
			20.3210	7	1,081,250.00	S
	TOTAL POUNDS OF THIS CHEMICAL	44.6070				
	ACEQUINOCYL		0.3625	5	400,000.00	S
	ACETAMIPRID		0.6461	5	242,200.00	S
			0.0615	3	4.30	A
	TOTAL POUNDS OF THIS CHEMICAL	0.7076				
	ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE		7.0484	6	344,620.00	S
	ALKYL (68%C12, 32%C14) DIMETHYLETHYLBENZYL AMMONIUM CHLORIDE		7.0484	6	344,620.00	S
	ANCYMIDOL		0.0860	14	39,040.00	S
			0.0128	2	18.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0988				
	AZADIRACHTIN		2.3566	22	2,118,910.00	S
			1.0202	22	27.56	A
	TOTAL POUNDS OF THIS CHEMICAL	3.3768				
	AZOXYSTROBIN		8.1384	28	1,942,720.00	S
			5.3305	26	51.20	A
	TOTAL POUNDS OF THIS CHEMICAL	13.4689				
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		0.0515	2	0.50	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		3.3076	13	4.60	A
			0.2700	1	10,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	3.5776				
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B		1.0460	15	17.75	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		0.2700	1	10,000.00	S
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		0.1880	7	560,000.00	S
	BEAUVERIA BASSIANA STRAIN GHA		8.0627	8	1,447,180.00	S
			0.0350	1	0.04	A
	TOTAL POUNDS OF THIS CHEMICAL	8.0977				
	N6-BENZYL ADENINE		0.0780	1	4.00	A
	BIFENAZATE		17.3904	36	40.98	A
			0.4787	8	438,400.00	S
	TOTAL POUNDS OF THIS CHEMICAL	17.8691				
	BIFENTHRIN		1.1671	9	48.50	A
	BUPROFEZIN		7.6922	6	11.00	A
	BUTYL ALCOHOL		0.0184	1	0.44	A
	CARBARYL		13.6285	18	69.50	A
			3.7718	18	996,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	17.4003				
	CHLORFENAPYR		3.7355	13	831,000.00	S
	CHLORMEQUAT CHLORIDE		30.2816	14	16.75	A
			5.6900	11	166,590.00	S
			0.6266	2	2.00	U
	TOTAL POUNDS OF THIS CHEMICAL	36.5982				
	CHLOROTHALONIL		24.6794	7	8.26	A
			2.4822	7	186,800.00	S
	TOTAL POUNDS OF THIS CHEMICAL	27.1616				
	CHLORPYRIFOS		25.3625	6	30.50	A
			5.7188	3	366,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	31.0813				
	CLETHODIM		3.0685	2	1.52	A
	COPPER HYDROXIDE		1.2430	4	54,060.00	S
			0.8715	1	1.00	A
	TOTAL POUNDS OF THIS CHEMICAL	2.1145				
	COPPER SALTS OF FATTY AND ROSIN ACIDS		2.3692	9	48,050.00	S
			1.9742	2	9.50	A
	TOTAL POUNDS OF THIS CHEMICAL	4.3434				
	COPPER SULFATE (BASIC)		0.9360	14	794,800.00	S

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-GRNHS PLANTS IN CONTAINERS					
COPPER SULFATE (PENTAHYDRATE)		4.7401	9	437,460.00	S
		1.1570	4	5.25	A
TOTAL POUNDS OF THIS CHEMICAL	5.8971				
CYFLUTHRIN		2.4176	11	2,189,630.00	S
		1.2078	14	24.21	A
TOTAL POUNDS OF THIS CHEMICAL	3.6254				
CYROMAZINE		4.6547	10	18.50	A
		0.0623	1	10,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	4.7170				
DAMINOZIDE		212.9781	70	61.55	A
		39.2281	10	279,620.00	S
		1.0625	2	2.00	U
TOTAL POUNDS OF THIS CHEMICAL	253.2687				
DIAZINON		1.0000	1	2.00	A
		0.7813	1	45,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	1.7813				
DIMETHOMORPH		8.6432	20	1,206,890.00	S
		2.5635	5	8.50	A
TOTAL POUNDS OF THIS CHEMICAL	11.2067				
DIMETHYLPOLYSILOXANE		8.9483	7	779,330.00	S
		2.0984	4	10.80	A
TOTAL POUNDS OF THIS CHEMICAL	11.0467				
DINOTEFURAN		16.8400	24	1,033,040.00	S
		15.5445	46	87.96	A
		1.2000	1	11,000.00	U
TOTAL POUNDS OF THIS CHEMICAL	33.5845				
ENCAPSULATED DELTA ENDOTOXIN OF BACILLUS THURINGIENSIS VAR. KURSTAKI IN KILLED PSEUDOMONAS FLUORESCENS		0.4612	8	3.78	A
ETHEPHON		1.0450	3	3.05	A
		0.3592	9	19,260.00	S
TOTAL POUNDS OF THIS CHEMICAL	1.4042				
ETOXAZOLE		0.0063	1	2.00	A
FENARIMOL		0.0234	1	0.44	A
FENBUTATIN-OXIDE		2.5000	1	2.50	A
FENHEXAMID		32.8200	29	60.76	A
		10.1413	24	1,239,150.00	S
TOTAL POUNDS OF THIS CHEMICAL	42.9613				
FENPROPATHRIN		1.7458	2	11.00	A
		0.2190	1	80,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	1.9648				
FENPYROXIMATE		0.8672	7	8.75	A
FLONICAMID		0.8774	24	3.98	A
		0.1313	2	16,187.42	S
TOTAL POUNDS OF THIS CHEMICAL	1.0087				
FLUDIOXONIL		2.6267	13	573,080.00	S
		1.7970	16	47.00	A
TOTAL POUNDS OF THIS CHEMICAL	4.4237				
TAU-FLUVALINATE		2.7793	13	12.48	A
		2.0155	4	313,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	4.7948				
FOSETYL-AL		194.2222	28	1,372,630.00	S
		77.2676	25	54.15	A
TOTAL POUNDS OF THIS CHEMICAL	271.4898				
GIBBERELLINS		0.0780	1	4.00	A
GLUFOSINATE-AMMONIUM		0.0151	36	0.82	A
		0.0038	8	119.74	S
TOTAL POUNDS OF THIS CHEMICAL	0.0189				
GLYPHOSATE, DIAMMONIUM SALT		1.8744	1	4.00	A
GLYPHOSATE, ISOPROPYLAMINE SALT		43.0599	3	14.00	A
		7.0258	1	16,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	50.0857				
HEXYTHIAZOX		0.0625	1	0.54	A
IMIDACLOPRID		1.7074	18	1,437,940.00	S
		0.6472	13	49.22	A
TOTAL POUNDS OF THIS CHEMICAL	2.3546				

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-GRNHS PLANTS IN CONTAINERS					
IPRODIONE		19.5355	36	34.86	A
		4.0702	7	492,500.00	S
TOTAL POUNDS OF THIS CHEMICAL	23.6057				
IRON PHOSPHATE		0.0871	1	0.20	A
KINOPRENE		0.2353	1	0.56	A
(S)-KINOPRENE		12.5817	11	1,182,670.00	S
		0.1169	1	0.19	A
TOTAL POUNDS OF THIS CHEMICAL	12.6986				
LAGENIDIUM GIGANTEUM (CALIFORNIA STRAIN)		0.4190	1	0.20	A
LAMBDA-CYHALOTHRIN		1.5217	12	47.44	A
		0.0327	1	11,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	1.5544				
MALATHION		4.5995	3	3.00	A
		0.0018	2	95.00	S
TOTAL POUNDS OF THIS CHEMICAL	4.6013				
MANCOZEB		13.4029	20	1,055,060.00	S
		2.8800	3	11.75	A
TOTAL POUNDS OF THIS CHEMICAL	16.2829				
MANEB		6.7453	3	4.50	A
MEFENOXAM		7.9580	18	57.25	A
		1.5398	19	864,250.00	S
TOTAL POUNDS OF THIS CHEMICAL	9.4978				
MEFENOXAM, OTHER RELATED		0.0806	11	51.75	A
		0.0506	19	864,250.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.1312				
METALAXYL		0.0944	3	11.25	A
METALDEHYDE		9.1630	9	6.69	A
METHIOCARB		33.7694	19	28.04	A
		0.1875	1	16,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	33.9569				
MINERAL OIL		129.6172	2	11.00	A
MODIFIED PHTHALIC GLYCEROL ALKYD RESIN		5.3530	27	21.77	A
		0.2927	3	41,400.00	S
TOTAL POUNDS OF THIS CHEMICAL	5.6457				
MYCLOBUTANIL		3.0901	11	751,670.00	S
		1.6354	5	13.40	A
TOTAL POUNDS OF THIS CHEMICAL	4.7255				
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		1.9659	10	4.94	A
NOVALURON		0.8352	13	962,600.00	S
		0.4369	3	4.50	A
TOTAL POUNDS OF THIS CHEMICAL	1.2721				
PACLOBUTRAZOL		2.6972	24	386,740.00	S
		0.6864	16	31.53	A
TOTAL POUNDS OF THIS CHEMICAL	3.3836				
PCNB		0.0651	1	400.00	S
PERMETHRIN		11.5977	12	29.50	A
PETROLEUM DISTILLATES, REFINED		247.7242	1	15.00	A
		15.6192	7	275,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	263.3434				
PIPERALIN		3.9737	6	5.50	A
		0.5399	5	400,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	4.5136				
POLYETHER MODIFIED POLYSILOXANE		1.6969	1	130,400.00	S
POLY-I-PARA-MENTHENE		2.5884	5	2.75	A
POLYOXIN D		0.1875	5	6.50	A
		0.0131	2	160,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.2006				
POTASH SOAP		105.5270	38	32.48	A
		17.4697	3	51,600.00	S
TOTAL POUNDS OF THIS CHEMICAL	122.9967				
PRODIAMINE		0.0688	2	4.25	A
PROPICONAZOLE		1.5824	14	22.92	A
		0.2835	9	503,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	1.8659				
PYMETROZINE		10.2513	29	64.44	A
		1.6016	9	551,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	11.8529				

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-GRNHS PLANTS IN CONTAINERS					
PYRACLOSTROBIN		0.8890	7	336,600.00	S
PYRETHRINS		0.0270	1	1.00	A
PYRIDABEN		2.8172	8	398,000.00	S
		0.8438	4	2.95	A
TOTAL POUNDS OF THIS CHEMICAL	3.6610				
PYRIPROXYFEN		0.6764	4	440,000.00	S
		0.1008	3	0.87	A
TOTAL POUNDS OF THIS CHEMICAL	0.7772				
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		1.4246	12	356,130.00	S
SOYBEAN OIL		31.0931	8	640,000.00	S
SPINOSAD		14.5118	49	75.47	A
		3.1147	22	1,234,490.00	S
TOTAL POUNDS OF THIS CHEMICAL	17.6265				
STREPTOMYCIN		7.2080	1	9.00	A
STREPTOMYCIN SULFATE		0.8120	3	7.25	A
SULFUR		11.9552	1	2.00	A
TERRAZOLE		9.8930	10	19.25	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		0.3280	2	0.39	A
ALPHA-[PARA-(1,1,3,3,-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE) PHOSPHATE ESTER		0.1030	1	0.44	A
THIAMETHOXAM		14.5837	14	64.70	A
		0.4375	2	6,330.00	S
TOTAL POUNDS OF THIS CHEMICAL	15.0212				
THIOPHANATE-METHYL		121.5875	12	191,870.00	S
		62.9699	38	62.58	A
TOTAL POUNDS OF THIS CHEMICAL	184.5574				
TRIADIMEFON		0.0781	2	50,000.00	S
		0.0313	1	1.50	A
TOTAL POUNDS OF THIS CHEMICAL	0.1094				
TRICHODERMA HARZIANUM RIFAI STRAIN KRL-AG2		0.8090	10	224,100.00	S
TRIFLOXYSTROBIN		1.9063	15	30.09	A
		0.1094	2	17,400.00	S
TOTAL POUNDS OF THIS CHEMICAL	2.0157				
TRIFLUMIZOLE		6.7208	6	553,000.00	S
		1.0006	1	4.00	A
TOTAL POUNDS OF THIS CHEMICAL	7.7214				
TRIFORINE		1.8233	1	6.00	A
UNICONIZOLE-P		0.0654	10	72,970.00	S
		0.0501	11	12.50	A
TOTAL POUNDS OF THIS CHEMICAL	0.1155				
Site Total		1,940.7875	1,709		
N-GRNHS TRANSPLANTS					
ABAMECTIN		0.0742	5	7.50	A
ACEPHATE		15.8556	31	39.35	A
ACETAMIPRID		0.0438	1	1.00	A
ALCOHOLS, C4-C12, NORMAL		0.0038	1	1.00	A
AZADIRACHTIN		0.1164	11	1.72	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		8.2014	66	80.00	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		23.7600	40	37.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. ISRAELENSIS, SEROTYPE H-14		0.0893	28	2.54	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B		0.1052	3	6.10	A
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		2.1600	3	3.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		1.1438	8	15.25	A
CARBARYL		0.2000	1	0.50	A
CARBON DISULFIDE		0.1578	1	1.00	A
CARBON TETRACHLORIDE		0.7960	1	1.00	A
CHLOROTHALONIL		52.3800	48	48.50	A
COPPER HYDROXIDE		5.6650	8	13.00	A
COTTONSEED OIL		0.8902	2	2.00	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-GRNHS TRANSPLANTS					
CYANURIC ACID		1.2250	1	1.00	A
CYROMAZINE		0.0375	3	0.25	A
2,4-D		0.0369	1	1.00	A
DICAMBA		0.0060	1	1.00	A
DICLORAN		7.8965	4	3.60	A
DIFLUBENZURON		0.0350	3	0.60	A
DIMETHOMORPH		0.0694	7	0.67	A
DIMETHYLPOLYSILOXANE		4.9232	27	39.95	A
DINOTEFURAN		0.0600	3	0.40	A
EDTA, TETRASODIUM SALT		0.0133	1	1.00	A
FATTY ACIDS, MIXED		0.0130	1	0.25	A
FOSETYL-AL		0.1680	5	0.42	A
HYDROGEN PEROXIDE		1.8426	3	1.15	A
IBA		0.0115	1	0.15	A
ISOPROPYL ALCOHOL		4.5492	35	32.00	A
(S)-KINOPRENE		0.0350	2	0.18	A
LINDANE		0.0273	3	3.00	A
MANEB		37.5209	51	47.50	A
MEFENOXAM		0.0918	3	8,100.00	S
		0.0306	1	3.00	A
TOTAL POUNDS OF THIS CHEMICAL	0.1224				
MEFENOXAM, OTHER RELATED		0.0030	3	8,100.00	S
		0.0010	1	3.00	A
TOTAL POUNDS OF THIS CHEMICAL	0.0040				
MYROTHECIUM VERRUCARIA, DRIED FERMENTATION SOLIDS & SOLUBLES, STRAIN AARC-0255		0.5691	2	2.00	A
NAA		0.0057	1	0.15	A
NALED		4.5321	5	6.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		13.4401	36	32.25	A
PERMETHRIN		1.2006	9	9.25	A
PIPERONYL BUTOXIDE		0.1604	1	1.75	A
PIPERONYL BUTOXIDE, OTHER RELATED		0.0401	1	1.75	A
POLY-I-PARA-MENTHENE		37.5577	89	109.25	A
POLYOXYETHYLENE POLYOXYPROPYLENE		1.6411	27	39.95	A
POLYVINYL PYRROLIDONE		0.0098	1	1.00	A
PROPICONAZOLE		1.4053	12	14.00	A
PYRETHRINS		0.0200	1	1.75	A
PYRIPROXYFEN		0.0083	2	0.20	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		0.1685	31	2.86	A
SPINOSAD		0.1306	1	2.00	A
STREPTOMYCIN SULFATE		0.2650	2	2.50	A
SULFUR DIOXIDE		0.0150	1	1.00	A
THIOPHANATE-METHYL		0.7500	3	8,100.00	S
		0.2750	2	3.10	A
TOTAL POUNDS OF THIS CHEMICAL	1.0250				
3,4',5-TRIBROMOSALICYLANILIDE		0.0021	1	1.00	A
TRICHLORO-S-TRIAZINETRIONE		0.6188	1	1.00	A
ZINC NAPHTHENATE		0.2041	1	1.00	A
Site Total		233.2586	571		
N-OUTDR FLOWER					
ABAMECTIN		3.6292	103	455.28	A
ACEPHATE		275.9811	136	511.85	A
ACEQUINOCYL		3.7428	14	22.53	A
ACETAMIPRID		2.7461	37	34.16	A
ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE		0.0021	1	7.00	A
ALKYL (68%C12, 32%C14) DIMETHYLETHYLBENZYL AMMONIUM CHLORIDE		0.0021	1	7.00	A
ALPHA-PINENE BETA-PINENE COPOLYMER		0.3465	6	2.77	A
ALUMINUM PHOSPHIDE		0.1125	2	4.00	A
AMMONIUM SULFATE		0.7461	1	1.50	A
AZADIRACHTIN		2.6236	63	192.92	A
AZOXYSTROBIN		14.4538	112	218.03	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		23.4655	78	503.30	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR FLOWER						
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		38.4318	41	46.77	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		87.8958	42	200.94	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN HD-1		4.9858	34	77.70	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		2.2688	12	31.00	A
	BEAUVERIA BASSIANA STRAIN GHA		8.9212	17	10.01	A
	BIFENAZATE		10.7339	25	92.86	A
	BIFENTHRIN		3.7839	31	36.14	A
	CAPTAN		12.7140	9	14.00	A
	CAPTAN, OTHER RELATED		0.2860	9	14.00	A
	CHLORFENAPYR		2.2778	19	26.13	A
	CHLOROPICRIN		4,575.8253	23	56.08	A
	CHLOROTHALONIL		1,189.1669	220	1,268.55	A
	CHLORPYRIFOS		108.8670	92	298.63	A
	CHLORTHAL-DIMETHYL		39.0000	14	4.67	A
	CITRIC ACID		0.5921	2	3.55	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		53.5617	9	24.50	A
	COCONUT DIETHANOLAMIDE		4.2470	167	1,063.09	A
	COPPER HYDROXIDE		7.0610	10	16.00	A
	COPPER SALTS OF FATTY AND ROSIN ACIDS		22.7850	3	6.25	A
	COPPER SULFATE (PENTAHYDRATE)		26.9479	40	77.75	A
	CYAZOFAMID		0.0033	1	0.25	A
	CYFLUTHRIN		0.6300	28	16.12	A
	CYPRODINIL		0.3075	4	3.23	A
	CYROMAZINE		12.5093	26	173.55	A
	2,4-D, ISOPROPYL ESTER		0.1250	1	1.00	A
	DALAPON, MAGNESIUM SALT		0.1560	1	8.00	A
	DALAPON, SODIUM SALT		0.9340	1	8.00	A
	DAMINOZIDE		3.3575	3	0.81	A
	DAZOMET		185.1300	1	0.75	A
	DEET		0.0390	1	1.00	A
	DIATOMACEOUS EARTH		2.6362	2	0.53	A
	DIAZINON		0.5000	1	0.62	A
	1,3-DICHLOROPROPENE		3,931.5559	13	29.25	A
	DIETHYLENE GLYCOL		1.4553	36	34.79	A
	DIFLUBENZURON		1.2256	6	4.63	A
	DIMETHOATE		5.6688	14	8.49	A
	DIMETHOMORPH		19.9773	56	96.51	A
	DIMETHYLPOLYSILOXANE		141.6067	168	254.13	A
	DINOTEFURAN		5.3305	15	102.04	A
	DIQUAT DIBROMIDE		0.8158	2	2.00	A
	DODECYLBENZENE SULFONIC ACID		18.4038	167	1,063.09	A
	ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		0.0185	6	2.77	A
	EDTA, TETRASODIUM SALT		1.1325	167	1,063.09	A
	ETOXAZOLE		1.6765	12	50.78	A
	FATTY ACIDS, MIXED		8.0792	206	649.59	A
	FENARIMOL		7.7914	67	225.39	A
	FENHEXAMID		61.0569	43	178.76	A
	FLONICAMID		0.2360	5	1.35	A
	FLUDIOXONIL		29.8316	143	458.96	A
	TAU-FLUVALINATE		42.0178	103	460.36	A
	FOSETYL-AL		156.4800	44	201.60	A
	GIBBERELLINS		0.1510	4	6.50	A
	GLYPHOSATE, ISOPROPYLAMINE SALT		72.5690	23	39.50	A
			0.1249	1	2,600.00	S
	TOTAL POUNDS OF THIS CHEMICAL	72.6939				
	GLYPHOSATE, POTASSIUM SALT		2.1960	1	48.10	A
			0.5172	2	200.00	U
	TOTAL POUNDS OF THIS CHEMICAL	2.7132				
	HEXYTHIAZOX		5.3770	18	78.08	A
	HYDROGEN CHLORIDE		0.3896	1	7.00	A
	HYDROGEN PEROXIDE		0.7055	5	9.00	A
	IMIDACLOPRID		1.2156	9	22.00	A
	IPRODIONE		245.0710	140	472.34	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR FLOWER					
	ISOPROPYL ALCOHOL	15.5185	217	1,193.37	A
	KRESOXIM-METHYL	5.5150	35	65.38	A
	LAMBDA-CYHALOTHRIN	2.6730	63	46.53	A
	LECITHIN	142.7457	216	849.40	A
	MALATHION	0.6600	22	4,400.00	S
		0.3724	11	33.00	A
	TOTAL POUNDS OF THIS CHEMICAL 1.0324				
	MANCOZEB	536.7826	212	598.58	A
	MANEB	162.2868	76	67.83	A
	MANGANESE SULFATE	0.0955	1	3.00	A
	MEFENOXAM	18.6936	31	42.03	A
	MEFENOXAM, OTHER RELATED	0.6141	30	41.50	A
	METALAXYL	0.0587	1	1.87	A
	METALDEHYDE	0.9640	4	1.91	A
	METAM-SODIUM	818.4493	5	3.75	A
	METHIOCARB	1.1850	3	0.79	A
	METHYL BROMIDE	5,610.7847	12	28.34	A
	METOLACHLOR	0.5884	1	0.30	A
	MINERAL OIL	0.0970	6	2.77	A
	MODIFIED PHTHALIC GLYCEROL ALKYD RESIN	107.3519	225	273.58	A
	MYCLOBUTANIL	27.4969	95	350.80	A
	NALED	22.5340	18	29.92	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	79.4244	384	1,068.87	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	68.7637	176	172.89	A
	NOVALURON	2.0993	24	55.85	A
	OXADIAZON	26.9663	46	21.06	A
	PCNB	6.9750	11	0.93	A
	PERMETHRIN	42.2622	109	371.20	A
	PETROLEUM DISTILLATES, REFINED	155.1511	18	57.23	A
	PHOSPHORIC ACID	3.9600	169	1,066.59	A
	BETA-PINENE POLYMER	0.2569	1	1.00	A
	PIPERALIN	33.6015	18	51.90	A
	PIPERONYL BUTOXIDE	45.4749	44	335.53	A
	PIPERONYL BUTOXIDE, OTHER RELATED	11.3687	44	335.53	A
	POLYACRYLIC POLYMER	0.0209	1	1.50	A
	POLY-I-PARA-MENTHENE	4.0443	13	15.00	A
	POLYOXIN D	1.3113	14	56.25	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	0.1683	4	4.00	A
	POTASH SOAP	98.5990	19	24.51	A
	POTASSIUM BICARBONATE	37.8758	15	19.73	A
	POTASSIUM N-METHYLDITHIOCARBAMATE	4,025.8562	7	23.50	A
	PROPICONAZOLE	31.6595	124	348.07	A
	PROPIONIC ACID	142.7457	216	849.40	A
	PROPOXUR	0.0750	1	7.00	A
	PYMETROZINE	13.4529	28	129.93	A
	PYRACLOSTROBIN	1.3060	3	4.75	A
	PYRETHRINS	5.8285	65	347.52	A
	PYRIDABEN	1.6942	3	15.85	A
	PYRIPROXYFEN	0.6229	6	17.16	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	35.8826	38	362.20	A
	ROTENONE	0.1175	21	11.99	A
	ROTENONE, OTHER RELATED	0.1175	21	11.99	A
	SILICONE DEFOAMER	0.4813	167	1,063.09	A
	SODIUM BICARBONATE	7.0000	1	7.00	A
	SODIUM XYLENE SULFONATE	5.6627	167	1,063.09	A
	SPINOSAD	27.1533	177	494.21	A
	SPIROMESIFEN	0.6411	4	4.66	A
	STREPTOMYCIN SULFATE	2.3058	5	25.00	A
	SULFUR	2,152.0180	164	709.75	A
	TALL OIL FATTY ACIDS	0.0734	1	1.00	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)	21.5730	167	1,063.09	A
	TETRAPOTASSIUM PYROPHOSPHATE	2.8313	167	1,063.09	A
	THIAMETHOXAM	1.4406	12	30.95	A
	THIOPHANATE-METHYL	214.4839	179	706.74	A
	TRIADIMEFON	5.8532	23	97.00	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR FLOWER					
TRICHLOROACETIC ACID, SODIUM SALT		0.6120	1	8.00	A
TRIETHANOLAMINE		7.2199	167	1,063.09	A
TRIFLOXYSTROBIN		3.7157	9	33.50	A
TRIFLUMIZOLE		13.6954	29	46.58	A
TRINEXAPAC-ETHYL		0.0010	1	12.00	A
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		3.7919	36	34.79	A
ZINC SULFATE		0.0123	1	3.00	A
UNKNOWN			1	3.00	A
Site Total		26,320.9240	4,796		
N-OUTDR PLANTS IN CONTAINERS					
ABAMECTIN		4.7273	187	287.92	A
ACEPHATE		332.4438	164	496.25	A
		24.1247	3	4,500.00	U
TOTAL POUNDS OF THIS CHEMICAL	356.5685				
ACEQUINOCYL		8.7657	4	1.50	A
ACETAMIPRID		85.3479	103	1,170.84	A
ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE		0.4541	1	1.75	A
ALKYL (68%C12, 32%C14) DIMETHYLETHYLBENZYL AMMONIUM CHLORIDE		0.4541	1	1.75	A
ALPHA-ALKYL (C8-C18)-OMEGA-HYDROXYPOLY(OXYETHYLENE) POLY(OXYPROPYLENE)		0.1580	1	0.40	A
ALKYL (C8,C10) POLYGLYCOSIDE		0.1685	9	34.50	A
ALLETHRIN		0.0019	1	30.00	A
ALLETHRIN, OTHER RELATED		0.0002	1	30.00	A
ALLIDOCHLOR		3.2015	1	2.00	A
ALUMINUM PHOSPHIDE		0.4125	1	4.00	A
		0.0199	1	1.00	U
TOTAL POUNDS OF THIS CHEMICAL	0.4324				
AMMONIUM SULFATE		15.0362	45	15.80	A
ANCYMIDOL		0.0137	1	0.25	A
AZADIRACHTIN		2.0200	43	34.00	A
AZOXYSTROBIN		24.1304	135	120.23	A
BACILLUS PUMILUS, STRAIN QST 2808		0.1275	3	1.75	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		10.7120	13	104.00	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		22.5113	29	39.50	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		2.4703	11	10.00	A
BEAUVERIA BASSIANA STRAIN GHA		5.6274	14	6.25	A
N6-BENZYL ADENINE		0.0868	1	0.25	A
BIFENAZATE		16.5762	27	71.44	A
BIFENTHRIN		13.5612	39	702.20	A
		0.5528	6	6,432.00	U
TOTAL POUNDS OF THIS CHEMICAL	14.1140				
BROMADIOLONE		0.0000	1	10.00	U
CALCIUM HYDROXIDE		0.5750	1	0.62	A
CAPSICUM OLEORESIN		0.0036	1	0.08	A
CARBARYL		29.9434	42	43.97	A
		0.0269	1	125.00	U
TOTAL POUNDS OF THIS CHEMICAL	29.9703				
CHLORMEQUAT CHLORIDE		0.8751	4	1.00	A
CHLOROPICRIN		272.2500	1	3.00	A
CHLOROTHALONIL		650.5399	208	400.96	A
CHLORPYRIFOS		44.9720	68	70.95	A
CITRIC ACID		0.8428	47	16.07	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		1.5672	16	7.50	A
CLETHODIM		10.8527	1	0.28	A
COCONUT DIETHANOLAMIDE		7.9215	300	325.02	A
COPPER HYDROXIDE		475.6843	152	412.84	A
COPPER SALTS OF FATTY AND ROSIN ACIDS		146.2156	32	20.77	A
COPPER SULFATE (BASIC)		0.1560	1	0.50	A
COPPER SULFATE (PENTAHYDRATE)		43.4271	54	60.68	A
COTTONSEED OIL		4.4688	1	11.50	A
CRYOLITE		32.6400	3	3.00	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR PLANTS IN CONTAINERS						
	CYFLUTHRIN		4.4410	52	277.65	A
	BETA-CYFLUTHRIN		0.1671	22	6.38	A
	CYROMAZINE		0.1247	1	1.00	A
	DAMINOZIDE		92.4906	26	8.25	A
	DELTAMETHRIN		0.3491	11	5.61	A
	DIAZINON		30.8698	22	13.89	A
	DICAMBA		0.4235	2	4.50	A
	DIMETHOMORPH		9.1250	12	14.65	A
	DIMETHYLPOLYSILOXANE		258.7453	274	2,006.70	A
	DINOSEB		0.5383	1	1.00	A
	DINOTEFURAN		50.3067	121	88.20	A
	DIQUAT DIBROMIDE		26.5700	5	52.00	A
	DODECYLBENZENE SULFONIC ACID		34.3267	300	325.02	A
	DODECYL GUANIDINE HYDROCHLORIDE		0.8908	2	2.50	A
	EDTA, SODIUM SALT		0.1456	113	44.26	A
	EDTA, TETRASODIUM SALT		2.1124	300	325.02	A
	ENCAPSULATED DELTA ENDOTOXIN OF BACILLUS THURINGIENSIS VAR. KURSTAKI IN KILLED PSEUDOMONAS FLUORESCENS		0.5248	1	0.07	A
	ETHEPHON		8.8552	19	5.50	A
			0.9676	2	190.00	U
	TOTAL POUNDS OF THIS CHEMICAL	9.8228				
	ETHYLENE OXIDE		2.5478	1	12,000.00	U
	ETOXAZOLE		4.0619	15	67.78	A
	FATTY ACIDS, MIXED		10.1217	331	237.65	A
	FENARIMOL		1.6765	18	30.50	A
	FENHEXAMID		2.7188	6	7.25	A
	FENPROPATHRIN		52.0336	111	331.46	A
			1.0557	9	9,000.00	S
			0.0489	1	80.00	U
	TOTAL POUNDS OF THIS CHEMICAL	53.1382				
	FLUDIOXONIL		21.5063	56	280.57	A
	FLUMIOXAZIN		2.6439	60	7.61	A
	TAU-FLUVALINATE		62.7649	96	339.77	A
	FOSETYL-AL		294.9699	76	96.63	A
	GLYPHOSATE, ISOPROPYLAMINE SALT		6,570.8472	1,037	2,901.09	A
			4.4740	5	5,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	6,575.3212				
	GLYPHOSATE, MONOAMMONIUM SALT		1.3388	1	30.00	A
	GLYPHOSATE, POTASSIUM SALT		742.6417	21	513.50	A
	HALOSULFURON-METHYL		0.3093	11	6.63	A
	HEXAHYDRO-1,3,5-TRIS (2-HYDROXYETHYL)-S-TRIAZINE		98.4388	1	13.00	A
	HEXYTHIAZOX		3.0860	16	46.50	A
	HYDROGEN PEROXIDE		27.8450	6	0.41	A
	IBA		0.0136	2	1,428.00	U
			0.0078	6	0.74	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0214				
	IMIDACLOPRID		42.9626	282	1,684.98	A
			0.1530	14	4,803.00	U
			0.0019	2	2,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	43.1175				
	IPRODIONE		141.9580	89	86.50	A
	IRON PHOSPHATE		31.8837	31	1,171.41	A
	ISOPROPYL ALCOHOL		24.3948	421	426.48	A
	ISOXABEN		111.6675	128	337.76	A
			0.8150	17	117,300.00	U
	TOTAL POUNDS OF THIS CHEMICAL	112.4825				
	(S)-KINOPRENE		9.3057	12	38.31	A
	LECITHIN		247.0030	346	317.89	A
	LIME-SULFUR		5.1813	4	4.30	A
	MALATHION		348.7326	80	335.70	A
	MALIC ACID		0.0006	2	0.27	A
	MANCOZEB		196.7375	122	199.01	A
	MCPA, ISOOCTYL ESTER		6.6037	2	4.50	A
	MEFENOXAM		41.2628	328	852.00	A
	MEFENOXAM, OTHER RELATED		1.2276	283	796.25	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR PLANTS IN CONTAINERS						
	METALDEHYDE		171.1081	33	90.10	A
			3.2625	10	54,000.00	U
	TOTAL POUNDS OF THIS CHEMICAL	174.3706				
	METALLIC SILVER		0.3125	1	3.00	A
	METHIOCARB		84.7225	50	59.97	A
			0.7500	2	650.00	U
	TOTAL POUNDS OF THIS CHEMICAL	85.4725				
	METHOXYFENOZIDE		10.5896	14	88.50	A
	METHYL BROMIDE		552.7500	1	3.00	A
	METHYLENE BIS(THIOCYANATE)		0.4454	2	2.50	A
	MINERAL OIL		2,284.2043	60	213.37	A
	MODIFIED PHTHALIC GLYCEROL ALKYD RESIN		22.3003	126	111.21	A
	MYCLOBUTANIL		25.5089	75	164.93	A
	NAA		0.0068	2	1,428.00	U
			0.0000	3	0.65	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0068				
	NAA, ETHYL ESTER		0.2700	1	3.00	A
	NALED		1.0071	1	1.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		88.5160	345	340.59	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		456.2677	75	723.68	A
	NOVALURON		0.5018	8	11.00	A
	N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE		0.0158	2	30.02	A
	ALPHA-OCTYLPHENYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		0.0019	2	0.27	A
	OIL OF JOJOBA		2.6284	1	0.50	A
	OLEIC ACID, METHYL ESTER		2.9290	1	1.50	A
	ORYZALIN		76.5071	5	29.00	A
			0.7524	1	1,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	77.2595				
	OXADIAZON		6.7070	23	2.81	A
	OXYFLUORFEN		176.0265	43	558.49	A
	PACLOBUTRAZOL		0.3210	17	13.00	A
	PCNB		0.0938	1	0.30	A
	PENDIMETHALIN		217.0079	70	151.50	A
	PERMETHRIN		98.3122	275	476.43	A
			0.0001	1	140.00	U
	TOTAL POUNDS OF THIS CHEMICAL	98.3123				
	PETROLEUM DISTILLATES		0.0001	1	30.00	A
	PETROLEUM DISTILLATES, AROMATIC		0.4891	2	32.00	A
	PETROLEUM DISTILLATES, REFINED		990.9245	34	149.00	A
	PETROLEUM OIL, UNCLASSIFIED		750.7467	24	35.90	A
			0.1897	2	2,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	750.9364				
	PHOSPHORIC ACID		25.2254	416	1,060.82	A
	PIPERALIN		0.2483	1	1.50	A
	PIPERONYL BUTOXIDE		17.1917	23	7.04	A
			0.0002	1	140.00	U
	TOTAL POUNDS OF THIS CHEMICAL	17.1919				
	POLYACRYLIC POLYMER		0.4211	45	15.80	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER		7.2246	3	90.20	A
	POLYOXIN D		0.8605	6	8.00	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		83.4809	202	1,196.77	A
	POLYSILOXANE		0.0067	9	34.50	A
	POTASH SOAP		246.7734	19	10.99	A
	POTASSIUM HYDROXIDE		0.1975	9	34.50	A
	POTASSIUM PHOSPHITE		191.6354	14	109.75	A
	PRODIAMINE		716.7951	140	1,047.29	A
	PROPICONAZOLE		13.2543	75	120.98	A
	PROPIONIC ACID		368.3246	415	1,037.62	A
	PROPYLENE GLYCOL		11.6714	3	90.20	A
	PYMETROZINE		0.3126	3	4.00	A
	PYRETHRINS		1.7193	23	7.04	A
	PYRIPROXYFEN		0.2320	3	1.14	A
	SILICONE DEFOAMER		0.8978	300	325.02	A
	SODIUM XYLENE SULFONATE		10.5621	300	325.02	A
	SPINOSAD		72.3935	191	451.75	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR PLANTS IN CONTAINERS					
STARCH		0.0282	2	79.20	A
STREPTOMYCIN SULFATE		8.2270	22	20.76	A
		0.4480	1	1,000.00	U
TOTAL POUNDS OF THIS CHEMICAL	8.6750				
STRYCHNINE		0.0525	3	15.00	A
STYRENE BUTADIENE COPOLYMER		14.8130	3	79.60	A
SULFUR		233.8094	52	150.50	A
TALL OIL FATTY ACIDS		0.6276	1	1.50	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		60.0922	416	370.77	A
ALPHA-[PARA-(1,1,3,3,-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE) PHOSPHATE ESTER		0.0006	2	0.27	A
TETRAPOTASSIUM PYROPHOSPHATE		5.2810	300	325.02	A
THIOPHANATE-METHYL		444.6906	298	353.89	A
TRIADIMEFON		5.4409	35	14.26	A
TRICHODERMA HARZIANUM RIFAI STRAIN KRL-AG2		0.0216	1	2.00	A
TRICLOPYR, BUTOXYETHYL ESTER		0.8479	3	5.00	A
TRIETHANOLAMINE		13.4666	300	325.02	A
TRIFLOXYSTROBIN		2.4063	4	39.00	A
		0.1250	1	2,400.00	U
TOTAL POUNDS OF THIS CHEMICAL	2.5313				
TRIFLURALIN		249.4200	41	266.88	A
		3.2600	17	117,300.00	U
TOTAL POUNDS OF THIS CHEMICAL	252.6800				
ALPHA-2,6,8-TRIMETHYL-4-NONYLOXY-OMEGA-HYDROXYPOLY(OXYETHYLENE)		10.4737	3	90.20	A
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)		2.6499	10	36.00	A
ZINC SULFATE		0.0015	2	0.27	A
Site Total		20,785.4740	6,983		
N-OUTDR TRANSPLANTS					
ABAMECTIN		0.7224	25	45.06	A
		0.0099	1	20,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.7323				
ACEPHATE		32.7047	41	52.56	A
		4.5588	4	205,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	37.2635				
ACETAMIPRID		0.3025	3	3.50	A
		0.1500	2	24,290.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.4525				
ALCOHOLS, C4-C12, NORMAL		0.0038	1	1.00	A
ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE		0.7765	1	40,000.00	S
ALKYL (68%C12, 32%C14) DIMETHYLETHYLBENZYL AMMONIUM CHLORIDE		0.7765	1	40,000.00	S
AZADIRACHTIN		0.0668	4	2.35	A
AZOXYSTROBIN		15.2770	23	82.95	A
		1.3845	9	253,450.00	S
TOTAL POUNDS OF THIS CHEMICAL	16.6615				
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		0.0773	1	1.50	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		0.2700	1	10,000.00	S
BACILLUS THURINGIENSIS (BERLINER), SUBSP. ISRAELENSIS, SEROTYPE H-14		0.0530	1	1.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B		1.2970	17	25.50	A
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		10.0575	13	14.50	A
BIFENAZATE		0.0935	1	0.75	A
BUPROFEZIN		0.6563	2	3.75	A
CARBARYL		2.5687	2	5.25	A
CHLORMEQUAT CHLORIDE		6.5796	6	5.25	A
CHLOROTHALONIL		55.5368	52	73.98	A
CHLORPYRIFOS		6.2501	3	10.00	A
COCONUT DIETHANOLAMIDE		2.4365	2	130.00	A
COPPER HYDROXIDE		23.0711	25	47.70	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR TRANSPLANTS					
COPPER SALTS OF FATTY AND ROSIN ACIDS		0.0000	1	0.50	A
COPPER SULFATE (BASIC)		0.0780	1	1.00	A
COPPER SULFATE (PENTAHYDRATE)		2.6032	29	26.14	A
COTTONSEED OIL		0.3334	1	1.00	A
CYANURIC ACID		0.4288	1	0.20	A
CYFLUTHRIN		0.1544	3	130,000.00	S
CYROMAZINE		0.2192	1	1.75	A
DAMINOZIDE		40.9063	14	10.25	A
		1.4377	4	9,460.00	S
TOTAL POUNDS OF THIS CHEMICAL	42.3440				
DELTAMETHRIN		0.2604	1	5.00	A
DIMETHOMORPH		2.0313	9	11.41	A
		1.0041	6	80,440.00	S
TOTAL POUNDS OF THIS CHEMICAL	3.0354				
DIMETHYLPOLYSILOXANE		4.3009	28	34.90	A
		1.2965	3	87,860.00	S
TOTAL POUNDS OF THIS CHEMICAL	5.5974				
DINOTEFURAN		1.6000	4	8.50	A
8-DODECENE-1-OL, OTHER RELATED		0.0138	1	0.60	A
DODECYLBENZENE SULFONIC ACID		10.5583	2	130.00	A
EDTA, TETRASODIUM SALT		0.6497	2	130.00	A
ETOXAZOLE		0.4250	2	5.00	A
FENHEXAMID		4.6094	7	11.16	A
		0.1250	1	5,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	4.7344				
FENOXYCARB		0.0013	1	2.00	A
FENPROPATHRIN		1.4205	2	10.00	A
FLUDIOXONIL		1.1250	9	20.00	A
		0.5938	4	105,800.00	S
TOTAL POUNDS OF THIS CHEMICAL	1.7188				
FLUMIOXAZIN		3.7500	1	10.00	A
TAU-FLUVALINATE		1.3979	17	22.51	A
FOSETYL-AL		134.3626	18	47.25	A
		31.2500	8	124,060.00	S
TOTAL POUNDS OF THIS CHEMICAL	165.6126				
GLYPHOSATE, ISOPROPYLAMINE SALT		663.8200	6	79.00	A
(Z,E)-7,11-HEXADECADIEN-1-YL ACETATE		0.1575	1	0.60	A
HYDROGEN PEROXIDE		2.1180	4	2.75	A
IMIDACLOPRID		0.6394	4	12.25	A
		0.1459	4	110,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.7853				
IPRODIONE		30.0229	5	28.25	A
ISOPROPYL ALCOHOL		3.2162	2	130.00	A
ISOXABEN		86.2500	6	115.00	A
LAMBDA-CYHALOTHRIN		0.0784	1	6.00	A
LIME-SULFUR		1.1496	2	4.00	A
MANCOZEB		21.0891	16	20.52	A
		7.0313	6	160,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	28.1204				
MANEB		7.5586	9	8.10	A
MEFENOXAM		19.6487	51	116.58	A
		0.4762	7	45,060.00	S
TOTAL POUNDS OF THIS CHEMICAL	20.1249				
MEFENOXAM, OTHER RELATED		0.0880	4	11.00	A
		0.0157	7	45,060.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.1037				
METALAXYL		0.1176	4	7.50	A
METALDEHYDE		45.0000	2	30.00	A
MINERAL OIL		110.2186	1	10.00	A
MYCLOBUTANIL		0.7979	9	8.50	A
		0.4420	8	87,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	1.2399				
NALED		2.5178	3	3.00	A
NONANOIC ACID		91.8757	2	7.00	A
NONANOIC ACID, OTHER RELATED		4.8356	2	7.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		0.0213	1	1.00	A
NOVALURON		0.0515	1	10,000.00	S

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
N-OUTDR TRANSPLANTS					
ORYZALIN		0.5016	1	1.00	A
PACLOBUTRAZOL		0.9262	15	288,180.00	S
		0.2381	18	8.78	A
TOTAL POUNDS OF THIS CHEMICAL	1.1643				
PCNB		42.9516	6	265,199.99	S
		5.4666	1	1.50	A
TOTAL POUNDS OF THIS CHEMICAL	48.4182				
PERMETHRIN		1.0791	7	8.95	A
PETROLEUM DISTILLATES, REFINED		9.5723	5	3.10	A
PHOSPHORIC ACID		2.0792	2	130.00	A
PIPERONYL BUTOXIDE		0.4354	2	4.75	A
PIPERONYL BUTOXIDE, OTHER RELATED		0.1088	2	4.75	A
POLYETHER MODIFIED POLYSILOXANE		0.1952	1	15,000.00	S
POLYOXYETHYLENE POLYOXYPROPYLENE		1.4336	28	34.90	A
POTASH SOAP		2.5701	9	12.00	A
POTASSIUM BICARBONATE		0.8200	1	20,000.00	S
PRODIAMINE		19.5067	2	30.00	A
		0.0195	1	1,200.00	S
TOTAL POUNDS OF THIS CHEMICAL	19.5262				
PROPICONAZOLE		11.6630	18	94.15	A
		0.0507	1	20,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	11.7137				
PYMETROZINE		4.6875	2	15.00	A
		1.5156	5	185,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	6.2031				
PYRETHRINS		0.0544	2	4.75	A
PYRIDABEN		0.2344	1	1.25	A
PYRIPROXYFEN		0.3496	4	180,000.00	S
SILICONE DEFOAMER		0.2761	2	130.00	A
SODIUM XYLENE SULFONATE		3.2487	2	130.00	A
SPINOSAD		1.7334	12	21.85	A
		0.7728	2	90,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	2.5062				
STREPTOMYCIN SULFATE		1.1395	7	8.75	A
TERRAZOLE		0.4594	2	3.00	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		12.3775	2	130.00	A
TETRAPOTASSIUM PYROPHOSPHATE		1.6244	2	130.00	A
THIAMETHOXAM		5.0000	1	20.00	A
THIOPHANATE-METHYL		37.9779	15	45.24	A
		25.3000	8	54,400.00	S
TOTAL POUNDS OF THIS CHEMICAL	63.2779				
TRIADIMEFON		0.4219	3	3.75	A
		0.0396	2	25,300.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.4615				
TRIETHANOLAMINE		4.1421	2	130.00	A
TRIFLOXYSTROBIN		0.6563	6	10.50	A
TRIFLURALIN		165.0000	4	55.00	A
Site Total		1,878.6296	725		
OAT					
BROMOXYNIL HEPTANOATE		78.6540	2	222.00	A
BROMOXYNIL OCTANOATE		81.5671	2	222.00	A
2,4-D, DIMETHYLAMINE SALT		104.0888	1	185.00	A
FATTY ACIDS, MIXED		3.7187	1	115.00	A
GLYPHOSATE, POTASSIUM SALT		320.0609	2	123.00	A
ISOPROPYL ALCOHOL		0.7617	1	8.00	A
LECITHIN		86.7708	1	115.00	A
MCPA, DIMETHYLAMINE SALT		104.8099	1	185.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY(OXYETHYLENE)		23.7187	2	123.00	A
PROPIONIC ACID		86.7708	1	115.00	A
TALL OIL		0.2004	1	8.00	A
Site Total		891.1218	8		

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
OAT (FORAGE - FODDER)					
CHLORSULFURON		1.0210	2	66.00	A
2,4-D, DIMETHYLAMINE SALT		8.1764	1	11.00	A
DICAMBA, DIMETHYLAMINE SALT		6.4502	2	66.00	A
ISOPROPYL ALCOHOL		16.3085	2	66.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		48.9254	2	66.00	A
Site Total		80.8815	7		
OKRA					
THIRAM		72.0435		38,423.68	P
Site Total		72.0435			
OLIVE					
GLYPHOSATE, POTASSIUM SALT		46.3404	3	23.00	A
PYRETHRINS		0.0942	1	7.00	A
SIMAZINE		21.6000	1	10.00	A
SPINOSAD		0.0425	31	147.00	A
Site Total		68.0771	36		
ONION, DRY					
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		139.9763	13	586.00	A
AZOXYSTROBIN		0.1123		4,511.77	P
		0.0140		0.27	T
TOTAL POUNDS OF THIS CHEMICAL	0.1263				
BROMOXYNIL OCTANOATE		10.7489	2	54.00	A
CARBOXIN		338.4003		3,505.25	P
		25.4940		1.75	T
TOTAL POUNDS OF THIS CHEMICAL	363.8943				
CHLOROTHALONIL		386.6400	7	268.50	A
CHLORPYRIFOS		156.4950	4	175.00	A
CYROMAZINE		1,795.8375		2,682.41	P
		138.8925		1.39	T
TOTAL POUNDS OF THIS CHEMICAL	1,934.7300				
FATTY ACIDS DERIVED FROM TALLOW		55.9905	13	586.00	A
FLUDIOXONIL		0.3554		10,552.72	P
		0.1294		2.62	T
TOTAL POUNDS OF THIS CHEMICAL	0.4848				
LAMBDA-CYHALOTHRIN		5.0250	4	175.00	A
MANCOZEB		428.8000	6	268.00	A
MEFENOXAM		49.7305	12	756.94	A
		1.1147		10,206.00	P
		0.1353		0.90	T
TOTAL POUNDS OF THIS CHEMICAL	50.9805				
MEFENOXAM, OTHER RELATED		1.2065	12	756.94	A
		0.0345		10,206.00	P
		0.0042		0.90	T
TOTAL POUNDS OF THIS CHEMICAL	1.2452				
METALAXYL		0.0900	1	0.50	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		139.9763	13	586.00	A
OXAMYL		248.9004	6	250.00	A
OXYFLUORFEN		30.8884	5	134.50	A
PENDIMETHALIN		5.3030	1	20.00	A
SPINETORAM		10.2594	5	218.00	A
THIRAM		1,132.6469		306,817.28	P
		81.5294		12.16	T
TOTAL POUNDS OF THIS CHEMICAL	1,214.1763				
Site Total		5,184.7306	53		
ONION, GREEN					
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		13.2840	4	24.60	A
CHLOROTHALONIL		388.4318	39	202.90	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
ONION, GREEN					
CHLORTHAL-DIMETHYL		173.2500	11	23.00	A
CYPERMETHRIN		23.2438	48	213.80	A
(S)-CYPERMETHRIN		0.4103	4	12.30	A
CYROMAZINE		1.5300	4	12.30	A
DIAZINON		95.4937	10	41.00	A
DIMETHOMORPH		0.1917	2	8.15	A
DIMETHYLPOLYSILOXANE		1.5512	9	45.60	A
FENAMIDONE		15.4372	18	93.00	A
ISOPROPYL ALCOHOL		3.6870	8	44.60	A
MANDIPROPAMID		0.7914	1	6.15	A
MANEB		458.0864	57	250.10	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		17.5799	8	44.60	A
PARAQUAT DICHLORIDE		30.1223	3	29.00	A
PERMETHRIN		0.8787	2	6.00	A
POLYETHYLENE GLYCOL		4.7992	7	30.60	A
POLYOXYETHYLENE POLYOXYPROPYLENE		0.5048	2	15.00	A
SPINETORAM		5.4907	25	118.65	A
SPINOSAD		0.1224	1	1.25	A
Site Total		1,234.8865	239		
ORANGE					
ABAMECTIN		0.4973	6	174.79	A
ACETAMIPRID		42.8712	41	609.49	A
BROMACIL		76.0000	12	150.64	A
CALCIUM HYDROXIDE		85.0000	1	13.00	A
CHLOROPHACINONE		0.0013	8	145.00	A
CHLORPYRIFOS		401.3017	51	293.15	A
COCONUT DIETHANOLAMIDE		0.0246	2	4.00	A
COPPER SULFATE (BASIC)		9.9000	2	15.00	A
2,4-D, DIMETHYLAMINE SALT		19.1378	17	1,952.06	A
DIMETHYLPOLYSILOXANE		17.3728	2	24.00	A
DIPHACINONE		0.0085	4	149.00	A
		0.0009	4	2,400.00	S
TOTAL POUNDS OF THIS CHEMICAL	0.0094				
DIURON		385.3331	26	281.64	A
DODECYLBENZENE SULFONIC ACID		0.1066	2	4.00	A
EDTA, TETRASODIUM SALT		0.0066	2	4.00	A
ENDOSULFAN		0.0625	1	2.00	A
FATTY ACIDS, MIXED		6.0305	39	3,552.57	A
FENPYROXIMATE		0.1205	1	1.00	A
FOSETYL-AL		8.0000	1	2.00	A
GIBBERELLINS		1.1214	2	41.92	A
GLYPHOSATE, ISOPROPYLAMINE SALT		4,036.0710	446	8,286.00	A
GLYPHOSATE, POTASSIUM SALT		4,088.4535	414	2,184.07	A
IMIDACLOPRID		74.7222	18	235.30	A
ISOPROPYL ALCOHOL		0.8704	4	8.00	A
MALATHION		0.0781	1	5.00	A
METALDEHYDE		373.5102	85	1,669.04	A
METHIOCARB		5.0300	6	29.00	A
MINERAL OIL		5,950.7402	11	317.58	A
		0.4679	1	1.00	U
TOTAL POUNDS OF THIS CHEMICAL	5,951.2081				
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		36.2680	41	3,556.57	A
NORFLURAZON		123.0090	14	1,496.48	A
ORYZALIN		59.9953	1	15.00	A
PARAQUAT DICHLORIDE		3.2813	2	12.50	A
PETROLEUM OIL, UNCLASSIFIED		1,229.5668	9	80.84	A
PHOSMET		115.0000	1	115.00	A
PHOSPHORIC ACID		0.0210	2	4.00	A
PIPERONYL BUTOXIDE		7.0288	2	27.30	A
PIPERONYL BUTOXIDE, OTHER RELATED		1.7572	2	27.30	A
POLYACRYLAMIDE POLYMER		0.0414	4	459.16	A
POLYETHYLENE GLYCOL		2.6514	1	2.00	A
POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER		0.0426	2	0.65	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
ORANGE					
	POLYOXYETHYLENE POLYOXYPROPYLENE	5.7842	1	22.00	A
	PYRETHRINS	1.0368	3	31.30	A
	PYRIPROXYFEN	5.5862	2	52.00	A
	SILICONE DEFOAMER	0.0028	2	4.00	A
	SIMAZINE	534.8983	46	3,614.62	A
	SODIUM TETRATHIOCARBONATE	673.2705	2	16.00	A
	SODIUM XYLENE SULFONATE	0.0328	2	4.00	A
	SPINOSAD	7.4657	7	74.54	A
	STRYCHNINE	0.2409	9	194.50	A
	SULFAQUINOXALINE	0.0015	1	640.00	S
	SULFUR	336.0000	1	21.00	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.1250	2	4.00	A
	TETRAPOTASSIUM PYROPHOSPHATE	0.0164	2	4.00	A
	TRIETHANOLAMINE	0.0418	2	4.00	A
	WARFARIN	0.0015	1	640.00	S
	ZINC PHOSPHIDE	0.0139	5	6.05	A
	Site Total	18,726.0219	1,294		
ORCHARD FLOOR					
	ALUMINUM PHOSPHIDE	0.4538	2	8.00	A
	STRYCHNINE	0.0330	1	7.00	A
	Site Total	0.4868	3		
OREGANO					
	IMIDACLOPRID	0.0025	1	0.06	A
	Site Total	0.0025	1		
PARSLEY					
	ACETAMIPRID	1.0430	1	14.00	A
	AZADIRACHTIN	2.2738	2	80.50	A
	AZOXYSTROBIN	78.8865	67	484.45	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	204.3900	20	372.50	A
	BENSULIDE	47.5910	1	12.00	A
	N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL) ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS	0.8547	1	6.00	A
	COPPER HYDROXIDE	243.0621	36	333.50	A
	(S)-CYPERMETHRIN	0.9920	1	20.00	A
	CYPRODINIL	3.6563	2	12.00	A
	DIAZINON	39.6330	14	81.00	A
	DIMETHYLPOLYSILOXANE	11.1568	38	788.00	A
	DINOTEFURAN	2.2330	1	17.00	A
	FATTY ACIDS, METHYL ESTERS	3.1910	1	6.00	A
	FLONICAMID	22.5950	17	263.00	A
	FLUDIOXONIL	2.4375	2	12.00	A
	IMIDACLOPRID	23.3888	88	503.65	A
	ISOPROPYL ALCOHOL	19.3972	37	773.00	A
	LECITHIN	1.3215	2	14.00	A
	MALATHION	20.8580	13	26.00	A
	METHOXYFENOZIDE	11.8603	4	72.00	A
	4-NONYLPHENOL, FORMALDEHYDE RESIN, PROPOXYLATED	1.0827	1	6.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	219.9541	39	787.00	A
	PERMETHRIN	25.2958	7	128.00	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	1.0215	6	45.50	A
	POLYBUTENES	0.5698	1	6.00	A
	POLYETHYLENE GLYCOL	118.8110	35	762.00	A
	POTASSIUM BICARBONATE	1,145.1300	22	465.50	A
	PROMETRYN	189.8673	37	124.75	A
	PROPIONIC ACID	1.3215	2	14.00	A
	PYRACLOSTROBIN	63.3000	17	318.00	A
	PYRETHRINS	0.0413	1	7.00	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	95.9220	10	219.00	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
PARSLEY					
	ROTENONE	0.0345	1	7.00	A
	ROTENONE, OTHER RELATED	0.0345	1	7.00	A
	SETHOXYDIM	1.0515	1	4.00	A
	SPINOSAD	1.7967	4	18.50	A
	SPIROTETRAMAT	0.0831	2	11.00	A
	STREPTOMYCES LYDICUS WYEC 108	0.0640	7	230.00	A
	THIRAM	0.3943		157.84	P
	Site Total	2,606.5971	424		
PASTURELAND					
	ALUMINUM PHOSPHIDE	4.6044	6	77.00	A
		0.3229	5	30.00	U
	TOTAL POUNDS OF THIS CHEMICAL 4.9273				
	CLOPYRALID,TRIETHYLAMINE SALT	1.7239	1	15.00	A
	DIPHACINONE	0.0050	1	10.00	A
	GLYPHOSATE, ISOPROPYLAMINE SALT	95.9844	19	641.00	A
	TRICLOPYR, TRIETHYLAMINE SALT	4.7014	1	15.00	A
	Site Total	107.3420	32		
PEAR					
	ACETAMIPRID	0.0127	1	0.10	A
	MINERAL OIL	0.7083	1	0.10	A
	Site Total	0.7210	2		
PEAS					
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	26.8920	30	49.80	A
	BOSCALID	1.7588	2	5.40	A
	COPPER HYDROXIDE	79.0396	47	74.50	A
	CYPERMETHRIN	0.9657	18	20.90	A
	(S)-CYPERMETHRIN	2.5664	32	55.50	A
	IMIDACLOPRID	8.0925	31	28.10	A
	OXYFLUORFEN	0.3000	1	3.00	A
	Site Total	119.6150	161		
PEPPER, FRUITING					
	ABAMECTIN	3.5666	6	184.00	A
	ACEPHATE	110.9486	3	114.38	A
	ACETAMIPRID	23.6916	12	287.00	A
	ALPHA-PINENE BETA-PINENE COPOLYMER	14.8076	15	164.03	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	223.8169	34	1,095.00	A
	ALKYL (C8,C10) POLYGLYCOSIDE	0.6040	4	71.70	A
	AMMONIUM SULFATE	28.9634	1	15.00	A
	AZADIRACHTIN	0.6348	1	30.00	A
	AZOXYSTROBIN	154.3020	42	1,453.80	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	78.5221	25	802.60	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	1,173.9600	52	2,085.00	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	38.2500	1	30.00	A
	BIFENAZATE	131.5900	20	343.18	A
	N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL) ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS	4.9222	6	153.54	A
	BOSCALID	154.7508	13	441.95	A
	ALPHA-(PARA-TERT-BUTYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE) PHOSPHATE	2.5790	2	41.00	A
	CARBARYL	448.0000	7	230.00	A
	CHLORANTRANILIPROLE	2,671.9732	17	651.30	A
	CHLOROPICRIN	38,130.9231	20	817.45	A
	CHLORTHAL-DIMETHYL	240.5175	6	190.30	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	208.2475	1	54.50	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
PEPPER, FRUITING					
	COPPER HYDROXIDE	904.5600	38	1,518.60	A
	CRYOLITE	20,241.8472	85	2,354.57	A
	BETA-CYFLUTHRIN	39.8649	40	1,687.60	A
	CYPERMETHRIN	7.9842	12	160.98	A
	(S)-CYPERMETHRIN	97.0861	54	2,341.20	A
	CYROMAZINE	43.4135	21	348.98	A
	1,3-DICHLOROPROPENE	68,062.4165	20	817.45	A
	DIFLUBENZURON	203.9200	76	1,860.50	A
	DIMETHOATE	21.7319	2	67.00	A
	DIMETHYLPOLYSILOXANE	230.9248	42	1,597.58	A
	DINOTEFURAN	7.2538	3	48.60	A
	ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.7897	15	164.03	A
	ESFENVALERATE	31.9188	31	668.98	A
	FATTY ACIDS, METHYL ESTERS	18.3763	6	153.54	A
	FATTY ACIDS, MIXED	0.2436	1	54.00	A
	FATTY ACIDS DERIVED FROM TALLOW	89.5268	34	1,095.00	A
	FLONICAMID	64.9600	22	867.70	A
	GLYPHOSATE, POTASSIUM SALT	68.3164	1	15.00	A
	HALOSULFURON-METHYL	5.7797	9	205.50	A
	HYDROGEN PEROXIDE	29.3036	14	507.00	A
	IMIDACLOPRID	774.8030	74	2,740.96	A
	INDOXACARB	12.5476	6	191.20	A
	ISOPROPYL ALCOHOL	485.7294	194	5,955.89	A
	LAMBDA-CYHALOTHRIN	1.5729	1	30.00	A
	LECITHIN	126.3118	34	1,136.50	A
	MANEB	1,113.1134	19	698.00	A
	MEFENOXAM	909.9922	78	2,736.72	A
	MEFENOXAM, OTHER RELATED	12.3063	36	1,588.00	A
	METALAXYL	74.6600	18	746.60	A
	METAM-SODIUM	3,787.5132	1	14.00	A
	METHOMYL	269.4600	11	299.40	A
	METHOXYFENOZIDE	196.9436	31	1,094.74	A
	S-METOLACHLOR	125.5577	22	396.85	A
	MINERAL OIL	425.2460	16	194.03	A
	MYCLOBUTANIL	395.5430	123	3,882.89	A
	NAPROPAMIDE	228.5000	7	148.00	A
	4-NONYLPHENOL, FORMALDEHYDE RESIN, PROPOXYLATED	6.2348	6	153.54	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	1,873.8430	259	8,140.69	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	62.0827	3	104.00	A
	OXAMYL	3,185.0291	132	4,496.25	A
	PARAQUAT DICHLORIDE	187.5999	8	184.99	A
	PENDIMETHALIN	1.8939	1	2.00	A
	PERMETHRIN	40.7410	7	189.62	A
	PETROLEUM DISTILLATES	11.3506	1	25.00	A
	PETROLEUM DISTILLATES, REFINED	769.7000	6	113.50	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	2.0357	4	90.00	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	188.5446	19	787.80	A
	POLYBUTENES	3.2815	6	153.54	A
	POLYETHYLENE GLYCOL	114.8602	24	819.58	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	22.6484	2	115.00	A
	POLY-I-PARA-MENTHENE	4,043.8577	131	5,490.20	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	8.7919	3	107.00	A
	POLYSILOXANE	0.0242	4	71.70	A
	POTASSIUM BICARBONATE	130.0500	3	61.00	A
	POTASSIUM HYDROXIDE	0.7079	4	71.70	A
	POTASSIUM PHOSPHITE	74.1553	2	28.60	A
	PROPAMOCARB HYDROCHLORIDE	275.3059	22	507.61	A
	PROPIONIC ACID	124.6206	34	1,136.50	A
	PYRACLOSTROBIN	318.4980	45	1,771.70	A
	PYRETHRINS	0.7282	1	30.00	A
	PYRIPROXYFEN	3.3392	2	49.70	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	55.6260	4	137.00	A
	SPINETORAM	143.2633	96	2,956.89	A
	SPINOSAD	161.5437	38	1,520.23	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
PEPPER, FRUITING				
SPIROMESIFEN	417.3999	107	3,293.18	A
SPIROTETRAMAT	385.8508	33	880.50	A
STREPTOMYCES LYDICUS WYEC 108	0.0393	6	205.60	A
SULFUR	20,270.3092	61	1,955.92	A
THIAMETHOXAM	162.8955	69	2,440.10	A
THIRAM	101.4513		40,632.96	P
	9.4329		1.88	T
TOTAL POUNDS OF THIS CHEMICAL 110.8842				
TRIFLURALIN	216.0141	24	548.85	A
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	7.2477	4	71.70	A
Site Total	176,336.5868	2,119		
PEPPER, SPICE				
COPPER HYDROXIDE	1.3988	1	1.05	A
CRYOLITE	9.6000	1	22.00	A
(S)-CYPERMETHRIN	1.0941	1	22.00	A
PARAQUAT DICHLORIDE	12.4021	1	22.00	A
POTASSIUM BICARBONATE	5.2700	3	1.77	A
Site Total	29.7650	7		
PIMENTO				
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	3.0501	1	22.00	A
FATTY ACIDS DERIVED FROM TALLOW	1.2201	1	22.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	3.0501	1	22.00	A
Site Total	7.3203	1		
PUBLIC HEALTH				
BACILLUS SPHAERICUS, SEROTYPE H-5A5B, STRAIN 2362	656.6410			
BACILLUS THURINGIENSIS (BERLINER), SUBSP. ISRAELENSIS, SEROTYPE H-14	1.0399			
BACILLUS THURINGIENSIS, SUBSP. ISRAELENSIS, STRAIN AM 65-52	371.9487			
GLYPHOSATE, ISOPROPYLAMINE SALT	1.7078			
ALPHA-ISOOCTADECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	3.6677			
MALATHION	228.2666			
METHOPRENE	29.2345			
S-METHOPRENE	0.1053			
MINERAL OIL	102.0575			
PIPERONYL BUTOXIDE	15.1193			
PIPERONYL BUTOXIDE, OTHER RELATED	3.7722			
RESMETHRIN	7.6005			
Site Total	1,421.1610			
PUMPKIN				
AZOXYSTROBIN	4.3456	3	26.75	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	2.0600	2	20.00	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	21.8700	3	26.75	A
CHLOROTHALONIL	9.3600	1	6.50	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	4.2757	1	4.00	A
DIMETHYLPOLYSILOXANE	10.5786	25	272.50	A
ESFENVALERATE	0.4881	1	10.00	A
FLONICAMID	5.9600	10	75.50	A
HYDROGEN PEROXIDE	36.9685	3	15.00	A
IMIDACLOPRID	22.4732	6	57.00	A
ISOPROPYL ALCOHOL	12.1073	19	251.00	A
LECITHIN	1.8622	2	20.00	A
METALAXYL	1.1700	1	6.50	A
MYCLOBUTANIL	13.0020	18	122.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	122.3543	21	271.00	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
PUMPKIN						
	PERMETHRIN		4.0831	7	27.50	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE		3.8393	2	20.00	A
	POLYETHYLENE GLYCOL		62.9450	15	210.00	A
	POLY-I-PARA-MENTHENE		15.7259	5	34.00	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		3.3653	10	62.50	A
	PROPIONIC ACID		1.8622	2	20.00	A
	PYRACLOSTROBIN		1.5760	3	10.50	A
	PYRETHRINS		0.2142	1	10.00	A
	PYRIPROXYFEN		0.6799	3	10.50	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		1.7520	1	4.00	A
	SPINETORAM		1.7671	6	37.50	A
	SPINOSAD		0.2507	1	2.50	A
	SPIROMESIFEN		10.1674	11	70.00	A
	SULFUR		80.0000	1	10.00	A
	THIAMETHOXAM		0.8600	1	10.00	A
	THIOPHANATE-METHYL		70.0000	1	10.00	A
	THIRAM		3.7664		2,682.59	P
			1.8251		0.64	T
	TOTAL POUNDS OF THIS CHEMICAL	5.5915				
	TRIFLUMIZOLE		8.2379	4	33.50	A
	Site Total		541.7930	126		
QUINCE						
	COPPER HYDROXIDE		0.9146	1	1.05	A
	Site Total		0.9146	1		
RADICCHIO						
	ACETAMIPRID		0.3710	1	5.00	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		119.2428	4	152.22	A
	CHLORANTRANILIPROLE		8.0619	3	123.00	A
	CYPRODINIL		38.8500	5	118.40	A
	DIMETHYLPOLYSILOXANE		25.7880	10	357.42	A
	FLONICAMID		16.7300	5	191.20	A
	FLUDIOXONIL		25.9000	5	118.40	A
	IMIDACLOPRID		29.1679	2	77.20	A
	INDOXACARB		13.8150	3	122.82	A
	ISOPROPYL ALCOHOL		6.1586	7	234.42	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		71.3105	7	234.42	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		22.6044	2	63.00	A
	POLYETHYLENE GLYCOL		38.8966	7	234.42	A
	PROPYZAMIDE		47.2500	3	63.00	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		36.0036	3	82.20	A
	SPINETORAM		4.2362	2	77.20	A
	SPIROTETRAMAT		0.2922	2	90.50	A
	Site Total		504.6787	45		
RADISH						
	AZOXYSTROBIN		66.2877	88	502.09	A
	BACILLUS PUMILUS, STRAIN QST 2808		2.2927	2	19.10	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		232.0758	77	409.77	A
	CHLORPYRIFOS		43.4555	49	82.50	A
	CHLORTHAL-DIMETHYL		2,554.6397	93	497.05	A
	COPPER HYDROXIDE		564.6180	101	584.29	A
	CYFLUTHRIN		0.7760	4	19.30	A
	BETA-CYFLUTHRIN		10.8987	90	476.87	A
	DIAZINON		1.9852	2	3.50	A
	DIMETHYLPOLYSILOXANE		0.0703	12	61.38	A
	ESFENVALERATE		22.3398	95	557.29	A
	HYDROGEN PEROXIDE		47.0732	2	19.10	A
	IMIDACLOPRID		0.6562	3	14.60	A
	ISOPROPYL ALCOHOL		1.4525	12	61.38	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
RADISH				
LECITHIN	50.3995	1	179.00	A
MEFENOXAM	159.2268	153	964.34	A
MEFENOXAM, OTHER RELATED	2.5757	49	410.29	A
METAM-SODIUM	175.5990	1	179.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	31.2188	13	240.38	A
POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	0.2298	1	2.50	A
POLYETHYLENE GLYCOL	9.1739	12	61.38	A
POLY-I-PARA-MENTHENE	63.8726	1	179.00	A
PROPIONIC ACID	50.3995	1	179.00	A
PYRACLOSTROBIN	77.0640	73	388.57	A
PYRETHRINS	0.5451	2	10.00	A
SPINETORAM	13.2610	51	281.84	A
SPINOSAD	7.6882	17	82.59	A
THIRAM	74.0148		2,371.20	U
	63.9589		25,615.63	P
	2.7406		0.54	T
TOTAL POUNDS OF THIS CHEMICAL 140.7143				
Site Total	4,330.5895	817		
RANGELAND				
ALUMINUM PHOSPHIDE	0.6531	2	12.00	A
Site Total	0.6531	2		
RASPBERRY				
ACETAMIPRID	22.0723	6	219.30	A
ALPHA-PINENE BETA-PINENE COPOLYMER	79.4255	7	70.64	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	5.9868	3	15.55	A
AMMONIUM PROPIONATE	24.3314	4	39.50	A
AMMONIUM SULFATE	6.0828	4	39.50	A
AZADIRACHTIN	0.0621	1	71.00	A
AZOXYSTROBIN	36.9275	14	148.00	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	127.9641	72	1,011.12	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	745.6536	77	792.21	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	121.8321	81	684.66	A
BIFENAZATE	175.0991	37	365.12	A
BIFENTHRIN	5.7690	8	55.59	A
BOSCALID	14.6828	5	41.06	A
CARBARYL	20.0000	1	10.00	A
CARFENTRAZONE-ETHYL	1.7054	3	18.00	A
CHLOROPICRIN	8,027.2500	6	71.00	A
CITRIC ACID	12.1657	4	39.50	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	1,861.0710	58	738.06	A
COCONUT DIETHANOLAMIDE	0.1338	3	39.51	A
COPPER OXIDE (OUS)	2.7687	2	1.37	A
COPPER SALTS OF FATTY AND ROSIN ACIDS	181.1838	7	195.00	A
CYPRODINIL	28.2188	3	86.00	A
DIAZINON	369.6895	38	337.91	A
DIMETHYLPOLYSILOXANE	26.7159	33	350.50	A
DODECYLBENZENE SULFONIC ACID	0.5799	3	39.51	A
ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	4.2360	7	70.64	A
EDTA, TETRASODIUM SALT	0.0357	3	39.51	A
FATTY ACIDS, MIXED	0.2799	2	32.00	A
FATTY ACIDS DERIVED FROM TALLOW	2.3947	3	15.55	A
FENHEXAMID	22.6550	2	81.30	A
FLUDIOXONIL	18.8125	3	86.00	A
HEXYTHIAZOX	84.5026	48	467.65	A
IPRODIONE	52.9600	3	85.00	A
ISOPROPYL ALCOHOL	4.5294	20	217.01	A
KAOLIN	2,800.6000	6	117.40	A
LECITHIN	19.3481	10	124.00	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
RASPBERRY						
	LIME-SULFUR		10,708.9295	47	359.45	A
	MALATHION		552.8881	8	182.50	A
	METHYL BROMIDE		16,297.7500	6	71.00	A
	MINERAL OIL		280.1629	11	105.64	A
	MYCLOBUTANIL		10.8590	29	159.56	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		55.0385	32	328.05	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		175.2518	28	515.45	A
	PARAQUAT DICHLORIDE		16.6116	1	12.00	A
	PETROLEUM DISTILLATES		16.6637	2	11.00	A
	PETROLEUM DISTILLATES, REFINED		10,984.7245	136	976.75	A
	PHOSPHORIC ACID		0.1142	3	39.51	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE		0.0857	1	9.00	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE		51.1961	21	322.65	A
	POLYETHER MODIFIED POLYSILOXANE		17.8607	13	125.89	A
	POLYETHYLENE GLYCOL		19.5677	16	165.50	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER		30.9541	12	201.35	A
	POLY-I-PARA-MENTHENE		169.2788	18	361.23	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		4.0025	2	41.00	A
	POTASH SOAP		596.8078	22	87.63	A
	POTASSIUM BICARBONATE		0.4920	1	0.20	A
	PROPICONAZOLE		7.1372	10	39.39	A
	PROPIONIC ACID		19.3481	10	124.00	A
	PROPYLENE GLYCOL		0.6601	1	25.00	A
	PYRACLOSTROBIN		37.0317	28	228.47	A
	PYRETHRINS		2.0996	12	156.06	A
	SILICONE DEFOAMER		0.0152	3	39.51	A
	SODIUM POLYACRYLATE		3.5633	4	39.50	A
	SODIUM XYLENE SULFONATE		0.1784	3	39.51	A
	SPINETORAM		17.8366	23	236.16	A
	SPINOSAD		74.5726	49	563.97	A
	STREPTOMYCES LYDICUS WYEC 108		0.0189	8	111.00	A
	SULFUR		724.8000	5	99.00	A
	TEBUFENOZIDE		11.1675	12	54.26	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		0.6798	3	39.51	A
	TETRAPOTASSIUM PYROPHOSPHATE		0.0892	3	39.51	A
	THIAMETHOXAM		3.9673	20	95.99	A
	TRIADIMEFON		30.2563	9	242.06	A
	TRIETHANOLAMINE		0.2275	3	39.51	A
	Site Total		55,830.6140	1,049		
RIGHTS OF WAY						
	ABAMECTIN		0.4221	2	37.40	A
			0.0027	1	16,400.00	S
	TOTAL POUNDS OF THIS CHEMICAL	0.4248				
	ACEPHATE		0.9740	1	2.00	A
	ACETAMIPRID		0.5941	3	98.50	A
	ACIBENZOLAR-S-METHYL		17.4200	1	17.42	A
	ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE		0.4941	1	4.00	A
	ALKYL (50%C12, 30%C14, 17%C16, 3%C18) DIMETHYLETHYLBENZYL AMMONIUM CHLORIDE		0.4941	1	4.00	A
	ALKYL (C8,C10) POLYGLYCOSIDE		3,425.7951			
	ALUMINUM PHOSPHIDE		113.2863			
			8.3910	11	6.90	A
	TOTAL POUNDS OF THIS CHEMICAL	121.6773				
	AMINOPYRALID, TRIISOPROPANOLAMINE SALT		123.0143			
	AMMONIUM NITRATE		10.4218			
	AMMONIUM PROPIONATE		4.1847	5	9.75	A
	AMMONIUM SULFATE		465.7706	28	104.75	A
			212.2618			
	TOTAL POUNDS OF THIS CHEMICAL	678.0324				

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
RIGHTS OF WAY						
	AZADIRACHTIN		0.2068			
			0.0565	1	2.00	A
			0.0167	1	24,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	0.2800				
	BACILLUS PUMILUS, STRAIN QST 2808		0.5402	1	9.00	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		10.2600	2	11.00	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		0.5400	1	2.00	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11		11.4750	1	9.00	A
			0.0750			
	TOTAL POUNDS OF THIS CHEMICAL	11.5500				
	BIFENAZATE		8.5000	1	17.00	A
			0.0312	1	16,400.00	S
	TOTAL POUNDS OF THIS CHEMICAL	8.5312				
	BIFENTHRIN		2.2687			
			0.6295	3	96.60	A
	TOTAL POUNDS OF THIS CHEMICAL	2.8982				
	BORAX		1.2000			
	BOSCALID		28.1131	2	85.00	A
	BROMACIL		137.2000			
	BROMADIOLONE		0.0025	10	40.00	A
	BROMETHALIN		0.0000			
	BUTYL ALCOHOL		15.8931			
	CACODYLIC ACID		34.3160			
	CAPTAN		19.1816	1	20.00	A
	CAPTAN, OTHER RELATED		0.4103	1	20.00	A
	CARFENTRAZONE-ETHYL		0.0053			
	CHLORPYRIFOS		1.4954	1	1.00	A
	CHLORSULFURON		34.7625			
			9.2600	2	624.00	A
	TOTAL POUNDS OF THIS CHEMICAL	44.0225				
	CITRIC ACID		10.7207			
			2.9170	12	74.75	A
	TOTAL POUNDS OF THIS CHEMICAL	13.6377				
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		0.1194			
	COCONUT DIETHANOLAMIDE		2.5818			
	COPPER NAPHTHENATE		12.2323			
	COTTONSEED OIL		3.3574	1	17.42	A
	CYPERMETHRIN		0.2310	2	6.60	A
	CYPRODINIL		30.8438	1	94.00	A
	2,4-D		12.0362			
	2,4-D, DIMETHYLAMINE SALT		63.8555			
	2,4-D, 2-ETHYLHEXYL ESTER		0.1022			
	DAZOMET		234.8590			
	DICAMBA		1.1417			
	DICOFOL		0.0875	1	16,400.00	S
	DIETHYLENE GLYCOL		339.4433			
	DIGLYCOLAMINE SALT OF 3,6-DICHLORO-O-ANISIC ACID		130.5286			
	DIKEGULAC SODIUM		1.3648			
	DIMETHYLPOLYSILOXANE		13.6129			
			11.9186	109	145.88	A
	TOTAL POUNDS OF THIS CHEMICAL	25.5315				
	DIPHACINONE		0.0275			
			0.0175	8	94.12	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0450				
	DIQUAT DIBROMIDE		865.8196			
			114.8044	75	31.45	A
	TOTAL POUNDS OF THIS CHEMICAL	980.6240				
	DISODIUM OCTABORATE TETRAHYDRATE		69.5220			
	DITHIOPYR		0.1250			
	DIURON		3,736.5130			
			1,870.9131	10	659.00	A
	TOTAL POUNDS OF THIS CHEMICAL	5,607.4261				
	DODECYLBENZENE SULFONIC ACID		11.1879			
	EDTA, TETRASODIUM SALT		0.6885			
	ESFENVALERATE		0.0407	1	84.00	A

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
RIGHTS OF WAY					
ETHEPHON		0.2064			
ETHYLENE OXIDE		0.1020	1	1.70	A
FATTY ACIDS, MIXED		610.9050			
FENPROPATHRIN		34.9087	1	85.00	A
FLUAZIFOP-P-BUTYL		11.1638			
FLUBENDIAMIDE		0.0528	1	1.76	A
FLUDIOXONIL		20.5625	1	94.00	A
FLUMIOXAZIN		147.0649			
TAU-FLUVALINATE		0.2608	1	1.70	A
		0.0157			
TOTAL POUNDS OF THIS CHEMICAL	0.2765				
FOSETYL-AL		41.8080	1	17.42	A
GLUFOSINATE-AMMONIUM		6.0551	34	2.68	A
GLYPHOSATE		12.9998	3	25.00	A
GLYPHOSATE, DIAMMONIUM SALT		565.9248			
GLYPHOSATE, ISOPROPYLAMINE SALT		28,218.0181			
		3,975.3321	177	1,628.15	A
TOTAL POUNDS OF THIS CHEMICAL	32,193.3502				
GLYPHOSATE, MONOAMMONIUM SALT		82.1235			
GLYPHOSATE, POTASSIUM SALT		506.1159			
		314.8852	26	106.60	A
TOTAL POUNDS OF THIS CHEMICAL	821.0011				
HALOSULFURON-METHYL		35.9878			
HEXYTHIAZOX		15.9400	1	85.00	A
		0.0313	1	19,400.00	S
TOTAL POUNDS OF THIS CHEMICAL	15.9713				
IMIDACLOPRID		2.2256			
		1.3091	2	7.75	A
TOTAL POUNDS OF THIS CHEMICAL	3.5347				
ISOPROPYL ALCOHOL		219.8669			
		1.9998	20	52.92	A
TOTAL POUNDS OF THIS CHEMICAL	221.8667				
ISOPROPYLAMINE DODECYLBENZENE SULFONATE		0.2803	7	65.00	A
ISOXABEN		171.3281			
LAMBDA-CYHALOTHRIN		0.0596	1	1.00	A
LECITHIN		4.4030			
		0.5106	3	5.75	A
TOTAL POUNDS OF THIS CHEMICAL	4.9136				
LINURON		16.0000			
		0.5000	1	2.00	A
TOTAL POUNDS OF THIS CHEMICAL	16.5000				
MALATHION		173.7555	1	85.00	A
MANCOZEB		4.6250	2	4.00	A
MANEB		1.9236	1	2.00	A
MCPP		5.3856			
MECOPROP-P		0.0259			
METALAXYL		0.0533	1	1.70	A
METALDEHYDE		16.0000			
METHYLATED SOYBEAN OIL		329.4094			
MINERAL OIL		3,689.0255	2	37.40	A
MODIFIED PHTHALIC GLYCEROL ALKYD RESIN		2.1384	3	6.70	A
MYCLOBUTANIL		0.2009	1	1.50	A
NAPROPAMIDE		0.5000			
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		2,051.0156			
		22.5576	23	58.67	A
TOTAL POUNDS OF THIS CHEMICAL	2,073.5732				
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		9.2950	8	205.75	A
ORYZALIN		863.5903			
OXYFLUORFEN		64.9065			
		26.1575	20	98.40	A
TOTAL POUNDS OF THIS CHEMICAL	91.0640				
PACLOBUTRAZOL		0.9719	1	1.00	A
PARAQUAT DICHLORIDE		66.1001	8	67.00	A
PENDIMETHALIN		99.6968			
PERMETHRIN		2.8123	2	19.42	A
PETROLEUM DISTILLATES		27.0282			

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
RIGHTS OF WAY						
	PETROLEUM OIL, PARAFFIN BASED		45.6161	7	65.00	A
	PHOSPHORIC ACID		61.4351			
			4.5563	7	65.00	A
	TOTAL POUNDS OF THIS CHEMICAL	65.9914				
	POLYACRYLAMIDE POLYMER		17.0518			
	POLYACRYLIC POLYMER		5.3604			
			0.4123	7	65.00	A
	TOTAL POUNDS OF THIS CHEMICAL	5.7727				
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE		16.4705			
	POLYETHYLENE GLYCOL		27.1772			
			11.8354	19	35.50	A
	TOTAL POUNDS OF THIS CHEMICAL	39.0126				
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER		35.3987	4	242.00	A
	POLY-I-PARA-MENTHENE		58.5633	6	185.00	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		3.5485	32	100.35	A
	POLYOXYETHYLENE SORBITAN MONOOLEATE		1.1212	7	65.00	A
	POLYOXYETHYLENE SORBITAN TRIOLEATE		7.3810	7	65.00	A
	POLYSILOXANE		0.0163			
	POTASH SOAP		2.1837			
			1.0090	1	19,400.00	S
	TOTAL POUNDS OF THIS CHEMICAL	3.1927				
	POTASSIUM BICARBONATE		22.1400	1	9.00	A
	POTASSIUM HYDROXIDE		0.4778			
	PRODIAMINE		37.5578			
	PROPICONAZOLE		0.1675	1	2.00	A
	PROPIONIC ACID		3.2615			
			0.5106	3	5.75	A
	TOTAL POUNDS OF THIS CHEMICAL	3.7721				
	PROPYZAMIDE		36.7200	6	31.00	A
	PYRACLOSTROBIN		28.3797	3	179.00	A
	PYRAFLUFEN-ETHYL		0.2507			
	PYRETHRINS		0.0973	1	2.00	A
	PYRIMETHANIL		32.6159	1	85.00	A
	QUINCLORAC		0.7500	1	1.00	A
	SILICONE DEFOAMER		0.2926			
	SIMAZINE		598.5000			
	SODIUM CACODYLATE		200.7483			
	SODIUM CARBONATE		0.9264	1	4.00	A
	SODIUM METASILICATE		0.3088	1	4.00	A
	SODIUM POLYACRYLATE		0.7713	5	9.75	A
	SODIUM XYLENE SULFONATE		3.4424			
	SPINETORAM		1.1055	2	22.02	A
	SPINOSAD		0.1561	2	30,000.00	S
			0.0624	1	2.00	A
			0.0468			
	TOTAL POUNDS OF THIS CHEMICAL	0.2653				
	SPIROMESIFEN		21.0477	1	85.00	A
	STRYCHNINE		0.1909			
	SULFOMETURON-METHYL		177.9479			
			22.3600	2	624.00	A
	TOTAL POUNDS OF THIS CHEMICAL	200.3079				
	SULFUR		439.2000	3	180.50	A
	TALL OIL		55.8305			
	TEBUTHIURON		122.1920			
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)		13.0422			
	TETRAPOTASSIUM PYROPHOSPHATE		1.7212			
	THIAMETHOXAM		10.6250	3	170.00	A
	THIOPHANATE-METHYL		14.7250			
			0.1063	1	1,000.00	S
	TOTAL POUNDS OF THIS CHEMICAL	14.8313				
	TRICLOPYR, BUTOXYETHYL ESTER		99.0016			
	TRIETHANOLAMINE		4.3891			
	TRIFLURALIN		40.8929	1	55.00	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
RIGHTS OF WAY				
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	889.3187			
VINYL POLYMER	7.0042			
Site Total	57,905.7225	628		
ROSEMARY				
IMIDACLOPRID	0.0888	1	2.00	A
Site Total	0.0888	1		
SAGE				
AZADIRACHTIN	0.1130	2	2.43	A
AZOXYSTROBIN	1.0429	3	3.43	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.9934	1	0.04	A
IMIDACLOPRID	0.0100	1	0.22	A
POTASH SOAP	8.7863	1	2.10	A
POTASSIUM BICARBONATE	4.3420	2	2.55	A
PYRETHRINS	0.0186	4	2.77	A
ROTENONE	0.0155	4	2.77	A
ROTENONE, OTHER RELATED	0.0155	4	2.77	A
SPINOSAD	0.4897	1	1.98	A
Site Total	15.8269	15		
SOIL FUMIGATION/PREPLANT				
ALACHLOR	9.9697	1	4.00	A
N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL) ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS	5.1399	4	72.00	A
CHLOROPICRIN	465,682.3515	194	3,651.75	A
CHLOROTHALONIL	33.9353	1	45.00	A
CYPERMETHRIN	0.2913	1	3.00	A
1,3-DICHLOROPROPENE	47,647.6751	19	323.00	A
DIMETHYLPOLYSILOXANE	0.0571	1	45.00	A
FATTY ACIDS, METHYL ESTERS	19.1891	4	72.00	A
FATTY ACIDS, MIXED	3.1558	2	26.00	A
FLUMIOXAZIN	2.4888	3	18.00	A
GLIOCLADIUM VIRENS GL-21 (SPORES)	641.4000	15	1,068.00	A
GLYPHOSATE, ISOPROPYLAMINE SALT	220.0442	5	48.50	A
GLYPHOSATE, POTASSIUM SALT	135.1982	4	27.00	A
ISOPROPYL ALCOHOL	11.0484	4	110.30	A
LECITHIN	11.9240	7	126.98	A
METAM-SODIUM	108,606.6478	21	585.75	A
METHYL BROMIDE	315,299.9375	146	1,828.35	A
NAPROPAMIDE	1,023.0000	18	1,023.00	A
4-NONYLPHENOL, FORMALDEHYDE RESIN, PROPOXYLATED	8.0414	5	80.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	63.1471	13	263.28	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	43.0629	4	172.00	A
OXYFLUORFEN	993.1488	91	2,898.80	A
PARAQUAT DICHLORIDE	172.0404	10	178.98	A
PERMETHRIN	8.9893	1	45.00	A
POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	29.5434	40	1,227.03	A
POLYBUTENES	3.4266	4	72.00	A
POLYETHYLENE GLYCOL	7.4505	1	45.00	A
POLY-I-PARA-MENTHENE	28.9054	2	108.00	A
POTASSIUM N-METHYLDITHIOCARBAMATE	497.8670	2	2.00	A
PROMETRYN	1.4979	1	22.00	A
PROPIONIC ACID	11.9240	7	126.98	A
SETHOXYDIM	0.8762	1	1.50	A
SODIUM TETRATHIOCARBONATE	190.8000	1	2.00	A
Site Total	941,414.1746	438		

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
SPINACH						
	ABAMECTIN		0.5787	35	62.55	A
	ACETAMIPRID		7.0083	7	94.19	A
	ACIBENZOLAR-S-METHYL		25.1720	197	1,068.29	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		19.1893	41	60.68	A
	AZADIRACHTIN		1.9702	16	99.99	A
	AZOXYSTROBIN		0.1509		3.03	T
	BACILLUS PUMILUS, STRAIN QST 2808		86.7397	70	723.99	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		0.3090	1	3.00	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857		1,078.1640	241	1,967.10	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B		0.3192	1	5.48	A
	CHLORANTRANILIPROLE		15.4854	30	258.24	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		19.5379	12	53.61	A
	COCONUT DIETHANOLAMIDE		0.0079	1	2.00	A
	COPPER HYDROXIDE		3.8500	2	5.00	A
	COPPER OCTANOATE		2.2043	1	7.65	A
	CYCLOATE		3,932.0099	139	1,006.64	A
	CYFLUTHRIN		0.8424	9	24.29	A
	BETA-CYFLUTHRIN		10.0579	42	396.19	A
	CYPERMETHRIN		0.1733	1	3.80	A
	(S)-CYPERMETHRIN		4.0709	9	83.40	A
	CYROMAZINE		23.6475	30	190.92	A
	DIAZINON		27.2818	10	32.00	A
	DIMETHOATE		0.4972	1	2.00	A
	DIMETHYLPOLYSILOXANE		100.0861	246	1,972.97	A
	DINOTEFURAN		0.4375	1	3.30	A
	DODECYLBENZENE SULFONIC ACID		0.0341	1	2.00	A
	EDTA, TETRASODIUM SALT		0.0021	1	2.00	A
	EMAMECTIN BENZOATE		0.1682	9	20.87	A
	FATTY ACIDS DERIVED FROM TALLOW		7.6757	41	60.68	A
	FLONICAMID		21.8313	50	258.16	A
	FLUDIOXONIL		0.5772		23,507.64	P
			0.2852		5.80	T
	TOTAL POUNDS OF THIS CHEMICAL	0.8624				
	FOSETYL-AL		1.6000	1	2.00	A
	IMIDACLOPRID		58.4717	229	1,239.90	A
	INDOXACARB		3.7104	40	56.09	A
	ISOPROPYL ALCOHOL		34.2586	219	1,714.86	A
	MANDIPROPAMID		2.9781	18	23.06	A
	MEFENOXAM		299.4889	104	960.86	A
			54.7713		357,998.99	P
			19.5010		64.93	T
			0.4752		3,164.75	U
	TOTAL POUNDS OF THIS CHEMICAL	374.2364				
	MEFENOXAM, OTHER RELATED		6.6335	70	807.00	A
			1.6957		357,998.99	P
			0.6037		64.93	T
			0.0147		3,164.75	U
	TOTAL POUNDS OF THIS CHEMICAL	8.9476				
	METHOXYFENOZIDE		35.8998	26	205.78	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		415.7478	259	1,773.54	A
	PERMETHRIN		255.7331	210	1,341.03	A
	PHOSPHORIC ACID		0.0067	1	2.00	A
	POLYETHYLENE GLYCOL		216.3047	218	1,712.86	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		0.2945	1	3.00	A
	POTASSIUM BICARBONATE		112.6250	2	26.50	A
	POTASSIUM PHOSPHITE		3,409.6279	163	1,316.22	A
	PYRACLOSTROBIN		57.8783	44	304.88	A
	PYRETHRINS		0.1507	1	3.60	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		87.1357	13	198.94	A
	SILICONE DEFOAMER		0.0009	1	2.00	A
	SODIUM CARBONATE		0.0882	1	2.00	A
	SODIUM XYLENE SULFONATE		0.0105	1	2.00	A
	SPINETORAM		17.6531	66	345.86	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
SPINACH					
	SPINOSAD	18.2302	52	221.34	A
	TEBUFENOZIDE	0.6600	1	5.00	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.0400	1	2.00	A
	TETRAPOTASSIUM PYROPHOSPHATE	0.0052	1	2.00	A
	THIAMETHOXAM	0.1400	1	3.00	A
	THIODICARB	1.2215	1	2.00	A
	THIRAM	1,672.9950		864,252.55	P
		338.9848		67.87	T
	TOTAL POUNDS OF THIS CHEMICAL 2,011.9798				
	TRIETHANOLAMINE	0.0134	1	2.00	A
	Site Total	12,516.0149	2,175		
SQUASH					
	AZOXYSTROBIN	0.5624	3	3.00	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	1.0800	1	1.00	A
	POLY-I-PARA-MENTHENE	1.3607	3	3.00	A
	THIRAM	530.1111		377,779.24	P
		34.4104		12.23	T
	TOTAL POUNDS OF THIS CHEMICAL 564.5215				
	Site Total	567.5246	7		
STORAGE AREA/BOX					
	METHYL BROMIDE	30.6000		858.00	U
	Site Total	30.6000			
STRAWBERRY					
	ABAMECTIN	42.4518	91	2,212.92	A
	ACEQUINOCYL	201.7867	14	506.41	A
	ACETAMIPRID	833.4007	134	5,921.97	A
	ALPHA-ALKYLARYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	61.7035	8	258.44	A
	ALPHA-ALKYL (C8-C18)-OMEGA-HYDROXYPOLY(OXYETHYLENE) POLY(OXYPROPYLENE)	0.2107	1	10.00	A
	ALPHA-ALKYL (C9-C16)-OMEGA-HYDROXYPOLY(OXYETHYLENE)	1.7055	2	76.00	A
	ALPHA-ALKYL (C10-C12)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	1.9758	1	24.00	A
	ALPHA-ALKYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	17.7309	8	258.44	A
	ALPHA-PINENE BETA-PINENE COPOLYMER	346.3535	50	1,463.75	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	94.4067	8	708.00	A
	ALUMINUM PHOSPHIDE	0.6000	1	20.00	A
	AMMONIUM PROPIONATE	843.6476	53	1,950.64	A
	AMMONIUM SULFATE	210.9119	53	1,950.64	A
	AMMONIUM THIOCYANATE	3.6342	1	7.00	A
	AZADIRACHTIN	5.8737	17	184.75	A
	AZOXYSTROBIN	119.8865	19	692.00	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	1,114.1525	254	9,379.83	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	7,175.7630	153	8,868.12	A
	BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES	1,760.0220	76	3,167.80	A
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	939.2390	44	1,782.07	A
	BIFENAZATE	6,066.0575	315	12,365.67	A
	BIFENTHRIN	1,629.0820	337	16,217.58	A
	N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL) ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS	2.7808	2	39.00	A
	BOSCALID	7,832.0634	507	23,418.27	A
	CAPTAN	99,443.0528	1,286	59,340.93	A
	CAPTAN, OTHER RELATED	2,226.9654	1,286	59,340.93	A
	CARBARYL	27.0080	2	13.50	A
	CHLOROPICRIN	1,019,251.3403	203	8,296.15	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
STRAWBERRY					
	CHLORPYRIFOS	6,576.2225	153	6,808.21	A
	CHLORTHAL-DIMETHYL	9.0000	1	2.00	A
	CITRIC ACID	421.8238	53	1,950.64	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	2,256.1883	34	1,261.08	A
	COCONUT DIETHANOLAMIDE	6.5477	26	1,375.94	A
	COPPER HYDROXIDE	16.0921	2	26.00	A
	COPPER OCTANOATE	187.3889	2	183.00	A
	COPPER SALTS OF FATTY AND ROSIN ACIDS	206.8023	4	88.00	A
	COUMAFURYL	0.5000	1	5.00	A
	CRYOLITE	46.0800	1	24.00	A
	CYPRODINIL	6,259.5069	399	19,725.87	A
	2,4-D, ALKANOLAMINE SALTS (ETHANOL AND ISOPROPANOL AMINES)	14.5207	2	47.81	A
	DIATOMACEOUS EARTH	615.1430	7	244.61	A
	DIAZINON	10.0000	4	81.00	A
	1,3-DICHLOROPROPENE	751,670.8128	114	4,730.17	A
	DIETHYLENE GLYCOL	2.8811	3	114.00	A
	DIMETHYLPOLYSILOXANE	1,690.3405	681	30,330.87	A
	DIMETHYL SILICONE FLUID EMULSION	11.1154	5	302.00	A
	DIPHACINONE	0.0001	1	20.00	A
	DODECYLBENZENE SULFONIC ACID	28.3734	26	1,375.94	A
	ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	18.5155	50	1,463.75	A
	EDTA, TETRASODIUM SALT	1.7461	26	1,375.94	A
	ENDOSULFAN	1.6636	4	142.00	A
	EPOXIDIZED SOYBEAN OIL	204.2924	6	439.50	A
	ETOXAZOLE	121.5126	22	898.20	A
	FATTY ACIDS, METHYL ESTERS	10.3817	2	39.00	A
	FATTY ACIDS, MIXED	48.6556	73	3,228.75	A
	FATTY ACIDS DERIVED FROM TALLOW	37.7627	8	708.00	A
	FENHEXAMID	12,001.5649	331	17,154.06	A
	FENPROPATHRIN	1,248.2541	111	3,899.77	A
	FLUDIOXONIL	4,173.0046	399	19,725.87	A
	FLUMIOXAZIN	54.1263	23	930.82	A
	FOSETYL-AL	288.0000	1	72.00	A
	GLYPHOSATE, POTASSIUM SALT	66.2195	1	4.00	A
	HARPIN PROTEIN	0.5625	5	60.00	A
	HEXYTHIAZOX	768.5938	97	3,962.34	A
	HYDROGEN PEROXIDE	120.7636	1	49.00	A
	IMIDACLOPRID	932.2428	29	1,791.15	A
	IPRODIONE	19.9774	1	20.00	A
	ISOPROPYL ALCOHOL	951.2595	276	14,812.48	A
	ISOPROPYLAMINE DODECYLBENZENE SULFONATE	1,568.9654	6	439.50	A
	LECITHIN	2,803.8247	456	17,737.77	A
	MALATHION	9,903.2138	147	5,288.51	A
	MEFENOXAM	253.6805	16	616.90	A
	MEFENOXAM, OTHER RELATED	5.1506	8	430.00	A
	METAM-SODIUM	157,188.6440	29	1,296.87	A
	METHOMYL	2,959.2900	87	3,386.85	A
	METHOXYFENOZIDE	1,319.4985	157	7,120.50	A
	METHYL BROMIDE	148,998.5075	33	781.95	A
	MINERAL OIL	96.7190	50	1,463.75	A
	MINERAL OIL, PETROLEUM DISTILLATES, SOLVENT REFINED LIGHT	3.4589	1	43.00	A
	MOLASSES	3.7561	4	120.97	A
	MYCLOBUTANIL	680.5105	162	6,758.24	A
	NALED	2,620.6378	73	2,596.00	A
	NAPROPAMIDE	2,895.1400	41	2,057.31	A
	4-NONYLPHENOL, FORMALDEHYDE RESIN, PROPOXYLATED	3.5224	2	39.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	6,789.6486	709	31,603.37	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), BRANCHED	1,433.7612	9	564.50	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	17,047.2463	1,076	51,578.86	A
	OCTANOL	0.7264	1	43.00	A
	ALPHA-OCTYLPHENYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	0.4570	1	38.00	A
	OLEIC ACID	3.3098	8	258.44	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
STRAWBERRY				
OLEYL ALCOHOL	1.0031	1	43.00	A
ALPHA-OLEYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	1.0722	1	43.00	A
OXYFLUORFEN	342.8055	20	919.91	A
PARAQUAT DICHLORIDE	15.5733	2	24.00	A
PETROLEUM DISTILLATES, REFINED	628.0464	4	99.00	A
PHOSPHORIC ACID	5.8367	27	1,413.94	A
BETA-PINENE POLYMER	51.8517	6	202.00	A
POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	18.2718	26	966.01	A
POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	1,860.2567	332	11,612.98	A
POLYBUTENES	1.8539	2	39.00	A
POLYETHER MODIFIED POLYSILOXANE	60.6159	14	407.00	A
POLYETHYLENE GLYCOL	3,182.6360	233	12,700.60	A
POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	1,420.3179	198	8,775.17	A
POLY-I-PARA-MENTHENE	10,916.5443	545	31,444.11	A
POLYMERIZED ACRYLIC ACID	22.8627	5	194.00	A
POLYOXYETHYLENE POLYOXYPROPYLENE	2,229.2410	405	15,879.47	A
POLYOXYETHYLENE POLYOXYPROPYLENE MONOBUTYL ETHER	408.5848	6	439.50	A
POTASH SOAP	14.9493	1	46.00	A
POTASSIUM BICARBONATE	4,348.4192	71	1,888.85	A
POTASSIUM N-METHYLDITHIOCARBAMATE	53,390.2697	7	298.00	A
PROPICONAZOLE	325.8074	67	2,671.77	A
PROPIONIC ACID	2,803.8247	456	17,737.77	A
PROPYLENE GLYCOL	3.4387	5	144.97	A
PYRACLOSTROBIN	4,175.1842	532	24,569.94	A
PYRETHRINS	19.7844	33	861.09	A
PYRIMETHANIL	2,577.4525	154	7,246.66	A
PYRIPROXYFEN	50.3622	17	524.46	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	207.0365	39	1,529.00	A
QUINOXYFEN	647.4463	163	6,921.06	A
ROTENONE	3.1731	4	178.96	A
ROTENONE, OTHER RELATED	5.9527	4	178.96	A
SILICONE DEFOAMER	0.7421	26	1,375.94	A
SODIUM CARBONATE	2.2969	1	60.00	A
SODIUM POLYACRYLATE	221.3362	48	1,756.64	A
SODIUM XYLENE SULFONATE	8.7303	26	1,375.94	A
SPINETORAM	269.2996	91	3,824.83	A
SPINOSAD	428.8075	112	4,456.06	A
SPIROMESIFEN	1,094.3262	131	4,572.64	A
STRYCHNINE	0.0009	1	31.00	A
STYRENE BUTADIENE COPOLYMER	0.9482	1	10.00	A
SULFUR	140,850.3414	832	40,217.22	A
SYNTHETIC VEGETABLE GUMS	2.5084	4	120.97	A
TALL OIL FATTY ACIDS	16.9046	8	284.00	A
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)	33.2094	26	1,375.94	A
TETRAPOTASSIUM PYROPHOSPHATE	4.3651	26	1,375.94	A
THIAMETHOXAM	172.6947	88	2,851.85	A
THIOPHANATE-METHYL	3,082.7580	101	4,351.03	A
THIRAM	10,237.3775	124	4,930.48	A
TRIETHANOLAMINE	11.1311	26	1,375.94	A
TRIFLUMIZOLE	3,001.3189	254	12,298.33	A
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	3.0574	2	82.00	A
WARFARIN, SODIUM SALT	0.0336	1	24.00	A
Site Total	2,547,114.5769	11,183		
STRUCTURAL PEST CONTROL				
ABAMECTIN	0.0630			
ACEPHATE	7.2885			
ACETAMIPRID	0.1989			
ALKYL (AS IN FATTY ACIDS OF COCONUT OIL) MONOETHANOLAMIDE	0.1397			
ALKYL (50%C14, 40%C12, 10%C16) DIMETHYLBENZYL AMMONIUM CHLORIDE	0.9724			
ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE	0.0619			

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
STRUCTURAL PEST CONTROL						
	ALPHA-ALKYL (MIXED)-OMEGA-HYDROXYPOLY (OXYETHYLENE) SULFATE		0.4470			
	D-TRANS ALLETHRIN		2.1632			
	ALUMINUM PHOSPHIDE		98.2513			
	4-AMINOPYRIDINE		0.6719			
	AZADIRACHTIN		0.0067			
	AZOXYSTROBIN		0.0626			
	BIFENTHRIN		788.6954			
	BORAX		17.4695			
	BORIC ACID		583.0312			
	BRODIFACOUM		0.1077			
	BROMADIOLONE		0.8474			
	BROMETHALIN		0.0403			
	1-BROMO-3-CHLORO-5,5-DIMETHYL HYDANTOIN		0.6000			
	CAPSICUM OLEORESIN		0.0001			
	CARBARYL		0.0377			
	CARFENTRAZONE-ETHYL		0.0179			
	CHLORDANE		2.0676			
	CHLORFENAPYR		94.0673			
	5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE		0.0943			
	CHLOROPHACINONE		0.0016			
	CHLOROPICRIN		4.7838			
	CHLOROTHALONIL		2.1135			
	CHOLECALCIFEROL		0.1463			
	COPPER NAPHTHENATE		0.1574			
	CYFLUTHRIN		792.7745			
	BETA-CYFLUTHRIN		103.0997			
	CYPERMETHRIN		949.3939			
	2,4-D, DIMETHYLAMINE SALT		4.6963			
	2,4-D, 2-ETHYLHEXYL ESTER		0.3477			
	DDVP		0.0088			
	DDVP, OTHER RELATED		0.0006			
	DELTAMETHRIN		2,214.5551			
	DIAZINON		0.3775			
	DICAMBA		0.0222			
	DICAMBA, DIMETHYLAMINE SALT		0.5546			
	1,3-DICHLORO-5,5-DIMETHYLHYDANTOIN		0.2740			
	1,3-DICHLORO-5-ETHYL-5-METHYLHYDANTOIN		0.1060			
	DIDECYL DIMETHYL AMMONIUM CHLORIDE		1.1986			
	DIFETHIALONE		0.0445			
	DIPHACINONE		0.0733			
			0.0001	1	30.00	A
	TOTAL POUNDS OF THIS CHEMICAL	0.0734				
	DIPHACINONE, SODIUM SALT		0.0041			
	DISODIUM OCTABORATE TETRAHYDRATE		4,878.9786			
	ESFENVALERATE		4.8396			
	FENVALERATE		0.0404			
	FIPRONIL		1,389.5655			
			0.8007	2	60.00	A
	TOTAL POUNDS OF THIS CHEMICAL	1,390.3662				
	FLUDIOXONIL		0.0848			
	TAU-FLUVALINATE		0.0325			
	GLYPHOSATE, ISOPROPYLAMINE SALT		15.6917			
	HEXAFLUMURON		0.0000			
	HYDRAMETHYLNON		23.3790			
	HYDROPRENE		29.3304			
	IMIDACLOPRID		205.7181			
	INDOXACARB		0.4398			
	IRON PHOSPHATE		47.7976			
	ISOXABEN		0.0188			
	LAMBDA-CYHALOTHRIN		53.6518			
	LIMONENE		296.3846			
	LINALOOL		0.1743			
	MALATHION		42.9995			
	MCPP, DIMETHYLAMINE SALT		1.7302			
	MCPP-P, DIMETHYLAMINE SALT		0.9576			
	MECOPROP-P		0.0882			
	METALDEHYDE		117.3583			

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
STRUCTURAL PEST CONTROL				
METHIOCARB	0.0300			
METHOMYL	0.2450			
METHOPRENE	1.2738			
S-METHOPRENE	1.5816			
2-METHYL-4-ISOTHIAZOLIN-3-ONE	0.0331			
METHYL NONYL KETONE	0.0173			
METHYL NONYL KETONE, OTHER RELATED	0.0009			
MUSCALURE	0.0151			
NOVIFLUMURON	0.0125			
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	103.5008			
OIL OF BLACK PEPPER	0.0009			
ORYZALIN	1.9990			
OXADIAZON	20.0000			
PENDIMETHALIN	9.4697			
PERMETHRIN	934.1440			
PERMETHRIN, OTHER RELATED	0.0373			
PETROLEUM DISTILLATES	4.9180			
PETROLEUM DISTILLATES, AROMATIC	0.0051			
PHENOTHRIN	4.2614			
PHENYLETHYL PROPIONATE	24.2624			
PIPERINE	0.0003			
PIPERONYL BUTOXIDE	106.8651			
PIPERONYL BUTOXIDE, OTHER RELATED	21.1100			
POTASH SOAP	0.1889			
PRODIAMINE	0.1239			
PROPETAMPHOS	0.1153			
PROPICONAZOLE	0.3728			
PROPOXUR	2.0126			
PYRETHRINS	35.8976			
PYRIPROXYFEN	1.3275			
RESMETHRIN	0.0039			
RESMETHRIN, OTHER RELATED	0.0005			
SILICA AEROGEL	56.6440			
SODIUM DECYL SULFATE	20.6637			
SODIUM LAUROAMPHO ACETATE	15.5953			
SODIUM LAURYL SULFATE	10.5268			
SODIUM PERSULFATE	142.5000			
SODIUM TETRABORATE (PENTAHYDRATE)	13.5000			
SPINOSAD	0.1204			
STREPTOMYCIN SULFATE	0.0795			
STRYCHNINE	0.0251			
SULFAQUINOXALINE	0.0041			
SULFLURAMID	0.1924			
SULFUR	2.2663			
SULFURYL FLUORIDE	71,831.6969			
TETRAMETHRIN	0.0198			
THYME	32.6784			
TRICLOPYR, BUTOXYETHYL ESTER	9.6982			
WARFARIN	0.0041			
ZINC PHOSPHIDE	2.2045			
UNKNOWN	0.4190			
Site Total	86,194.8644	3		
SWISS CHARD				
ABAMECTIN	0.2991	7	30.17	A
ACETAMIPRID	0.5353	3	13.39	A
ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	50.9940	34	148.16	A
AZADIRACHTIN	0.8191	19	64.95	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7	4.6666	13	41.41	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	10.6704	4	16.08	A
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	6.6780	6	20.84	A
BENTONITE	1.6560	1	3.68	A
CASEIN	0.1242	1	3.68	A

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
SWISS CHARD				
CHLORANTRANILIPROLE	0.2351	1	4.35	A
CHLOROTHALONIL	1.0525	1	1.00	A
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	38.7850	29	94.88	A
CYCLOATE	15.0474	1	5.04	A
CYFLUTHRIN	0.8386	5	17.27	A
BETA-CYFLUTHRIN	0.3234	3	15.20	A
CYPERMETHRIN	2.2622	5	33.80	A
(S)-CYPERMETHRIN	0.5587	4	15.00	A
CYROMAZINE	6.0610	13	50.68	A
DIAZINON	2.9874	2	6.00	A
DIMETHOATE	4.7583	3	15.43	A
DIMETHYLPOLYSILOXANE	3.0289	5	25.20	A
EMAMECTIN BENZOATE	0.4063	10	46.48	A
FATTY ACIDS DERIVED FROM TALLOW	20.3976	34	148.16	A
FLONICAMID	2.3300	7	31.08	A
FOSETYL-AL	2.4000	1	3.00	A
GLYPHOSATE, ISOPROPYLAMINE SALT	1.2014	1	5.35	A
GLYPHOSATE, MONOAMMONIUM SALT	0.1095	1	5.35	A
IMIDACLOPRID	0.9542	4	18.25	A
INDOXACARB	4.5810	16	70.98	A
LACTOSE	0.1242	1	3.68	A
MALATHION	39.2900	20	46.76	A
MEFENOXAM	0.7157	2	5.46	A
MEFENOXAM, OTHER RELATED	0.0210	2	5.46	A
METHOXYFENOZIDE	16.4687	24	105.84	A
METHYLATED SOYBEAN OIL	11.0370	9	35.15	A
S-METOLACHLOR	1.0640	1	3.57	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	53.0634	43	183.31	A
PERMETHRIN	4.9175	8	29.12	A
POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE	0.5518	9	35.15	A
POLY-I-PARA-MENTHENE	0.4658	1	4.00	A
POLYOXYETHYLENE POLYOXYPROPYLENE	1.0096	5	25.20	A
POTASH SOAP	483.4640	31	121.94	A
PYMETROZINE	0.2613	1	3.04	A
PYRACLOSTROBIN	12.7000	16	69.33	A
PYRETHRINS	2.9080	22	74.76	A
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS	8.7513	3	16.05	A
ROTENONE	0.0049	1	1.00	A
ROTENONE, OTHER RELATED	0.0049	1	1.00	A
SPINETORAM	2.8974	16	61.01	A
SPINOSAD	5.3452	23	72.08	A
SULFUR	132.6480	21	76.65	A
TEBUFENOZIDE	3.6810	7	28.00	A
THIAMETHOXAM	1.2125	9	40.51	A
THIRAM	1.0513		421.08	P
Site Total	968.4197	412		
TANGELO				
ABAMECTIN	0.1481	1	10.00	A
CHLORPYRIFOS	35.0173	1	10.00	A
MINERAL OIL	480.0079	1	10.00	A
Site Total	515.1733	3		
TANGERINE				
ABAMECTIN	2.5814	24	1,218.00	A
ALUMINUM PHOSPHIDE	0.2400	1	1.00	A
BENTONITE	33.3000	2	61.00	A
CALCIUM HYDROXIDE	2.7600	1	1.00	A
CASEIN	1.4715	2	61.00	A
CHLORPYRIFOS	510.4997	14	676.33	A
COPPER HYDROXIDE	125.8530	3	121.00	A
2,4-D, DIMETHYLAMINE SALT	326.1291	84	4,808.00	A
DINOSEB	1.1006	5	375.00	A
DIPHACINONE	0.0213	3	305.00	A
FATTY ACIDS, MIXED	6.9747	33	1,496.92	A

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
TANGERINE					
	GIBBERELLINS	5.7189	15	920.00	A
	GLYPHOSATE, ISOPROPYLAMINE SALT	1,167.0908	129	5,881.74	A
	GLYPHOSATE, POTASSIUM SALT	2,160.4795	45	848.72	A
	IMIDACLOPRID	82.4321	6	297.00	A
	LACTOSE	2.2275	2	61.00	A
	METALDEHYDE	43.5100	4	179.00	A
	MINERAL OIL	6,992.2990	28	1,706.00	A
	MODIFIED PHTHALIC GLYCEROL ALKYD RESIN	102.8902	15	920.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	34.8734	33	1,496.92	A
	NORFLURAZON	5.6249	4	47.50	A
	PETROLEUM HYDROCARBONS	7.9168	4	300.00	A
	PETROLEUM OIL, UNCLASSIFIED	959.7160	7	180.00	A
	POLYACRYLAMIDE POLYMER	1.0689	55	3,309.00	A
	POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY)DISILOXANYL)PROPYL)ETHER	3.1456	1	11.00	A
	POLYSACCHARIDE POLYMER	1.8604	3	114.00	A
	SIMAZINE	13.5845	4	43.50	A
	SPINOSAD	2.2586	3	13.00	A
	UREA INCLUSION ADDUCT OF POLYOXY(ETHYLENE)/POLYOXY (PROPYLENE) BLOCK COPOLYMER	4.2300	1	75.00	A
	Site Total	12,601.8584	490		
TARRAGON					
	AZADIRACHTIN	0.0509	3	2.11	A
	AZOXYSTROBIN	0.2437	1	0.80	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	5.3136	2	1.45	A
	CYPRODINIL	0.3446	2	0.80	A
	FLUDIOXONIL	0.2297	2	0.80	A
	IMIDACLOPRID	0.4140	8	4.81	A
	MEFENOXAM	0.1503	1	0.20	A
	PYRETHRINS	0.0057	2	0.88	A
	ROTENONE	0.0048	2	0.88	A
	ROTENONE, OTHER RELATED	0.0048	2	0.88	A
	SPINOSAD	0.4717	3	2.44	A
	Site Total	7.2338	22		
THYME					
	IMIDACLOPRID	0.2526	4	2.25	A
	Site Total	0.2526	4		
TOMATO					
	ABAMECTIN	4.9678	15	284.50	A
	ACETAMIPRID	4.0688	7	50.00	A
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	268.3860	52	1,734.00	A
	AMMONIUM SULFATE	26.9999	8	109.99	A
	AZADIRACHTIN	237.9509	129	9,408.20	A
		0.0557	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL 238.0066				
	AZOXYSTROBIN	77.2455	25	786.70	A
		0.1200	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL 77.3655				
	BACILLUS PUMILUS, STRAIN QST 2808	2.4007	1	20.00	A
	BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN ABTS-1857	3,309.6600	158	5,968.00	A
		0.6480	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL 3,310.3080				
	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11	3,624.8250	35	2,843.00	A
	BIFENAZATE	18.2058	6	119.60	A
	BOSCALID	667.3205	28	1,225.00	A
	BUPROFEZIN	148.1834	31	476.00	A
	CARBARYL	0.1000	1	4.00	A
	CHLORANTRANILIPROLE	5.7945	5	95.00	A

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
TOMATO						
	CHLOROPICRIN		59,609.9020	19	1,011.54	A
	CHLOROTHALONIL		12,158.1497	127	6,556.70	A
			5.0337	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL	12,163.1834				
	CITRIC ACID		1.5122	8	109.99	A
	CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL		27,407.5874	122	8,653.00	A
	COCONUT DIETHANOLAMIDE		2.6003	19	640.00	A
	COPPER HYDROXIDE		7,997.7567	149	10,309.40	A
			0.8298	2	104,544.00	S
	TOTAL POUNDS OF THIS CHEMICAL	7,998.5865				
	COPPER OXIDE (OUS)		77.4680	3	44.00	A
	COPPER SALTS OF FATTY AND ROSIN ACIDS		213.8666	6	135.00	A
	COPPER SULFATE (BASIC)		0.0199	1	52,272.00	S
	BETA-CYFLUTHRIN		0.5137	2	28.00	A
	CYMOXANIL		129.9375	27	1,038.50	A
	CYPERMETHRIN		1.4901	1	30.00	A
	(S)-CYPERMETHRIN		91.2843	36	1,835.50	A
	CYROMAZINE		63.4425	9	509.00	A
	DIAZINON		331.3958	4	83.50	A
	1,3-DICHLOROPROPENE		30,818.6899	9	374.10	A
	DICLORAN		7.5000	1	20.00	A
	DIMETHOMORPH		98.7619	23	828.00	A
	DIMETHYLPOLYSILOXANE		267.9496	233	10,086.70	A
			0.0184	4	156,817.20	S
	TOTAL POUNDS OF THIS CHEMICAL	267.9680				
	DINOTEFURAN		62.2423	12	406.50	A
	DODECYLBENZENE SULFONIC ACID		11.2678	19	640.00	A
	EDTA, TETRASODIUM SALT		0.6934	19	640.00	A
	EMAMECTIN BENZOATE		5.8025	8	453.00	A
	ESFENVALERATE		24.6240	15	504.00	A
	FAMOXADONE		129.9375	27	1,038.50	A
	FATTY ACIDS, MIXED		8.5217	11	868.00	A
	FATTY ACIDS DERIVED FROM TALLOW		107.3544	52	1,734.00	A
	FENAMIDONE		7.4812	1	29.00	A
	FENHEXAMID		193.1500	15	256.40	A
	FENPROPATHRIN		22.4717	4	115.00	A
	FLONICAMID		17.9350	5	205.00	A
	GLYPHOSATE		127.3930	4	34.99	A
	GLYPHOSATE, DIAMMONIUM SALT		39.3628	1	15.00	A
	GLYPHOSATE, ISOPROPYLAMINE SALT		1,626.7990	1	30.00	A
	HYDROGEN PEROXIDE		5,613.0441	35	3,115.00	A
	IMIDACLOPRID		779.2310	54	2,811.00	A
			0.0321	1	1.20	S
	TOTAL POUNDS OF THIS CHEMICAL	779.2631				
	INDOXACARB		20.6160	10	340.00	A
	ISOPROPYL ALCOHOL		157.5071	155	6,569.90	A
			0.3798	4	156,817.20	S
	TOTAL POUNDS OF THIS CHEMICAL	157.8869				
	ISOPROPYLAMINE DODECYLBENZENE SULFONATE		0.6773	9	134.99	A
	LECITHIN		198.8397	11	868.00	A
	MANEB		1,299.8572	29	954.50	A
	MEFENOXAM		242.8002	45	1,139.80	A
	MEFENOXAM, OTHER RELATED		7.1431	45	1,139.80	A
	METALAXYL		0.6300	4	4.00	A
	METAM-SODIUM		13.3580	1	100.00	A
	METHOMYL		24.6643	1	20.00	A
	METHOXYFENOZIDE		537.1510	46	2,423.50	A
	METHYL BROMIDE		33,282.0000	6	452.00	A
	S-METOLACHLOR		1.5723	1	5.00	A
	METRIBUZIN		89.6250	4	201.00	A
	MINERAL OIL		1,607.1975	9	164.00	A
	MYCLOBUTANIL		258.4440	52	2,584.50	A
	NAPROPAMIDE		9.8750	3	10.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		2,100.6996	199	8,531.90	A
			4.3977	4	156,817.20	S
	TOTAL POUNDS OF THIS CHEMICAL	2,105.0973				

Commodity	Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
TOMATO						
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER		12.9339	3	65.00	A
	OXAMYL		2,778.7242	57	3,370.00	A
	PARAQUAT DICHLORIDE		338.6059	16	427.99	A
	PERMETHRIN		100.5695	10	504.00	A
	PETROLEUM DISTILLATES, REFINED		112.5909	1	16.00	A
	PETROLEUM OIL, PARAFFIN BASED		110.2316	9	134.99	A
	PHOSPHORIC ACID		10.5736	27	749.99	A
	BETA-PINENE POLYMER		0.6384	1	1.50	A
	PIPERONYL BUTOXIDE		4,624.1330	120	8,848.70	A
			0.0042	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL	4,624.1372				
	PIPERONYL BUTOXIDE, OTHER RELATED		1,156.0333	120	8,848.70	A
			0.0011	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL	1,156.0344				
	POLYACRYLIC POLYMER		0.7561	8	109.99	A
	POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE		13.0412	1	25.00	A
	POLYETHYLENE GLYCOL		973.1040	136	5,929.90	A
			2.3987	4	156,817.20	S
	TOTAL POUNDS OF THIS CHEMICAL	975.5027				
	POLY-I-PARA-MENTHENE		4,387.7427	163	12,973.00	A
	POLYOXYETHYLENE POLYOXYPROPYLENE		313.4479	95	4,061.80	A
	POLYOXYETHYLENE SORBITAN MONOOLEATE		2.7093	9	134.99	A
	POLYOXYETHYLENE SORBITAN TRIOLEATE		17.8363	9	134.99	A
	POTASH SOAP		58.2952	3	53.50	A
			9.9939	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL	68.2891				
	POTASSIUM BICARBONATE		1,608.8400	16	654.00	A
			15.3000	3	156,816.00	S
	TOTAL POUNDS OF THIS CHEMICAL	1,624.1400				
	PROPAMOCARB HYDROCHLORIDE		508.6070	24	654.00	A
	PROPIONIC ACID		198.8397	11	868.00	A
	PYMETROZINE		57.5547	19	266.50	A
	PYRACLOSTROBIN		367.8500	35	1,865.50	A
	PYRETHRINS		592.3514	138	9,112.30	A
			0.1460	4	209,088.00	S
	TOTAL POUNDS OF THIS CHEMICAL	592.4974				
	PYRIMETHANIL		12.5380	5	84.70	A
			0.3582	2	104,544.00	S
	TOTAL POUNDS OF THIS CHEMICAL	12.8962				
	PYRIPROXYFEN		16.7025	8	247.50	A
	QST 713 STRAIN OF DRIED BACILLUS SUBTILIS		312.5860	26	772.00	A
			0.4145	1	1.20	S
	TOTAL POUNDS OF THIS CHEMICAL	313.0005				
	ROTENONE		0.0889	3	3.60	A
			0.0117	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL	0.1006				
	ROTENONE, OTHER RELATED		0.0889	3	3.60	A
			0.0117	1	52,272.00	S
	TOTAL POUNDS OF THIS CHEMICAL	0.1006				
	SILICONE DEFOAMER		0.2947	19	640.00	A
	SODIUM XYLENE SULFONATE		3.4670	19	640.00	A
	SPINETORAM		185.0701	60	2,864.50	A
	SPINOSAD		60.0602	17	483.50	A
	SPIROMESIFEN		169.7472	27	1,291.00	A
	SPIROTETRAMAT		2.0313	7	215.00	A
	STREPTOMYCES LYDICUS WYEC 108		0.2919	30	1,049.00	A
	SULFUR		14,554.0000	39	1,827.50	A
	TEBUFENOZIDE		26.5531	9	172.60	A
	ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]- OMEGA-HYDROXYPOLY(OXYETHYLENE)		13.2093	19	640.00	A
	TETRAPOTASSIUM PYROPHOSPHATE		1.7335	19	640.00	A
	THIAMETHOXAM		2.8125	1	60.00	A
	THIRAM		128.9634		106,501.25	P
			6.3336		3.34	T
	TOTAL POUNDS OF THIS CHEMICAL	135.2970				

Commodity Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
TOMATO				
TRIETHANOLAMINE	4.4204	19	640.00	A
TRIFLURALIN	210.4490	7	293.00	A
Site Total	230,403.5121	2,401		
TROPICAL/SUBTROPICAL FRUIT				
GLYPHOSATE, ISOPROPYLAMINE SALT	10.0120	1	10.00	A
Site Total	10.0120	1		
TURF/SOD				
ALKYL (C8,C10) POLYGLYCOSIDE	0.8305	1	92.50	A
ALMOND, BITTER	0.0012	1	37,000.00	S
ALUMINUM PHOSPHIDE	23.2106	5	371.45	A
4-AMINOPYRIDINE	0.0781	1	130,000.00	S
ATRAZINE	5.0550	2	5.18	A
ATRAZINE, OTHER RELATED	0.1068	2	5.18	A
CARBO METHOXY ETHER CELLULOSE, SODIUM SALT	0.2131	1	37,000.00	S
CARFENTRAZONE-ETHYL	23.2089	71	1,502.85	A
CHLORANTRANILIPROLE	23.0078	17	420.72	A
CHLOROPICRIN	2,189.6875	5	31.85	A
CHLOROTHALONIL	47.9400		8.00	A
CORN GLUTEN MEAL	0.2438	1	130,000.00	S
2,4-D, DIMETHYLAMINE SALT	277.2214	29	727.41	A
2,4-D, 2-ETHYLHEXYL ESTER	450.8538	71	1,502.85	A
DICAMBA	30.5127	74	1,537.85	A
DICAMBA, DIMETHYLAMINE SALT	17.2814	25	599.91	A
DIQUAT DIBROMIDE	2.1070	2	204.00	A
ETHEPHON	17.9669	1	203.00	A
ETHOFUMESATE	141.8592	15	143.56	A
FATTY ACIDS, MIXED	0.4120	2	25.50	A
FENUGREEK	0.1279	1	37,000.00	S
FLUROXYPYR, 1-METHYLHEPTYL ESTER	2.4702	3	35.00	A
FORAMSULFURON	1.6206	4	56.01	A
GLYPHOSATE, DIAMMONIUM SALT	238.7861	7	71.84	A
GLYPHOSATE, ISOPROPYLAMINE SALT	2,058.4985	12	458.00	A
HALOSULFURON-METHYL	0.1337	7	2.19	A
ISOPROPYL ALCOHOL	8.8354	5	46.34	A
LAMBDA-CYHALOTHRIN	26.7635	37	821.48	A
LECITHIN	18.5833	3	118.00	A
MANCOZEB	16,229.8390	112	1,812.23	A
MANEB	8,497.5781	83	751.05	A
MCPP, DIMETHYLAMINE SALT	94.2215	24	580.43	A
MCPP-P, DIMETHYLAMINE SALT	3.7309	1	19.48	A
MECOPROP-P	114.3252	71	1,502.85	A
MEFENOXAM	1,022.2769	92	2,066.17	A
MEFENOXAM, OTHER RELATED	33.5960	92	2,066.17	A
METHYL BROMIDE	6,569.0625	5	31.85	A
S-METOLACHLOR	9.8687	2	5.18	A
MSMA	1.6868	1	1.00	A
NAPROPAMIDE	110.1100	3	20.02	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	33.0264	7	71.84	A
OXADIAZON	1,734.3100	27	648.12	A
PACLOBUTRAZOL	0.4703		3.00	A
PENDIMETHALIN	1.0938	1	200.00	A
POLYSILOXANE	0.0332	1	92.50	A
POTASSIUM HYDROXIDE	0.9733	1	92.50	A
POTASSIUM PEROXYMONOSULFATE	94.1265	1	29.25	A
PRODIAMINE	5.5888	1	200.00	A
PROPICONAZOLE	958.5612	115	2,280.20	A
PROPIONIC ACID	16.2580	3	118.00	A
PROPYLENE GLYCOL	0.5212	1	37,000.00	S
PROPYZAMIDE	154.1261	31	132.34	A
QUINCLORAC	1.5000		2.86	A
SUGAR	0.2131	1	37,000.00	S
TALL OIL	2.3251	5	46.34	A
THIOPHANATE	0.1563	1	130,000.00	S

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
TURF/SOD					
	TRICLOPYR, BUTOXYETHYL ESTER	248.4472	13	522.22	A
	TRICLOPYR, TRIETHYLAMINE SALT	238.5906	11	134.99	A
	TRIFLOXYSULFURON-SODIUM	0.0000	1	1.00	A
	TRINEXAPAC-ETHYL	0.6328	1	202.86	A
	ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)	9.9656	1	92.50	A
	VANILLIN	0.0198	1	37,000.00	S
	Site Total	41,794.8518	720		
TURNIP					
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	32.1303	30	124.09	A
	CHLORTHAL-DIMETHYL	264.5625	20	32.71	A
	CYFLUTHRIN	3.1309	16	68.04	A
	BETA-CYFLUTHRIN	0.2803	4	14.16	A
	EMAMECTIN BENZOATE	0.7935	10	39.56	A
	FATTY ACIDS DERIVED FROM TALLOW	12.8521	30	124.09	A
	IMIDACLOPRID	3.3788	16	63.01	A
	INDOXACARB	4.9080	17	74.84	A
	MEFENOXAM	9.2726	8	18.72	A
	MEFENOXAM, OTHER RELATED	0.2727	8	18.72	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	32.1303	30	124.09	A
	PYRACLOSTROBIN	7.7560	11	46.94	A
	SPINETORAM	0.5320	4	11.80	A
	THIRAM	254.6898		44,885.87	P
		1.0844		0.21	T
	TOTAL POUNDS OF THIS CHEMICAL 255.7742				
	Site Total	627.7742	136		
UNCULTIVATED AG					
	ALPHA-ALKYL (C12-C14)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	0.8292	1	3.00	A
	ALUMINUM PHOSPHIDE	2.3272	14	5.70	A
	AMMONIUM PROPIONATE	0.5150	1	1.50	A
	AMMONIUM SULFATE	311.3888	12	150.10	A
	N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL) ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS	3.4190	1	12.00	A
	CHLOROPICRIN	3,095.4200	1	32.93	A
	CITRIC ACID	0.2575	1	1.50	A
	2,4-D, ALKANOLAMINE SALTS (ETHANOL AND ISOPROPANOL AMINES)	2.9180	1	7.50	A
	DIPHACINONE	0.0064	3	16.50	A
	EPTC	8.7170	3	2.00	A
	FATTY ACIDS, METHYL ESTERS	12.7643	1	12.00	A
	FATTY ACIDS DERIVED FROM TALLOW	0.3317	1	3.00	A
	FLUMIOXAZIN	24.9747	15	130.50	A
	GLYPHOSATE, ISOPROPYLAMINE SALT	445.9281	13	165.89	A
	GLYPHOSATE, POTASSIUM SALT	804.7325	24	170.20	A
	LECITHIN	2.5906	2	14.50	A
	METALDEHYDE	0.4800	1	1.50	A
	4-NONYLPHENOL, FORMALDEHYDE RESIN, PROPOXYLATED	4.3307	1	12.00	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)	1.5693	3	17.50	A
	ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE), PHOSPHATE ESTER	0.1288	1	1.50	A
	OXYFLUORFEN	0.7999	1	2.00	A
	PARAQUAT DICHLORIDE	55.0397	5	52.00	A
	POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE	0.2715	1	12.00	A
	POLYBUTENES	2.2793	1	12.00	A
	PROPIONIC ACID	2.5906	2	14.50	A
	SODIUM POLYACRYLATE	0.1622	1	1.50	A
	SULFAQUINOXALINE	0.0063	1	7.50	A
	WARFARIN	0.0063	1	7.50	A
	Site Total	4,784.7846	99		

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
UNCULTIVATED NON-AG					
ALUMINUM PHOSPHIDE		0.5625	1	0.25	A
GLYPHOSATE, ISOPROPYLAMINE SALT		330.2621	23	169.81	A
GLYPHOSATE, POTASSIUM SALT		8.2775	1	5.00	A
SODIUM CHLORITE		2.5244	1	23.00	A
STRYCHNINE		0.0310	2	29.00	A
Site Total		341.6575	28		
UNKNOWN					
ACEPHATE		117.0825	2	134.00	A
ALUMINUM PHOSPHIDE		13.8000	4	40.00	A
		0.6000		20,000.00	S
TOTAL POUNDS OF THIS CHEMICAL	14.4000				
BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7		0.2582	1	1.83	A
BIFENTHRIN		0.3416	1	10.00	A
2,4-D, DIMETHYLAMINE SALT		11.6151	5	45.00	A
DICAMBA		1.2047	5	45.00	A
DIMETHOATE		82.0312	3	164.00	A
DIPHACINONE		0.0006		100.00	S
DIQUAT DIBROMIDE		0.1946	1	10.00	A
DITHIOPYR		0.7500		3.00	A
ETHEPHON		17.9669		180,000.00	S
		9.9816		3.00	A
TOTAL POUNDS OF THIS CHEMICAL	27.9485				
FLUROXYPYR, 1-METHYLHEPTYL ESTER		1.7336	5	45.00	A
IPRODIONE		11.9241		90,000.00	S
LECITHIN		15.3782	3	164.00	A
MEFLUIDIDE, DIETHANOLAMINE SALT		0.3641		3.00	A
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY (OXYETHYLENE)		4.3938	3	164.00	A
PACLOBUTRAZOL		0.8779		3.00	A
PROPICONAZOLE		3.2272		90,000.00	S
PROPIONIC ACID		15.3782	3	164.00	A
QUINCLORAC		0.7500		3.00	A
SIDURON		6.8750		5.00	A
THIRAM		22.6842		9,085.13	P
TRINEXAPAC-ETHYL		1.1735		261,540.00	S
Site Total		340.5868	20		
VEGETABLE					
THIRAM		111.4445		44,634.63	P
		14.4765		2.89	T
TOTAL POUNDS OF THIS CHEMICAL	125.9210				
Site Total		125.9210			
VERTEBRATE CONTROL					
ALKYL (60%C14, 30%C16, 5%C12, 5%C18) DIMETHYLBENZYL AMMONIUM CHLORIDE		0.5000			
ALKYL (68%C12, 32%C14) DIMETHYLETHYLBENZYL AMMONIUM CHLORIDE		0.5000			
ALUMINUM PHOSPHIDE		18.2721			
		0.0344	1	6.00	U
TOTAL POUNDS OF THIS CHEMICAL	18.3065				
BIFENTHRIN		0.6469			
BORAX		0.5893			
BROMADIOLONE		0.0008			
CARFENTRAZONE-ETHYL		0.0882			
DELTAMETHRIN		0.0002			
DICAMBA		0.4945			
DIPHACINONE		0.0398			
DIQUAT DIBROMIDE		0.0082			
FORAMSULFURON		0.0116			
GLYPHOSATE, ISOPROPYLAMINE SALT		75.4385			
GLYPHOSATE, MONOAMMONIUM SALT		46.5716			
MCPA, 2-ETHYL HEXYL ESTER		7.7169			

Commodity Chemical		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
VERTEBRATE CONTROL					
MECOPROP-P		0.9908			
PHOSPHORIC ACID		9.0000			
STRYCHNINE		0.0420			
TRIFLOXYSTROBIN		1.0000			
Site Total		161.9458	1		
WATER (INDUSTRLIAL)					
ALKYL(42%C12, 26%C18, 15%C14, 8%C16, 5%C10, 4%C8)1, 3-PROPYLENEDIAMINE		7,592.5052		9.00	A
		2,319.1800		2.00	U
TOTAL POUNDS OF THIS CHEMICAL	9,911.6852				
1-BROMO-3-CHLORO-5,5-DIMETHYL HYDANTOIN		33.6000		7.00	U
		3.0000		5.00	A
TOTAL POUNDS OF THIS CHEMICAL	36.6000				
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE		3.6145		7.00	A
		0.5660		6.00	U
TOTAL POUNDS OF THIS CHEMICAL	4.1805				
2,2-DIBROMO-3-NITRILOPROPIONAMIDE		272.8073		11.00	A
		71.8826		3.00	U
TOTAL POUNDS OF THIS CHEMICAL	344.6899				
1,3-DICHLORO-5,5-DIMETHYLHYDANTOIN		15.3440		7.00	U
		1.3700		5.00	A
TOTAL POUNDS OF THIS CHEMICAL	16.7140				
1,3-DICHLORO-5-ETHYL-5-METHYLHYDANTOIN		5.9360		7.00	U
		0.5300		5.00	A
TOTAL POUNDS OF THIS CHEMICAL	6.4660				
DIOCTYL DIMETHYL AMMONIUM CHLORIDE		57.7332		3.00	A
GLUTARALDEHYDE		10,104.6723		722.00	A
		1,720.1450		4.00	U
TOTAL POUNDS OF THIS CHEMICAL	11,824.8173				
1-(2-HYDROXYETHYL)-2-ALKYL-2-IMIDAZOLINE, ALKYL DERIVED FROM TALL OIL FATTY ACIDS		19.1590		1.00	U
2-METHYL-4-ISOTHIAZOLIN-3-ONE		1.2699		7.00	A
		0.1989		6.00	U
TOTAL POUNDS OF THIS CHEMICAL	1.4688				
POLY(OXYETHYLENE) (DIMETHYLIMINO) ETHYLENE (DIMETHYLIMINO) ETHYLENE DICHLORIDE		317.3880		4.00	A
		158.6940		2.00	U
TOTAL POUNDS OF THIS CHEMICAL	476.0820				
SODIUM BROMIDE		863.0513		37.00	A
		571.0490		20.00	U
TOTAL POUNDS OF THIS CHEMICAL	1,434.1003				
SODIUM HYPOCHLORITE		594.6919		37.00	A
		393.4855		20.00	U
TOTAL POUNDS OF THIS CHEMICAL	988.1774				
TETRAKIS (HYDROXYMETHYL) PHOSPHONIUM SULFATE		6,423.8757		2.00	A
Site Total		31,545.7493			
WATER AREA					
BACILLUS THURINGIENSIS, SUBSP. ISRAELENSIS, STRAIN AM 65-52		161.4595		234.00	A
COPPER CARBONATE, BASIC		52.3580		12.00	A
COPPER ETHANOLAMINE COMPLEXES, MIXED		12.7650		12.50	A
COPPER SULFATE (PENTAHYDRATE)		78.5976	8	3.20	A
DIQUAT DIBROMIDE		5.5937	1	1.00	A
Site Total		310.7738	9		
WATERCRESS					
ACETAMIPRID		12.6525	16	118.00	A
ALUMINUM PHOSPHIDE		0.0375	1	1.00	A
AZOXYSTROBIN		8.7536	1	54.00	A
BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN SD-1372, LEPIDOPTERAN ACTIVE TOXIN(S)		0.0515	1	1.00	A
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES		2.1600	2	2.00	A

Department of Pesticide Regulation
2008 Annual Pesticide Use Report Indexed by Commodity
Ventura County

Commodity	Chemical	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
WATERCRESS					
	CYPRODINIL	5.1563	1	20.00	A
	DIMETHYLPOLYSILOXANE	51.3631	6	251.75	A
	FLUDIOXONIL	3.4375	1	20.00	A
	GLYPHOSATE, ISOPROPYLAMINE SALT	0.4955	1	1.00	A
	IMIDACLOPRID	8.7385	8	191.75	A
	MALATHION	600.4002	103	453.12	A
	PIPERONYL BUTOXIDE	13.5553	7	124.75	A
	PIPERONYL BUTOXIDE, OTHER RELATED	3.3888	7	124.75	A
	POLYOXYETHYLENE POLYOXYPROPYLENE	17.1210	6	251.75	A
	POTASSIUM PEROXYMONOSULFATE	4.3200	1	1.00	A
	PYRETHRINS	1.7751	8	126.75	A
	SPINOSAD	1.7627	3	14.00	A
	Site Total	735.1691	152		
WATERMELON					
	THIRAM	371.7155		264,881.00	P
		8.7012		3.09	T
	TOTAL POUNDS OF THIS CHEMICAL 380.4167				
	Site Total	380.4167			
	Ventura County Total	**6,437,899.1003**	**80,250**		

Appendix H

Ojai Valley Organics Recycling Facility (OVORF)

2009 Groundwater Monitoring Report

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SUMMARY

INTRODUCTION:

The 2009 Annual Groundwater Monitoring Report (Report) for the Ojai Valley Organics Recycling Facility (OVORF) is the second triennial monitoring report since the baseline-monitoring Solid Waste Assessment Testing (SWAT) was conducted between August 1998 and July 1999.

The SWAT monitoring program was required by the California Regional Water Quality Control Board (RWQCB) in Cleanup and Abatement Order No. 97-107. The RWQCB Order required groundwater monitoring, which was implemented by Ventura Regional Sanitation District for the Solid Waste Management Department (now IWMD) for meeting the baseline compliance with the monitoring requirements. The RWQCB deemed the SWAT acceptable and complete in a letter to IWMD dated October 19, 1999.

FINDINGS:

Purging and Sampling

Water samples were collected from the two existing groundwater wells on April 15, 2009. An electric submersible pump was used for purging and sampling of the wells.

Temperature, pH, conductivity and apparent color / turbidity were measured and recorded at regular intervals during purging. Static water levels were measured and recorded for each well.

The following table enumerates the actual purge volumes:

DATE	MW - 1 (Gallons)	MW – 5 (Gallons)
April 15, 2009	27 +	30 +

WATER QUALITY DATA

Groundwater samples were collected and analyzed for the constituents specified by Water Resources Division Condition No. 78 – Groundwater Well Monitoring Protocols contained in CUP 4408-2. The attached laboratory data summarizes the results for this monitoring and reporting period.

WATER LEVEL DATA

Water level data was collected from the two monitoring wells. Water levels were taken from established reference points at each well. The elevations of these reference points were used to determine the water surface elevations.

The water surface elevations at MW-1 and MW-5 are 535.40 and 537.40 feet (above mean sea level), respectively. The direction of the groundwater gradient is due westerly, perpendicular to the direction of flow in the Ventura River. The magnitude (or slope) of the water gradient is -0.002352941 ft. per linear foot [i.e., (535.40 – 537.40) ÷ 850], where 850 ft is the distance between MW-1 and MW-5.

The direction and magnitude of the water gradient for this report have remained relatively consistent with the data obtained during the baseline-monitoring period.

CONCLUSION:

Groundwater level and quality data obtained for this 2009 triennial report are consistent with the data gathered during the SWAT baseline monitoring.

Collection of water level data at each well will continue to be monitored and reported to the Water Resources triennially.

Ojai Valley Organics Recycling Facility

Monitoring / Reporting Program
Condition No. 78 of CUP 4408-2

2009 - Third Year
Groundwater Monitoring Results

Triennial Results	Sample Date: April 15, 2009	
CONSTITUENTS	MW - 1 Upgradient Well	MW - 5 Downgradient Well
pH (Field) (pH Units)	7.3	7.5
pH (Lab) (pH Units)	7.3	7.5
EC (Field) (umhos/cm)	690	642
EC (Lab) (umhos/cm)	720	706
Total Alkalinity	223	180
Sulfate	225	243
Chloride	25.9	30.3
Nitrite as N	< 0.05	< 0.05
Nitrate as N	1.00	0.48
TDS	604	600
Ammonia as N *	< 0.01	< 0.01
Organic Nitrogen as N *	< 0.05	< 0.05

Note:
Unit of measurement in mg/L unless noted.
< X denotes result below X, detection limit of reporting.

Appendix I

Business Plan, Hazardous Waste Generator

& Underground Storage Tank Sites (BWT) Tables

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TABLE A
INACTIVE UNDERGROUND TANK SITES

ID	Site Name	Address	City
D 1381	Wayne J. Adams	154 Ranch Rd.	Casitas Springs
D 168	Robert & Nickey Gregory	829 El Roblar Dr.	Meiners Oaks
D 1207	Jones, Bob	25 Burnham Rd.	Oak View
D 1332	Henry Ronk	85 Monterey Dr.	Oak View
D 1074	Pacific Bell	290 Old Grade Rd.	Oak View
D 1060	Burl Wilson (George Ryan)	520 Ventura Ave.	Oak View
D 884	VC-Fire Protection Dist	15 Kunkle St.	Oak View
D 1255	Bureau Of Reclamation	10175 Santa Ana Rd.	Oak View
D 1256	Bureau Of Reclamation	Sect. 13, Twnshp 4N, R 24	Oak View
D 666	James Kerwin	2153 Valley Meadow Dr.	Oak View
D 670	Oak View Transmissions	501 Ventura Ave.	Oak View
D 1060	Burl Wilson (George Ryan)	520 Ventura Ave.	Oak View
D 671	Margaret Gilbert	820 Ventura Ave.	Oak View
D 1129	Wright, James	880 Ventura Ave.	Oak View
D 690	Moody's Equipment Rental	8990 Ventura Ave.	Oak View
D 512	Orville Stovall	505 Prospect Ave.	Oak View
D 1552	Chevron #9-5273 (Rock Long's)	805 N. Ventura Ave.	Oak View
D 12H	Hummel & Christianson	102 Aliso St.	Ojai
D 1025	Gabriel's	65 Baldwin Rd.	Ojai
D 1299	Adamsons Automotive & Towing	214 Bryant St.	Ojai
D 48	R.R. Looman	405 Bryant St.	Ojai
D 969	Stan Coburn	408 Canada St.	Ojai
D 1041	Ojai Valley School	723 El Paseo Rd.	Ojai
D 1190	Mr. & Mrs. James Loebl	715 El Toro Rd.	Ojai
D 1231	William B Silson, Estate	111 S. Encinal	Ojai
D 189	Ojai Rubbish Disposal	310 Fulton Avenue.	Ojai
D 188	Len Mann	309 Fulton Avenue, C	Ojai
D 1539	Ojai Valley Texaco	110 Ojai Ave.	Ojai
D 1529	USDA Forest Service	723 Ojai Ave.	Ojai
D 1107	Ward, Roy D	310 Foothill Rd.	Ojai
D 187	Nordhoff Foreign Auto Care	309 Fulton Avenue, B	Ojai

ID	Site Name	Address	City
D 1220	Mann's Industrial	309 Fulton Avenue, C	Ojai
D 198	E. Sydney Mercer	1175 Grand Ave.	Ojai
D 1065	Halpern Trust (Space Metals)	3559 Grand Ave.	Ojai
D 1302	Ojai Land Co	2645 Gridley Rd.	Ojai
D 1450	Milagro De Ladera Lp	3185 Hermitage Rd	Ojai
D 341	U.S. Forest Service-Ozena	Hwy 33	Ojai
D 1154	Truesdell, Lynn	3191 Ladera Ranch Rd.	Ojai
D 851	Doreen M. Dye	210 Lomita Ave.	Ojai
D 1009	Caltrans Ojai	1116 Maricopa Hwy.	Ojai
D 1093	Ojai Valley Hospital	1306 Maricopa Hwy.	Ojai
D 342	Nordhoff High School	1401 Maricopa Hwy.	Ojai
D 1245	Rame, Jack Apache Canyon Ranch	31046 Maricopa Hwy.	Ojai
D 1356	Acacias Care Center	601 Montgomery St.	Ojai
D 400	Jones Markland Et Al	76 Oak St.	Ojai
D 402	Remutulah Merali	220 Oak St.	Ojai
D 412	Clark's Ojai Cardlock	304 Ojai Ave.	Ojai
D 1336	Ojai Unified School Dist	414 Ojai Ave.	Ojai
D 971	Goodyear	423 Ojai Ave.	Ojai
D 406	George E. Friend	469 Ojai Ave.	Ojai
D 413	Ojai Valley Ford	821 Ojai Ave.	Ojai
D 864	Peggy Mantz	900 Ojai Ave.	Ojai
D 1180	Fulton Properties(Wayne Wells)	915 Ojai Ave.	Ojai
D 854	Ojai Foreign Auto	996 Ojai Ave.	Ojai
D 1145	Vreeland, James	1023 Ojai Ave.	Ojai
D 956	Soule Golf Course	1033 Ojai Ave.	Ojai
D 408	Aqua-Flo Supply	1940 Ojai Ave.	Ojai
D 409	St. Joseph's Convalescent Hospital	2464 Ojai Ave.	Ojai
D 411	Holve Ranch	2728 Ojai Ave.	Ojai
D 1213	Mandulay, Mike	1020 Ojai Rd.	Ojai
D 1082	VC Fire Station #21	1201 Ojai Rd.	Ojai
D 423	Ryiyerson, Arthur C.	3277 Ojai-Santa Paula Rd.	Ojai
D 422	Happy Valley School	8585 Ojai-Santa Paula Rd.	Ojai
D 1361	Rancho Shangrila	9340 Ojai-Santa Paula Rd.	Ojai
D 1121	Wood, Ed & Wendy	9866 Ojai-Santa Paula Rd.	Ojai
D 1322	Ivan Axelrod	10924 Ojai-Santa Paula Rd.	Ojai
D 431	Live Oak Ranch	1388 Orange Rd.	Ojai
D 521	K-R Citrus #1	4225 Reeves Rd.	Ojai
D 1214	Leibovitch, Harriet	1204 Rice Rd.	Ojai
D 538	USFS/Rose Valley-Helicopter Base	Rose Valley Rd.	Ojai
D 424	Heifman	10652 Santa Paula/Ojai Rd.	Ojai

ID	Site Name	Address	City
D 590	Chase Bros. Dairy #12	201 Signal Street	Ojai
D 591	Ojai (City)	408 Signal Street	Ojai
D 1095	Tomkinson, Bruce	3511 Thacher Rd.	Ojai
D 1345	Thacher School	5025 Thacher Rd.	Ojai
D 659	Carson Farm Supply Inc.	111 Topa Street	Ojai
D 663	Clayton Wright	12745 Tree Ranch Rd.	Ojai
D 776	Fast Gas	11120 Ventura Ave.	Ojai
D 712	Sheriff Substation	402 Ventura St.	Ojai
D 340	U. S. Forest Service	Wheeler Gorge	Ojai
D 346	Clausen Funeral Home/Ojai AMB	310 Matilija St.	Ojai

TABLE B
PERMITTED CERTIFIED UNIFIED PROGRAM AGENCY (CUPA) FACILITIES
(BWT LIST)

File ID#	Facility	Address	City	Program(s)
FA0005156	Casitas Lake Recreational Area	11311 Santa Ana Rd	Oak View	4105 – Cupa Underground Tanks
FA0004931	CMWD-Main Office & Workshop	1055 Ventura Ave	Oak View	4105 – Cupa Underground Tanks
FA0005064	Arco/Prestige Stations #9612	795 N Ventura Ave	Oak View	4105 – Cupa Underground Tanks
FA0006756	Rock Long's Automotive	800 N Ventura Ave	Oak View	4105 – Cupa Underground Tanks
FA0005402	Shell – Oakview	905 N Ventura Ave	Oak View	4105 – Cupa Underground Tanks
FA0005691	A&I Mini Mart And Gas	246 W El Roblar Dr	Ojai	4105 – Cupa Underground Tanks
FA0004941	Ojai 76 #254764	1124 Maricopa Hwy	Ojai	4105 – Cupa Underground Tanks
FA0005099	GSA/Maintenance Site #7	1768 Maricopa Hwy	Ojai	4105 – Cupa Underground Tanks
FA0004930	Ojai Valley Inn-Golf Maint Fac	1203 W Ojai Ave	Ojai	4105 – Cupa Underground Tanks
FA0005024	SBC	202 W Ojai Ave	Ojai	4105 – Cupa Underground Tanks
FA0005214	Ojai Chevron #90478	360 E Ojai Ave	Ojai	4105 – Cupa Underground Tanks
FA0005393	Ultramar Station #3-754	616 E Ojai Ave	Ojai	4105 – Cupa Underground Tanks
FA0005680	Circle K Corporation #1045	11408 Ventura Ave	Ojai	4105 – Cupa Underground Tanks

TABLE C
LEAKING UNDERGROUND FUEL TANK SITES

- Leaking Underground fuel tank (LUFT) and voluntary cleanup program (vcp) June 20088– Present (no status designation per property as shown in Table C)

Case #	Site Name	Address	City	Status*
91081	Mobil Oil SS (Earl's)	246 El Roblar Dr	Meiners Oaks	9
03019	Arco #9612	795 Ventura Ave	Oak View	5C
03024	Shell Oil SS - Oakview	905 Ventura Ave	Oak View	9
04032	Calleguas Municipal Water District	1055 Ventura Ave	Oak View	
85027	Fast Gas	11120 Ventura Ave	Oak View	9
86017	Shell Oil SS - Ventura	905 Ventura Ave	Oak View	9
88016	Thrifty Oil Co SS #207	795 Ventura Ave	Oak View	9
88151	William Robey	501 Ventura Ave	Oak View	9
89023	V-Fire Protection District #23	15 Kunkle	Oak View	9
89036	William Watkins	Prospect St	Oak View	9
89087	Casitas Municipal Water District	1055 Ventura Ave	Oak View	9
89091	B&D Automotive	800 Ventura Ave	Oak View	9
93019	George Ryan	520 Ventura Ave	Oak View	9
96001	Chevron #9-5273	805 Ventura Ave	Oak View	9
96002	Lake Casitas Mobile Home Park	25 Burnham Rd	Oak View	9
96057	Bureau Of Reclamation	10175 Santa Ana Rd	Oak View	9
01008	Doris Bolyard Residence	9599 Ojai-Santa Paula Rd	Ojai	9
03037	Pacific Bell	202 Ojai Ave	Ojai	9
05016	Chevron S/S #9-0478	360 Ojai Ave	Ojai	8
85021	Fast Gas	616 Ojai Ave	Ojai	9
86095	Ojai Valley Imports	996 Ojai Ave	Ojai	5C
87008	G.E. Friend (Deceased)	469 Ojai Ave	Ojai	9
87061	USFS-Wheeler Gorge	1190 Ojai Ave	Ojai	9
88009	Mike Mandolay	821 Ojai Ave	Ojai	9
88049	Hailwood, Inc.	201 Signal St	Ojai	9
88086	Unocal #4764 (Former Tosco - 76 SS)	1124 Maricopa Hwy	Ojai	7
88107	Chevron #9-0478	360 Ojai Ave	Ojai	9
88147	Kwik Serve	110 Ojai Ave	Ojai	7
88187	VCO Road Maintenance	1768 Maricopa Hwy	Ojai	8
89009	Nordhoff High School	1401 Maricopa Hwy	Ojai	9
89033	Holve Ranch	2728 Ojai Ave	Ojai	9
90052	Landis Inc.	304 Ojai Ave	Ojai	9
90109	V-Fire Station #21	1201 Ojai Rd	Ojai	9
90130	Peggy Mantz	900 Ojai Ave	Ojai	9
91078	Goodyear Tire (Ojai)	423 Ojai Ave	Ojai	9
91090	V-Soule Park Golf Course	1033 Ojai Ave	Ojai	9

Case #	Site Name	Address	City	Status*
92013	Ojai Valley Community Hospital	1306 Maricopa Hwy	Ojai	9
92037	Caltrans Ojai	1116 Maricopa Hwy	Ojai	5C
94001	Tomkinson Residence	3511 Thacher Rd	Ojai	9
94047	Vreeland-Ojai	1023 Ojai Ave	Ojai	9
95154	Fulton Properties Ltd	915 Ojai Ave	Ojai	9
95177	Mandulay Property	1020 Ojai Ave	Ojai	9
96049	Ojai Valley Wastewater Treatment Plant	6363 Ventura Ave	Ojai	9
98015	Tosco #1045 (Circle K)	11408 Ventura Ave	Ojai	3B
98037	Ivan Axelrod Property	10924 Ojai-Santa Paula Rd	Ojai	9
99019	Ojai Unified School Facility	414 Ojai Ave	Ojai	9
99035	Beacon #3754	616 Ojai Ave	Ojai	8
04011	Ojai Valley Inn Golf Course Maintenance	905 Country Club Dr	Ojai	9
04024	Tony's American Gas & Mini Mart	246 El Roblar Dr	Ojai	9
88088	Hummel & Christianson	Aliso St	Ojai	9
88181	Mann Property (Len)	309 Fulton St	Ojai	8
90108	V-Fire Station #22	466 Laluna Ave	Ojai	9
90124	Gabriels Property (Leo)	65 Baldwin Rd	Ojai	5R
92004	Coburn Property (Stan)	408 Canada St	Ojai	7
93020	Jackie H Ranch	3559 Grand Ave	Ojai	9
95002	Truesdell Ranch	3191 Ladera Rd	Ojai	9
95157	Loebl Residence	715 El Toro Rd	Ojai	9
99028	Acacias Care Center	601 Montgomery St	Ojai	9

***KEY: 1=Leak Confirmation; 3A3B=Preliminary Site Assessment; 5C=Site Characterization; 5R=Remedial Action Plan; 7=Remedial Action; 8=Monitoring; 9=Closed**

TABLE D
PERMITTED CUPA FACILITIES, BUSINESS PLAN HOLDERS (BWT LIST)

File ID#	Facility	Address	City	Program(s)
FA0007018	Forest Home Ministries-Ojai Valley	655 Burnham Rd	Oak View	4220 - Business Plan
FA0009159	Verizon Wireless Oakview	655-A Burnham Rd	Oak View	4220 - Business Plan
FA0009756	Logsdon's Mobile Radiator	77 Calle Vista Del Monte	Oak View	4220 - Business Plan
FA0009687	Verizon Wireless-Rincon Mtn. Peak	Rincon Mountain	Oak View	4220 - Business Plan
FA0006922	Greg Rents & Equipment Sales	420 N Ventura Ave	Oak View	4220 - Business Plan
FA0005154	CMWD-#1 Chlorination Station	Casitas Vista Rd	Oak View	4220 - Business Plan
FA0005023	SBC	290 Old Grade Rd	Oak View	4220 - Business Plan
FA0006422	David Jury Automotive	222 Riverside Rd	Oak View	4220 - Business Plan
FA0005156	Casitas Lake Recreational Area	11311 Santa Ana Rd	Oak View	4220 - Business Plan
FA0004931	CMWD-Main Office & Workshop	1055 Ventura Ave	Oak View	4220 - Business Plan
FA0006754	Fred's Tire Man	545 N Ventura Ave	Oak View	4220 - Business Plan
FA0005064	Arco/Prestige Stations #9612	795 N Ventura Ave	Oak View	4220 - Business Plan
FA0006756	Rock Long's Automotive	800 N Ventura Ave	Oak View	4220 - Business Plan
FA0006905	Oak View Auto Center	880 N Ventura Ave	Oak View	4220 - Business Plan
FA0005402	Shell-Oakview	905 N Ventura Ave	Oak View	4220 - Business Plan
FA0004945	Ojai Unified School District	413 E Aliso St	Ojai	4220 - Business Plan
FA0004957	Gabriel’s Imports	65 W Baldwin Rd	Ojai	4220 - Business Plan
FA0006253	Ojai Printing & Publishing Co.	111 N Blanche St	Ojai	4220 - Business Plan
FA0006906	Full Spectrum Landscape	108 Bryant St #A	Ojai	4220 - Business Plan
FA0006720	Doyle's Auto Service	207 Bryant St	Ojai	4220 - Business Plan
FA0004917	Brue's Body Shop	207 Bryant St	Ojai	4220 - Business Plan
FA0004926	Adamson Automotive & Towing	214 S Bryant St	Ojai	4220 - Business Plan
FA0006714	Antrin Enterprises, Inc.	406 Bryant Cir #H	Ojai	4220 - Business Plan

File ID#	Facility	Address	City	Program(s)
FA0005170	CMP-One-B&B/Bailey Lease	12510 Creek Rd	Ojai	4220 - Business Plan
FA0009421	New Cingular Wireless -DT Ojai	12540 Creek Rd	Ojai	4220 - Business Plan
FA0009691	Verizon Wireless	12550 Creek Rd	Ojai	4220 - Business Plan
FA0005348	Meiners Oaks County Water Dist.	202 W. El Roblar Dr	Ojai	4220 - Business Plan
FA0005431	Meiners Oaks Co Water Dist-#4, 7	202 W. El Roblar Dr	Ojai	4220 - Business Plan
FA0005691	A&I Mini Mart And Gas	246 W. El Roblar Dr	Ojai	4220 - Business Plan
FA0006765	Roland's Smog Check/Automotive	829 W. El Roblar Dr	Ojai	4220 - Business Plan
FA0005089	Mirada-ADP Nesbitt Lease	End Of Koenigstein Rd	Ojai	4220 - Business Plan
FA0005463	Huntsinger – Ojai	1777 Grand Ave	Ojai	4220 - Business Plan
FA0005706	Southern Calif Water Co	2035 Grand Ave	Ojai	4220 - Business Plan
FA0005531	Sespe Lease, Inc.	Hamp Lease-Shallow	Ojai	4220 - Business Plan
FA0007042	Mirada Petro Inc- Mp Lane Fed Lease	Koenigstein Rd	Ojai	4220 - Business Plan
FA0005852	Meiner's Oaks Auto Repair	102 N La Luna Ave	Ojai	4220 - Business Plan
FA0005218	Senior Canyon Mutual Water Co	Ladera (Senior Cyn) Rd	Ojai	4220 - Business Plan
FA0004924	Caltrans-Ojai Maintenance Yard	1116 Maricopa Hwy	Ojai	4220 - Business Plan
FA0004941	Ojai 76 #254764	1124 Maricopa Hwy	Ojai	4220 - Business Plan
FA0005872	Royal Cleaners	1205 Maricopa Hwy #B	Ojai	4220 - Business Plan
FA0004916	Ojai Valley Community Hospital	1306 Maricopa Hwy	Ojai	4220 - Business Plan
FA0005119	Nordhoff High School	1401 Maricopa Hwy	Ojai	4220 - Business Plan
FA0005099	GSA/Maintenance Site #7	1768 Maricopa Hwy	Ojai	4220 - Business Plan
FA0005298	Topa Topa Ranch & Nursery	600 McAndrew Rd	Ojai	4220 - Business Plan
FA0004932	Les Hink's Automotive	204 E Oak St	Ojai	4220 - Business Plan
FA0010225	Maverick Oil - Ojai Fee Lease	Off Hwy 150	Ojai	4220 - Business Plan
FA0005358	Mirada-Agnew Lease	Off Koenigstein Rd	Ojai	4220 - Business Plan

File ID#	Facility	Address	City	Program(s)
FA0009815	Southern Calif. Water Co	1002-A Ojai Ave	Ojai	4220 - Business Plan
FA0005109	Soule Park Golf Course	1033 E Ojai Ave	Ojai	4220 – Business Plan
FA0005167	U S Forest Service	1190 E Ojai Ave	Ojai	4220 - Business Plan
FA0004930	Ojai Valley Inn-Golf Maint Fac	1203 W Ojai Ave	Ojai	4220 - Business Plan
FA0005024	SBC	202 W Ojai Ave	Ojai	4220 - Business Plan
FA0005217	St Joseph's Convalescent Hospital	2464 E Ojai Ave	Ojai	4220 - Business Plan
FA0005248	Holve Ranch	2728 E Ojai Ave	Ojai	4220 - Business Plan
FA0005267	Long Ranches – Ojai	2788 E Ojai Ave	Ojai	4220 - Business Plan
FA0005629	Ojai Valley Cleaners	345 E Ojai Ave	Ojai	4220 - Business Plan
FA0005214	Ojai Chevron #90478	360 E Ojai Ave	Ojai	4220 - Business Plan
FA0005393	Ultramar Station #3-754	616 E Ojai Ave	Ojai	4220 - Business Plan
FA0006270	A Automotive & Mechanical	915 E Ojai Ave	Ojai	4220 - Business Plan
FA0005404	Ojai Ford	987 W Ojai Ave	Ojai	4220 - Business Plan
FA0005356	Ojai Valley Imports	996 E Ojai Ave	Ojai	4220 - Business Plan
FA0009160	Verizon Wireless Ojai Valley	11811 Ojai-Santa Paula Rd	Ojai	4220 - Business Plan
FA0009422	New Cingular Wireless PCS-14619	11818 Ojai/Santa Paula Rd	Ojai	4220 - Business Plan
FA0006761	Lozano's Auto Repair	106 Park Rd	Ojai	4220 - Business Plan
FA0008329	Verizon Wireless	Red Mountain	Ojai	4220 - Business Plan
FA0004918	Ojai Valley School (Upper Campus)	10820 Reeves Rd	Ojai	4220 - Business Plan
FA0005257	Jerry L. Conrow & Company	3359 Reeves Rd	Ojai	4220 - Business Plan
FA0004927	City Of Ojai	408 S Signal St	Ojai	4220 - Business Plan
FA0006801	Nextel Communications	Skunk Ranch Rd	Ojai	4220 - Business Plan
FA0005621	Mirada Petroleum-Hartman Lease	Sulphur Mountain Rd	Ojai	4220 - Business Plan
FA0005359	Restech-Freeman Lease	Sulphur Mountain Rd	Ojai	4220 - Business Plan

File ID#	Facility	Address	City	Program(s)
FA0005169	Maverick Oil - Schroeder Lease	Sulphur Mountain Rd	Ojai	4220 - Business Plan
FA0005489	Twin Peaks Ranch	4403 Thacher Rd	Ojai	4220 - Business Plan
FA0005346	The Thacher School, Inc	5025 Thacher Rd	Ojai	4220 - Business Plan
FA0006717	Ojai Valley Sanitary District	1072 Tico Rd	Ojai	4220 - Business Plan
FA0005869	Quality Muffler	1287 S Tico Rd	Ojai	4220 - Business Plan
FA0004942	Verizon Ca Inc.-Topa Lane RSU	12081 Topa Ln	Ojai	4220 - Business Plan
FA0005000	Valley Equipment	11110 N Ventura Ave	Ojai	4220 - Business Plan
FA0005680	Circle K Corporation #1045	11408 Ventura Ave	Ojai	4220 - Business Plan
FA0006286	Ojai Spring Carwash & Co.	11502 N Ventura Ave	Ojai	4220 - Business Plan
FA0004948	Villanova Preparatory School	12096 N Ventura Ave	Ojai	4220 - Business Plan

TABLE E
PERMITTED CUPA FACILITIES, HAZARDOUS WASTE GENERATORS (BWT LIST)

File ID#	Facility	Address	City	Program(s)
FA0007947	Kell/Simpson Building	108-110 E Portal St	Oak View	4403 – Medical Hazardous Waste/X-Ray
FA0007677	Animal Clinic Of Oak View	600 N Ventura Ave	Oak View	4403 – Medical Hazardous Waste/X-Ray
FA0007522	Matilija Veterinary Hospital	108 Bryant St	Ojai	4403 – Medical Hazardous Waste/X-Ray
FA0007530	Ojai Pet Hospital	1120 Maricopa Hwy	Ojai	4403 – Medical Hazardous Waste/X-Ray
FA0007179	Garber, David, D.D.S.	411 W Ojai Ave	Ojai	4403 - Medical Hazardous Waste/X-Ray
FA0007156	Saeghi, Ali DDS A Prof Corp	603 W Ojai Ave F	Ojai	4403 - Medical Hazardous Waste/X-Ray
FA0007172	Buck, Thomas DDS	115 Pirie Rd G	Ojai	4403 - Medical Hazardous Waste/X-Ray
FA0007147	Rodriguez, Irina E. DDS	117 Pirie Rd A	Ojai	4403 - Medical Hazardous Waste/X-Ray
FA0007170	Harris, Wyatt A. DDS	204 Pirie Rd B	Ojai	4403 - Medical Hazardous Waste/X-Ray
FA0006271	Happy Valley School	8585 Ojai-Santa Paula Rd	Ojai	4406 - Special Hazardous Waste
FA0009756	Logsdon's Mobile Radiator	77 Calle Vista Del Monte	Oak View	4420 - Hazardous Waste Generator
FA0006922	Greg Rents & Equipment Sales	420 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0008268	Move N' Lube	520 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0005154	CMWD-#1 Chlorination Station	Casitas Vista Rd	Oak View	4420 - Hazardous Waste Generator
FA0006422	David Jury Automotive	222 Riverside Rd	Oak View	4420 - Hazardous Waste Generator
FA0005156	Casitas Lake Recreational Area	11311 Santa Ana Rd	Oak View	4420 - Hazardous Waste Generator
FA0004931	CMWD-Main Office & Workshop	1055 Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0006893	K&C Automotive Repair	520 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator

File ID#	Facility	Address	City	Program(s)
FA0006754	Fred's Tire Man	545 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0006315	Headin' West	790 Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0005064	Arco/Prestige Stations #9612	795 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0006756	Rock Long's Automotive	800 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0006905	Oak View Auto Center	880 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0005402	Shell - Oakview	905 N Ventura Ave	Oak View	4420 - Hazardous Waste Generator
FA0004945	Ojai Unified School District	413 E Aliso St	Ojai	4420 - Hazardous Waste Generator
FA0004957	Gabriel’s Imports	65 W Baldwin Rd	Ojai	4420 - Hazardous Waste Generator
FA0006253	Ojai Printing & Publishing Co	111 N Blanche St	Ojai	4420 - Hazardous Waste Generator
FA0006720	Doyle's Auto Service	207 Bryant St	Ojai	4420 - Hazardous Waste Generator
FA0004917	Brue's Body Shop	207 Bryant St	Ojai	4420 - Hazardous Waste Generator
FA0004926	Adamson Automotive & Towing	214 S Bryant St	Ojai	4420 - Hazardous Waste Generator
FA0006714	Antrin Enterprises, Inc.	406 Bryant Cir #H	Ojai	4420 - Hazardous Waste Generator
FA0006765	Roland's Smog Check/Automotive	829 W El Roblar Dr	Ojai	4420 - Hazardous Waste Generator
FA0006334	Mosler Rock-Ojai Quarry	Hwy 33	Ojai	4420 - Hazardous Waste Generator
FA0005852	Meiner's Oaks Auto Repair	102 N La Luna Ave	Ojai	4420 - Hazardous Waste Generator
FA0004924	Caltrans-Ojai Maintenance Yard	1116 Maricopa Hwy	Ojai	4420 - Hazardous Waste Generator
FA0004941	Ojai 76 #254764	1124 Maricopa Hwy	Ojai	4420 - Hazardous Waste Generator
FA0005872	Royal Cleaners	1205 Maricopa Hwy #B	Ojai	4420 - Hazardous Waste Generator
FA0004916	Ojai Valley Community Hospital	1306 Maricopa Hwy	Ojai	4420 - Hazardous Waste Generator
FA0005119	Nordhoff High School	1401 Maricopa Hwy	Ojai	4420 - Hazardous Waste Generator
FA0004932	Les Hink's Automotive	204 E Oak St	Ojai	4420 - Hazardous Waste Generator
FA0005109	Soule Park Golf Course	1033 E Ojai Ave	Ojai	4420 - Hazardous Waste Generator
FA0005167	U S Forest Service	1190 E Ojai Ave	Ojai	4420 - Hazardous Waste Generator

File ID#	Facility	Address	City	Program(s)
FA0004930	Ojai Valley Inn-Golf Maint Fac	1203 W Ojai Ave	Ojai	4420 - Hazardous Waste Generator
FA0005629	Ojai Valley Cleaners	345 E Ojai Ave	Ojai	4420 - Hazardous Waste Generator
FA0006270	A Automotive & Mechanical	915 E Ojai Ave	Ojai	4420 - Hazardous Waste Generator
FA0005404	Ojai Ford	987 W Ojai Ave	Ojai	4420 - Hazardous Waste Generator
FA0005356	Ojai Valley Imports	996 E Ojai Ave	Ojai	4420 - Hazardous Waste Generator
FA0006761	Lozano's Auto Repair	106 Park Rd	Ojai	4420 - Hazardous Waste Generator
FA0004927	City Of Ojai	408 S Signal St	Ojai	4420 - Hazardous Waste Generator
FA0005346	The Thacher School, Inc	5025 Thacher Rd	Ojai	4420 - Hazardous Waste Generator
FA0006717	Ojai Valley Sanitary District	1072 Tico Rd	Ojai	4420 - Hazardous Waste Generator
FA0005869	Quality Muffler	1287 S Tico Rd	Ojai	4420 - Hazardous Waste Generator
FA0005000	Valley Equipment	11110 N Ventura Ave	Ojai	4420 - Hazardous Waste Generator
FA0006286	Ojai Spring Carwash & Co.	11502 N Ventura Ave	Ojai	4420 - Hazardous Waste Generator
FA0004948	Villanova Preparatory School	12096 N Ventura Ave	Ojai	4420 - Hazardous Waste Generator

TABLE F
INACTIVE HAZARDOUS MATERIAL SITES

ID	Site Name	Address	City	York	Box #
BP 1174	Shozi Brothers Ranch	Santa Clara @ La. Ave	Oak View	HMD	S28716
BP 1547	Oak View Animal Clinic	376 N Ventura Ave	Oak View	HMD	S28716
BP 1573	Fred's Tire Man	880 N Ventura Ave	Oak View	HMD	S28716
BP 2399	Professional Automotive	501 Ventura Ave, B	Oak View	HMD	S31929
HM 138	Gene's Mobile Repair	32 Burnham Ave	Oak View	HMD	S10110
HM 1554	Fred's Tire Man	880 N Ventura Ave	Oak View	HMD	S30422
HM 1555	Radiator Shop	880 N Ventura Ave, B	Oak View	HMD	S30422
HM 184	Logsdon Mobile Repair	77 Calle Vista Del Monte	Oak View	HMD	S10110
HM 2361	Logsdon's Mobil	520 N Ventura Ave	Oak View	HMD	S31944
HM 2362	Steve's Brakes & Automotive	520 N Ventura Ave	Oak View	HMD	S31944
HM 3497	Fred's Tire Man	545 N Ventura Ave	Oak View	HMD	HMDO
HM 3499	Headin' West	790 Ventura Ave	Oak View	HMD	HMDO
HM 3500	Arco/Prestige Stations #9612	795 N Ventura Ave	Oak View	HMD	HMDO
HM 3502	Oak View Auto Center	880 N Ventura Ave	Oak View	HMD	HMDO
HM 3504	CMWD-Main Office & Workshop	1055 Ventura Ave	Oak View	HMD	HMDO
HM 3783	Casitas Lake Recreational Area	11311 Santa Ana Rd	Oak View	HMD	HMDO
HM 3823	Arco/Prestige Stations #9612	795 N Ventura Ave	Oak View	HMD	HMDO
HM 3824	Rock Long's Automotive	800 N Ventura Ave	Oak View	HMD	HMDO
HM 3825	Chevron #95273-Rock Long's	805 N Ventura Ave	Oak View	HMD	HMDO
HM 3826	Shell-Oakview	905 N Ventura Ave	Oak View	HMD	HMDO
HM 3827	CMWD-Main Office & Workshop	1055 Ventura Ave	Oak View	HMD	HMDO
HM 943	Barb's Type House	210 Mountain Ave	Oak View	HMD	S09790
BP 1018	Phil's Auto Service	204 E Oak St	Ojai	HMD	S01134
BP 110	US Forest Service Ozena Fire Station	Highway 33	Ojai	HMD	BPD1
BP 125	Ojai Concrete Company	403 Bryant St	Ojai	HMD	BPD1
BP 1270	Shell Western Prod-Sespe CMP Plant	Squaw Flat Rd	Ojai	HMD	S28716
BP 1381	Rancho Amorita	3935 Thacher Rd	Ojai	HMD	S28716
BP 1512	Tom Walbridge	177 Vega Way	Ojai	HMD	S28716
BP 1714	James M. Hall	2110 Woodland Ave	Ojai	HMD	S31929
BP 1819	Frontier Paint Company	227 Baldwin Rd	Ojai	HMD	BPD1
BP 1830	Ojai Stone Company	108 Bryant St, A	Ojai	HMD	BPD1
BP 1831	Industrial Tools, Inc.	201 Bryant St, A	Ojai	HMD	BPD1
BP 1863	Accurate Auto Repair	246 El Roblar Dr	Ojai	HMD	BPD1
BP 1963	Southern California Water Co.	2215 Grand Ave	Ojai	HMD	BPD2

ID	Site Name	Address	City	York	Box #
BP 1965	Jonathan & Emma Greene	2855 Grand Ave	Ojai	HMD	BPD2
BP 1980	Pagano's Brake & Tune	102 N La Luna Ave	Ojai	HMD	S01132
BP 199	Carson Orchard	966 Carne Rd	Ojai	HMD	BPD2
BP 202	John Delwiche Ranch	7032 Casitas Pass Rd	Ojai	HMD	BPD2
BP 2155	Quality (Todd's) Auto Repair	1287 S Tico Rd	Ojai	HMD	S28716
BP 2199	Kinko's Of Ojai	11420 N Ventura Ave, 106	Ojai	HMD	S28716
BP 2422	Ojai Valley News	408 Bryant Cir, A	Ojai	HMD	S31929
BP 266	Teague Photo Lab	310 Fox St	Ojai	HMD	BPD2
BP 319	Russell & Ruth Kubovec	1605 Daly Rd	Ojai	HMD	BPD2
BP 431	Camp Ramah	385 Fairview Rd	Ojai	HMD	BPD1
BP 450	Coultas Ranch	2251 Fordyce Rd	Ojai	HMD	BPD2
BP 484	Mabelle Mercer	1175 Grand Ave	Ojai	HMD	BPD2
BP 485	Ben Mercer	1215 Grand Ave	Ojai	HMD	BPD2
BP 494	Don B. Low	2735 Grand Ave	Ojai	HMD	BPD2
BP 496	Jackie H. Ranch	3559 Grand Ave	Ojai	HMD	BPD2
BP 625	Roy L. Vantine	2590 Ladera Rd	Ojai	HMD	S01132
BP 626	Hacienda Ranch Co.	2865 Ladera Rd	Ojai	HMD	S01132
BP 642	J&D Ranch-La Luna	211 N La Luna Ave	Ojai	HMD	S01132
BP 643	Brock Ranch	429 S La Luna Ave	Ojai	HMD	S01132
BP 912	Bronk Vreeland Ojai Ford	821 Ojai Ave	Ojai	HMD	S01134
BP 913	Wayne Wells Tire & Auto Service	915 E Ojai Ave	Ojai	HMD	S01134
BP 952	Eaton Ranch	2149 Mcnell Rd	Ojai	HMD	S01134
BP 977	Bedarl Ranch	10883 Oak Knoll Dr	Ojai	HMD	S01134
BP 991	Don Debusschere	9340 Ojai-Santa Paula Rd	Ojai	HMD	S01134
BP 992	James M. Hall - Farm	9505 Ojai-Santa Paula Rd	Ojai	HMD	S01134
BP 1832	Terry's Auto Craft	212 Bryant St	Ojai	HMD	BPD1
HM 106	Hartmann's Tree Farm	207 Boardman Rd	Ojai	HMD	S10110
HM 107	Z-Medical	970 Boardman Rd	Ojai	HMD	S10110
HM 1135	K-R Citrus #1	4225 Reeves Rd	Ojai	HMD	S10202
HM 1138	Ralph Copus Asphalt	1370 S Rice Rd	Ojai	HMD	S10202
HM 122	Ojai Stone Company	108 Bryant St, A	Ojai	HMD	S10110
HM 123	Industrial Tools, Inc.	201 Bryant St, A	Ojai	HMD	S10110
HM 124	Terry's Auto Craft	212 Bryant St	Ojai	HMD	S10110
HM 1461	Quality (Todd's) Auto Repair	1287 S Tico Rd	Ojai	HMD	S12177
HM 1620	Water Power Industrial Cleaning	11195 N Ventura Ave	Ojai	HMD	S30422
HM 1621	Kinko's Of Ojai	11420 N Ventura Ave, 106	Ojai	HMD	S30422
HM 2271	Ojai Valley News	408 Bryant Cir, A	Ojai	HMD	S31944
HM 2325	Architectural Iron Works	510 E Ojai Ave	Ojai	HMD	S31944
HM 2473	Ojai Unified School District	413 E. Aliso St	Ojai	HMD	HMDO

ID	Site Name	Address	City	York	Box #
HM 2554	Brue's Body Shop	207 Bryant St	Ojai	HMD	HMDO
HM 2555	Doyle's Auto Service	207 Bryant St	Ojai	HMD	HMDO
HM 2557	Behavior Science Technology	417 Bryant Cir	Ojai	HMD	HMDO
HM 2884	Meiner's Oaks Auto Repair	102 N La Luna Ave	Ojai	HMD	HMDO
HM 3097	Caltrans-Ojai Maintenance Yard	1116 Maricopa Hwy	Ojai	HMD	HMDO
HM 3098	Ojai 76 #254764	1124 Maricopa Rd	Ojai	HMD	HMDO
HM 3170	Ojai Valley Cleaners	345 E Ojai Ave	Ojai	HMD	HMDO
HM 3171	A Automotive & Mechanical	915 E Ojai Ave	Ojai	HMD	172511
HM 3172	Ojai Valley Inn - Maintenance Facility	1203 Ojai Ave	Ojai	HMD	HMDO
HM 3220	Lozano's Auto Repair	106 Park Rd	Ojai	HMD	HMDO
HM 3302	City Of Ojai	408 S Signal St	Ojai	HMD	HMDO
HM 3465	Quality Muffler	1287 S Tico Rd	Ojai	HMD	HMDO
HM 3466	Quality Muffler	1287 S Tico Rd	Ojai	HMD	HMDO
HM 3685	Tony's American Gas	246 El Roblar Dr	Ojai	HMD	HMDO
HM 3741	Ojai 76 #254764	1124 Maricopa Rd	Ojai	HMD	HMDO
HM 3742	GSA/Maintenance Site #7	1768 Maricopa Hwy	Ojai	HMD	HMDO
HM 3756	Ojai Valley Texaco	110 Ojai Ave	Ojai	HMD	HMDO
HM 3758	SBC/Pacific Bell (Kd103)	202 Ojai Ave	Ojai	HMD	HMDO
HM 3759	Ojai Chevron #90478	360 E Ojai Ave	Ojai	HMD	168837
HM 3760	Ultramar Station #3-754	616 E Ojai Ave	Ojai	HMD	HMDO
HM 3761	Ojai Valley Inn - Maintenance Facility	1203 Ojai Ave	Ojai	HMD	HMDO
HM 3828	Circle K Corp #1045	11408 Ventura Ave	Ojai	HMD	HMDO
HM 412	Creative Concepts	154 E El Roblar Dr	Ojai	HMD	S10110
HM 414	Accurate Auto Repair	246 El Roblar Dr	Ojai	HMD	S10111
HM 415	Steve's Brakes & Automotive	246 El Roblar Dr	Ojai	HMD	S10111
HM 417	Rennsport Cycle	800 El Roblar Dr	Ojai	HMD	S10111
HM 418	Steve's Brakes & Automotive	829 El Roblar Dr	Ojai	HMD	S10111
HM 419	Moon's Service	829 El Roblar Dr	Ojai	HMD	S10111
HM 490	Southern California Water Co.	2215 Grand Ave	Ojai	HMD	S10111
HM 495	Jonathan & Emma Greene	2855 Grand Ave	Ojai	HMD	S10111
HM 641	Pagano's Brake & Tune	102 N La Luna Ave	Ojai	HMD	S10111
HM 644	Ventura Co. Fire Protection District 22	466 S La Luna Ave	Ojai	HMD	S10111
HM 84	Frontier Paint Store	227 Baldwin Rd	Ojai	HMD	S10110
HM 884	Pop's Auto Wrecking	1295 Meyer Rd	Ojai	HMD	S09790
HM 976	Phil's Auto Service	204 E Oak St	Ojai	HMD	S09790

ID	Site Name	Address	City	York	Box #
HM 984	Goodyear Tire Center	423 E Ojai Ave	Ojai	HMD	S09790
HM 985	Bronk Vreeland Ojai Ford	821 Ojai Ave	Ojai	HMD	S09790
HM 994	Ventura Regional Sanitation District	Old Baldwin Rd	Ojai	HMD	S09790
BP 1828	Hartmann's Tree Farm	207 Boardman Rd	Ojai	HMD	BPD1
BP 1864	Steve's Brakes & Automotive	246 El Roblar Dr	Ojai	HMD	BPD1
HM 2556	Adamson Automotive & Towing	214 S Bryant St	Ojai	HMD	HMDO
HM 987	Wayne Wells Tire & Auto Service	915 E Ojai Ave	Ojai	HMD	S09790

Appendix J

Ventura County Municipal Storm Water NPDES Permit

(Board Order No. 09-0057; NPDES Permit No. CAS004002)

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STATE OF CALIFORNIA

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER 09-0057
NPDES PERMIT NO. CAS004002
WASTE DISCHARGE REQUIREMENTS
FOR
STORM WATER (WET WEATHER) AND NON-STORM WATER (DRY WEATHER) DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS WITHIN THE VENTURA COUNTY WATERSHED PROTECTION DISTRICT, COUNTY OF VENTURA AND THE INCORPORATED CITIES THEREIN.

May 7, 2009

May 7, 2009
Final – Corrected January 13, 2010

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STATE OF CALIFORNIA

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER 09-0057
NPDES PERMIT NO. CAS004002
WASTE DISCHARGE REQUIREMENTS
FOR
STORM WATER DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEM WITHIN THE VENTURA COUNTY WATERSHED PROTECTION DISTRICT, COUNTY OF VENTURA AND THE INCORPORATED CITIES THEREIN

FINDINGS

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter called Regional Water Board), finds that:

A. Permit Parties and History

1. Ventura County Watershed Protection District (Principal Permittee and Copermittee), County of Ventura, cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buenaventura (Ventura), Santa Paula, Simi Valley and Thousand Oaks (hereinafter referred to separately as Permittees) have joined together to form the Ventura Countywide Storm Water Quality Management Program to discharge wastes. The Permittees discharge or contribute to discharges of storm water and non-storm water from municipal separate storm sewer systems (MS4s), also called storm drain systems, into the Watershed Management Areas of Ventura River, Santa Clara River, Calleguas Creek, Malibu Creek and Miscellaneous Ventura Coastal all within Ventura County and Los Angeles County (see Attachment "A").

2. Prior to the issuance of this permit, storm water discharges from the Ventura County MS4 were covered under the countywide waste discharge requirements contained in Order No. 00-108, adopted by the Regional Water Board on July 27, 2000, which replaced Order No. 94-082, adopted by the Regional Water Board on August 22, 1994. Order No. 00-108 also served as a National Pollutant Discharge Elimination System (NPDES) permit for the discharge of municipal storm water.

3. The Ventura County Board of Supervisors approved the concept of a countywide NPDES permit program and the use of the Flood Management District (presently the Watershed Protection District) benefit assessment authority to finance it on April 14, 1992. On June 30, 1992, the Ventura County Board of Supervisors adopted a benefit assessment levy for storm water and flood management in the unincorporated areas of Ventura County and the cities within the County, to be used in part to finance the

implementation of a countywide NPDES municipal storm water permit program. The Ventura County MS4 Permittees have entered into an agreement with the Watershed Protection District to finance the activities related to the Ventura County MS4 Permit for shared and district wide expenses. The Permittees are also given the option to use the Benefit Assessment Program to finance their respective activities related to reducing the discharge of storm water pollutants under the MS4 Permit.

4. The Regional Water Board may require a separate NPDES permit for any entity that discharges storm water into the watersheds of Ventura County. Such an entity can be any State or Federal facility, special district or other public or private party.

B. Nature of Discharge

1. Storm water discharges consist of surface water runoff generated from various land uses in all the hydrologic drainage basins, which discharge into Waters of the State. The quality of these discharges varies and is affected by geology, land use, season, hydrology, and sequence and duration of hydrologic events. Based on the Ventura Countywide Storm Water Monitoring Program's Water Quality Monitoring Reports which were required under Order No. 00-108, the dry weather and wet weather Pollutants of Concern (POC) in urban stormwater include an anion, bacteria, conventional pollutants, metals, a nutrient, organic compounds, and pesticides. The POC are identified in Attachment "B" of this Order. Many of the POC listed are causing impairments identified on the federal Clean Water Act (CWA) § 303(d) list of impaired waterbodies.

   The State Water Board submits a report (a list of water quality limited segments (§ 303[d] list)) on the State's water quality to the U.S. EPA pursuant to § 305(b) of the 1972 CWA, and Title 40, CFR 130.7, every 2 years. The Report provides water quality information to the general public and serves as the basis for the U.S. EPA's National Water Quality Inventory Report to Congress. Section 303(d) requires that all waters that are not attaining standards after the implementation of those controls required by 1977, shall be included on the list. Title 40 CFR 130.7(b)(3) defines "water quality standard applicable to such waters" as "those water quality standards established under § 303 of the Clean Water Act, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements."

2. Common pollutants in urban storm water and their respective sources are: bacteria from animal droppings and illegal discharges; Polycyclic Aromatic Hydrocarbons (PAHs) from the products of internal combustion engine operation and parking lot sealants wash off; nitrates from fertilizer application; pesticides from pest mitigating applications and from plant mitigating applications; bis (2-ethylhexyl) phthalate from the break down of plastic products; mercury from atmospheric fallout and improper disposal of mercury switches; lead from fuels, paints and automotive parts; copper from brake pad wear and roofing materials, zinc from tire wear and galvanized

sheeting and fencing; sediment from land disturbance and erosion; trash; and dioxins as products of combustion.

3. In general, the pollutants that are found in municipal storm water runoff can harm human health and aquatic ecosystems. In addition, the high volumes and high velocities of storm water discharged from MS4s into receiving waters can adversely impact aquatic ecosystems and stream habitat and cause stream bank erosion and physical modifications. These changes are collectively termed hydromodification. Municipal point source discharges of runoff from urbanized areas remain a leading cause of impairment of surface waters in California.

4. Ammonia as Nitrogen, and Nitrate plus Nitrite as Nitrogen are biostimulatory substances that can cause or contribute to eutrophic effects such as low dissolved oxygen and algae growth impairing warm freshwater and wildlife habitats. Ammonia is highly toxic to fish and other aquatic life. Excessive ammonia can cause aquatic life toxicity.

5. Elevated bacterial indicator densities impair the water contact recreation (REC-1) beneficial use at beaches, creeks, estuaries, lagoons, and marinas. Swimming in waters with elevated bacterial indicator densities has been associated with adverse health effects. Specifically, local and national epidemiological studies indicate that there is a causal relationship between adverse health effects and recreational water quality, as measured by bacterial indicator densities (Pruss, 1998, Review of epidemiological studies on health effects from exposure to recreational waters, International Journal of Epidemiology; Haile et al., 1996, An epidemiological study of possible adverse health effects of swimming in Santa Monica Bay, Santa Monica Bay Restoration Project; and Haile et al., 1999, The health effects of swimming in ocean water contaminated by storm drain runoff, Epidemiology"). Sources of elevated bacteria to marine and fresh waters may also include illegal discharges from improperly maintained standard septic systems, on-site wastewater treatment systems (OWTS) and illicit discharges from private drains.

6. Pesticides are substances used to prevent, destroy, repel or mitigate pests such as insects, weeds, and microorganisms. Their effects can be direct (e.g. fish die from exposure to a pesticide entering waterways, or birds do not reproduce after ingesting contaminated fish), or indirect (a hawk becomes sick from eating a mouse dying from pesticide poisoning). Pesticide categories include: Organochlorine, Organophosphorus, Organophosphate, and Pyrethroid.

7. Polychlorinated Biphenyls (PCBs) are a subset of the synthetic organic chemicals known as chlorinated hydrocarbons. Concern over PCBs' toxicity, persistence (chemical stability) in the environment and bioconcentration in aquatic organisms has led to prohibitions on PCBs.

8. Rising groundwater and swimming pool water have been found to be sources of pollutants such as salts (chloride). Salts increase the salinity of otherwise freshwater systems and disrupt physiological processes. The Regional Water Board has waterbodies listed on the CWA § 303(d) list for impairment due to salts and has adopted Basin Plan amendments to include Total Maximum Daily Loads (TMDLs) for salts. This Order includes provisions to control the discharges from these activities in order to directly or indirectly reduce or eliminate the discharge of salts to fresh water systems where salts may impair water quality and beneficial uses.

9. Trash and debris are pervasive pollutants which accumulate in streams, rivers, bays, and ocean beaches throughout Southern California. They pose a serious threat to our oceans and coasts, navigation, biological resources, recreation, human health and safety, aesthetics, and economies.

10. Municipal storm water (wet weather) and non-storm water (dry weather) discharges may contain pollutants that cause or threaten to cause an exceedance of the water quality standards, as outlined in the Los Angeles Region's Basin Plan. Wet weather and dry weather discharges from the MS4 are subject to conditions and requirements established in the Basin Plan for point source discharges. Discharges from the MS4 may not cause or contribute to exceedances of water quality standards.

11. Biological communities act to integrate the effects of water quality conditions in a stream by responding with changes in their population abundances and species composition over time. These populations are sensitive to multiple aspects of water and habitat quality, and provide expressions of ecological health easier to understand than the results of chemical and toxicity tests. Biological assessments and criteria address the cumulative impacts of all stressors, especially habitat degradation, and chemical contamination, which result in a loss of biological diversity. Biological information can help provide an ecologically based assessment of the status of a waterbody. Bioassessment is a cost-effective tool and protocol for assessing the biological and physical habitat conditions of streams and rivers for evaluation of the overall health of a watershed. The Principal Permittee consents to participate in the Southern California Storm Water Monitoring Coalition (SMC) Southern California Regional Bioassessment Monitoring Program.

12. The increased volume, increased velocity, and discharge duration of storm water runoff from developed areas has the potential to accelerate downstream erosion and impair stream habitat in natural drainages. Studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving waters *(Managing Runoff to Protect Natural Streams: The Latest Development on Investigation and Management of Hydromodification in California; Stein, E. et al, December 2005*; *Effect of Increase in Peak Flows and Imperviousness on the Morphology of Southern California Streams; Coleman, D., April 2005).* Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as 3-10 percent

conversion from natural to impervious surfaces in a subwatershed. Percentage impervious cover is a one indicator and predictor of potential water quality degradation expected from new development.

13. Studies indicate that facilities with paved surfaces subject to frequent motor vehicular traffic (such as: strip malls, parking lots, commercial business parks, and fast food restaurants), or facilities that perform vehicle repair, maintenance, or fueling (automotive service facilities) are potential sources of POC in storm water (*California Stormwater Quality Association, Stormwater Best Management Practice Handbook, Municipal, January 2003).*

14. Retail Gasoline Outlets (RGOs) are points of convergence for vehicular traffic and are similar to parking lots and urban roads. Studies indicate that storm water discharges from RGOs have high concentrations of hydrocarbons and heavy metals (*California Stormwater Quality Association, Stormwater Best Management Practice Handbook, Municipal, January 2003).*

15. The industries and businesses listed in this Order that are to be inspected by Permittees have the potential to discharge contaminated storm water into the MS4. This storm water is an environmental threat because it can adversely impact public health and safety, and the quality of receiving waters. For example, pretreatment program compliance inspections and audits performed in the Los Angeles and Ventura Counties indicate that automotive service and food service facilities sometimes discharge polluted storm water to the MS4s. The POC in such wash waters include oil and grease, toxic chemicals, and food waste. Spills from clogged sanitary sewer lines have a high likelihood to reach the receiving waters via MS4s. Overall, the most common POC identified in storm water discharge to the MS4s are: (i) heavy metals, (ii) oil and grease/ PAHs, (iii) sediments, (iv) oxygen demanding substances, (v) litter/ trash/ debris, (vi) nutrients, (vii) other toxic materials, such as pesticides. Municipal storm water monitoring data and industrial storm water monitoring data indicate that industrial and commercial sites continue to contribute significant quantities of pollutants in storm water runoff.

16. Development and urbanization increase pollutant loads, volume, and discharge velocity. First, natural vegetated pervious ground cover is converted to impervious surfaces (paved) such as highways, streets, rooftops and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing an effective natural purification process. In contrast, impervious surfaces (such as pavement and concrete) can neither absorb water nor remove pollutants, and thus the natural purification characteristics are lost. Second, urban development creates new pollution sources as the increased density of human population brings proportionately higher levels of vehicle emissions, vehicle maintenance wastes, municipal sewage waste, pesticides, household hazardous wastes, pet wastes, trash, and other anthropogenic pollutants. Development and urbanization especially threaten environmentally sensitive areas. Such areas have a much lower capacity to withstand pollutant shocks

than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particularly sensitive environment. These environmentally sensitive areas (ESAs) designated by the State in the Ventura County watershed are defined in Part 6 (Definitions).

17. The implementation of Low Impact Development (LID) techniques across the United States and Canada has demonstrated that the proper implementation of LID techniques not only results in water quality protection benefits and in a reduction of the cost of land development and construction but also bears other positive attributes that go beyond economic benefits such as enhanced property values, improved habitat, aesthetic amenities, and improved quality of life. Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices, USEPA Doc No. EPA 841-F-07-006, December 2007. Further, properly implemented LID techniques reduce the volume of runoff leaving a newly developed or re-developed area thereby lowering the peak rate of runoff, and thus minimizing the adverse affects of hydromodification on stream habitat. A Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption, Low Impact Development Center and State of California, State Water Resources Control Board, December 2007. The requirements of this Order facilitate the implementation of LID strategies to protect water quality, reduce runoff volume, and to benefit from these additional enhancements.

18. The Regional Water Board adopted a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R4-2005-0080) on November 3, 2005. The objective of the program is to monitor runoff from irrigated agriculture facilities in the coastal watersheds of Ventura and Los Angeles Counties. The Basin Plan, which designates beneficial uses and establishes water quality objectives for the Region, recognizes that agricultural activities can generate pollutants such as sediment, pesticides, and nutrients that upon discharge to receiving water can degrade water quality and impair beneficial uses. A category identified by the Conditional Waiver as a source of pollutants is nursery operations. This Order includes requirements for the municipal operator to confirm that nursery operators implement pollutant reduction and control measures with the objective of reducing pollutants in storm water runoff discharges.

19. Staff finds there is a growing acceptance by stormwater professionals to integrate LID principles into stormwater management programs and MS4 permits. However, there remains significant controversy regarding the appropriate requirements and metrics for LID. At the heart of this controversy is a dispute regarding the feasibility and effectiveness of requiring a fixed volume of stormwater to be captured and retained on-site for infiltration, reuse, and evapotranspiration, as opposed to permitting a portion of the stormwater to be released off site after it is treated, when it is infeasible to retain the required stormwater on site due to site specific conditions.

Staff has reviewed extensive technical literature regarding this issue (e.g. R. Horner, *Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices ("LID") for Ventura County* (February 2007); E. Strecker, A. Poresky, D. Christsen, *Memorandum: Rainwater Harvesting and Reuse Scenarios and Cost Consideration*, (April, 2009)). Staff finds that there is consensus in the technical community that site conditions and the type of development can limit the feasibility of retaining, infiltrating, and reusing stormwater at sites due to a variety of site specific conditions. Factors that affect the feasibility of a fixed volume capture standard include, but are not limited to: soils infiltration capacity, subsurface pollution, and locations in urban core centers.

Regarding the effects of capturing a fixed stormwater volume on site, Staff finds the fixed volume approach may be ignoring basic hydrological principles that relate the feasible infiltration volume to the infiltration capacity of local soils. Requirements to capture a fixed volume on site could disturb the natural water balance and lead to unintended engineering and hydrologic consequences. For example, a typical hydrological condition in Ventura County is one of successive storms during the winter which may exceed the stormwater capacity that can be retained on site. This may result in ponded water on-site with attendant health and safety risks, saturation of the near surface soils, and reduction of water resources in Regional waterbodies. These effects could damage site structures, increase groundwater pollution by forcing enhanced pollution spreading, or destroy aquatic habitat. Staff finds these reasonably potential effects are not well evaluated scientifically. Finally, staff cannot find that a fixed retention volume versus a standard that attempts to release surface flows at a predevelopment level would result in a greater reduction of stormwater pollution.

20. Research conducted on the contribution of aerial deposition of trace heavy metals in Los Angeles County watersheds indicates that dry indirect deposition may account for a significant load of pollutants into surface waters. Similar patterns of aerial deposition likely occur in Ventura County. Of the atmospherically deposited pollutants on the watersheds, ten to twenty percent may account for the total load for copper, zinc, nickel, lead, and chromium to the waterbodies. Land reservoirs and sequestration may account for the remaining eighty to ninety percent of the atmospherically deposited pollutants on the watersheds. Emissions of semi-volatile organics such as polycyclic aromatic hydrocarbons (PAHs) and pesticides and their subsequent deposition may contribute to the contamination of receiving waters but appear to be less significant. The remaining percentage is stored in land reservoirs and eventually shows up in receiving waters.

C. Permit Background

1. The essential components of the Storm Water Management Program, as required by the Code of Federal Regulations (CFR) [40 CFR122.26(d)] are:
   (a) Adequate Legal Authority.
   (b) Fiscal Resources.

(c) Storm Water Quality Management Program (SMP)
  (1) Public Information and Participation Program
  (2) Industrial/ Commercial Facilities Program
  (3) Planning and Land Development Program
  (4) Development Construction Program
  (5) Public Agency Activities Program
  (6) Illicit Connection and Illicit Discharges Elimination Program
(d) Reporting Program (Monitoring Report and Program Report)

2. The Ventura County SMP, dated November 2001 (revision 2) identifies seven program areas, which are listed below and were previously approved under Board Order No. 00-108. For purposes of consistency, they are titled as follows:
(a) Ventura County SMP.
  (1) Program Management
  (2) Programs for Residents
  (3) Programs for Industrial/ Commercial Businesses
  (4) Programs for Planning and Land Development
  (5) Programs for Construction Sites
  (6) Programs for Public Agency Activities
  (7) Programs for Illicit Connections/ Illegal Discharges
(b) For purposes of region-wide consistency, the program titles are revised and consolidated into the six areas listed in the preceding C.1(c). All Permittee storm water documents submitted to the Regional Water Board are to follow the organization enumerated in C.1(c).

3. The Permittees filed a Report of Waste Discharge (ROWD), dated January 26, 2005. The Permittees applied for renewal of their waste discharge requirements for a 5-year period, which serves as an NPDES permit to discharge wastes to surface waters.

4. The Regional Water Board reviewed the ROWD and determined it to be partially complete under the reapplication policy for MS4s issued by the United States Environmental Protection Agency (U.S. EPA) (61 Fed. Reg. 41697). The Regional Water Board has prepared this Order so that implementation of provisions contained in this Order by Permittees will meet the requirements of the federal NPDES regulations at 40 CFR122.26.

5. The Permittees ROWD contained a proposed Storm Water Management Program and a Monitoring Program to be considered by the Regional Water Board for incorporation into an MS4 NPDES Permit as permit conditions and to demonstrate compliance with federal law.

6. To-date, the monitoring program has consisted of mass emission, receiving water (tributaries), and land-use monitoring stations, toxicity testing, special studies for bioassessment of the Ventura River and hydrology, identification of ESAs, implementation of the Storm Water Quality Urban Impact Mitigation Plan

(SQUIMP), and has provided support for volunteer monitoring programs. This Order requires a monitoring program consisting of mass emission, toxicity, TMDL storm water (wet weather) MS4 water quality-based effluent limits, TMDL non-storm water (dry weather) MS4 water quality-based effluent limits, Pyrethroid assessment study, continuation of the hydromodification study, low impact development study, and participation in the Southern California Regional Bioassessment Program and Southern California Bight Project (SCBP).

7. The Principal Permittee is a member of the Southern California Coastal Water Research Project (SCCWRP) Commission. The Principal Permittee also participates in the Regional Monitoring Programs and research partnerships, such as the Southern California Storm Water Monitoring Coalition (SMC) and the Bioassessment Working Group.

D. Permit Coverage

1. The area covered by this Order includes all areas within Ventura County boundaries and all areas within each co-permittee's boundaries (see Figure 1) that drain into the MS4.

2. The Permittees covered under this Order were designated on a system-wide basis under Phase I of the CWA § 402(p)(3)(B)(i). The action of covering all Ventura County municipalities under a single MS4 permit on a system-wide basis was consistent with the provisions of 40 CFR122.26(a)(3)(iv), which states that one permit application may be submitted for all or a portion of all municipal separate storm sewers within adjacent or interconnected large or medium municipal separate storm sewer systems; and the Regional Water Board may issue one system-wide permit covering all, or a portion of all municipal separate storm sewers in adjacent or interconnected large or medium municipal separate storm sewer systems.

3. Federal, State, Regional, or local entities within the Permittees' boundaries or in jurisdictions outside the Ventura County Watershed Protection District, and not currently named in this Order, may operate storm drain facilities and/ or discharge storm water to storm drains and receiving waters covered by this Order. The Permittees may lack legal jurisdiction over these entities under State and Federal constitutions. The Regional Water Board will coordinate with these entities to implement programs that are consistent with the requirements of this Order. The Regional Board may consider such facilities for coverage under its NPDES permitting scheme pursuant to USEPA Phase II storm water regulations. Permittees have expressed their intention to work cooperatively to control the contribution of pollutants from one portion of the MS4 to another portion of the system. Permittees shall make good faith efforts to control the contribution of pollutants to the MS4 from non-permittee dischargers such as Caltrans, the U.S. Department of Defense, and other state and federal facilities.

4. TMDLs are numerical calculations of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (Waste Load Allocation (WLA)) and non-point sources (Load Allocation (LA)). Discharges from the MS4s are considered point sources discharges, because the MS4 is a point source.

5. This Order incorporates applicable WLAs that have been adopted by the Regional Water Board and have been approved by the Office of Administrative Law and the U.S. EPA. The TMDL WLAs in the Order are expressed as water quality-based effluent limits in a manner consistent with the assumptions and requirements of the TMDL from which they are derived.

6. The CWA and the California Water Code contain specific provisions on how wastewater discharges from point sources are to be permitted. Stormwater discharges (both dry weather and wet weather) are considered point source discharges.

7. Permittees should work cooperatively to control the contribution of pollutants from one portion of the MS4 to another portion of the system through inter-agency agreements or other formal arrangements.

E. Federal, State and Regional Regulations

1. The Water Quality Act of 1987 added § 402(p) to the CWA (33U.S.C. § 1251-1387). This section requires the U.S. EPA to establish regulations setting forth NPDES requirements for storm water discharges in 2 phases.
   (a) U.S. EPA Phase I storm water regulations were directed at MS4s serving a population of 100,000 or more, including interconnected systems and storm water discharges associated with industrial activities, including construction activities. The Phase 1 Final Rule was published on November 16, 1990 (55 Fed. Reg. 47990).
   (b) U.S. EPA Phase II storm water regulations are directed at storm water discharges not covered in Phase I, including small MS4s (population of less than 100,000), small construction projects (less than 5 acres), municipal facilities with delayed coverage under the Intermodal Surface Transportation Efficiency Act of 1991, and other discharges for which the U.S. EPA Administrator or the State determines that the storm water discharge contributes to a violation of a water quality standard, or is a significant contributor of pollutants to waters of the U.S. The Phase II Final Rule was published on December 8, 1999 (64 Fed. Reg. 68722).

2. The U.S. EPA published an Interpretative Policy Memorandum on Reapplication Requirements for MS4 permits on August 9, 1996 (61 Fed. Reg. 41697). This policy requires that MS4 reapplication for reissuance for a subsequent five-year permit term

contain certain basic information and information for proposed changes and improvements to the storm water management program and monitoring program.

3. The U.S. EPA has entered into a Memorandum of Agreement (MOA) with the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service for enhancing coordination regarding the protection of endangered and threatened species under section 7 of the Endangered Species Act, and the CWA's water quality standards and NPDES programs. Among other actions, the MOA establishes a framework for coordination of actions by the U.S. EPA, the Services, and CWA delegated States on CWA permit issuance under § 402 of the CWA [66 Fed. Reg. 11202-11217].

4. The CWA allows the U.S. EPA to authorize states with an approved environmental regulatory program to administer the NPDES program in lieu of the U.S. EPA. The State of California is a delegated State. The Porter-Cologne Water Quality Control Act (California Water Code) authorizes the State Water Resources Control Board (State Water Board), through the Regional Water Boards, to regulate and control the discharge of wastes that could affect the quality of waters of the State, including waters of the United States, and tributaries thereto.

5. Under CWA § 303(d) of the CWA, States are required to identify a list of impaired water-bodies and develop and implement TMDLs for these waterbodies (33 USC § 1313(d)(1)). The most recent 303(d) list's U.S. EPA approval date was June 28, 2007. The U.S. EPA entered into a consent decree with the Natural Resources Defense Council (NRDC), Heal the Bay, and the Santa Monica Baykeeper on March 22, 1999, under which the Regional Water Board must adopt all TMDLs for the Los Angeles Region within 13 years from that date. This Order incorporates provisions incorporating approved WLAs for municipal storm water discharges and requires amending the SMP after subsequent pollutant loads have been allocated and approved.

6. Collectively, the restrictions contained in the TMDL Provisions for Storm Water (Wet Weather) Discharges and Non-Storm Water (Dry Weather) Discharges of this Order on individual pollutants are no more stringent than required to implement the provisions of the TMDL, which have been adopted and approved in a manner that is consistent with the CWA. Where a TMDL has been approved, NPDES permits must contain effluent limits and conditions consistent with the assumptions and requirements of the available WLAs in TMDLs (40 CFR122.44(d)(1)(vii)(B)).

7. This Order does not constitute an unfunded local government mandate subject to subvention under Article XIIIB, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. This Order implements federally mandated requirements under CWA § 402, subdivision (p)(3)(B)(33 U.S.C. § 1342(p)(3)(B)) This includes federal requirements to effectively prohibit non-storm water discharges, to reduce the discharge of pollutants to the maximum extent practicable, and to include such other provisions as the Administrator or the State

determines appropriate for the control of such pollutants. Federal cases have held these provisions require the development of permits and permit provisions on a case-by-case basis to satisfy federal requirements. (Natural Resources Defense Council, Inc. v. U.S. E.P.A. (9th Cir. 1992) 966 F.2d 1292, 1308, fn. 17.) The authority exercised under this Order is not reserved state authority under the Clean Water Act's savings clause (cf. Burbank v. State Water Resources Control Bd. (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not "less stringent" than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, it is entirely federal authority that forms the legal basis to establish the permit provisions. (See, City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region (2006) 135 Cal.App.4th 1377, 1389; Building Industry Ass'n of San Diego County v. State Water Resources Control Bd. (2004) 124 Cal.App.4th 866, 882-883.)

Likewise, the provisions of this Order to implement TMDLs are federal mandates. The CWA requires TMDLs to be developed for waterbodies that do not meet federal water quality standards (33 U.S.C. § 1313(d)). Once the U.S. EPA or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable wasteload allocation.
(40 CFR 122.44(d)(1)(vii)(B)).

Second, the local agency Permittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental dischargers who are issued NPDES permits for storm water discharges. With a few inapplicable exceptions, the Clean Water Act regulates the discharge of pollutants from point sources (33 U.S.C. § 1342) and the Porter-Cologne regulates the discharge of waste (Wat. Code, § 13263), both without regard to the source of the pollutant or waste. As a result, the "costs incurred by local agencies" to protect water quality reflect an overarching regulatory scheme that places similar requirements on governmental and nongovernmental dischargers. (See *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 57-58 [finding comprehensive workers compensation scheme did not create a cost for local agencies that was subject to state subvention].)

The Clean Water Act and the Porter-Cologne Water Quality Control Act largely regulate storm water with an even hand, but to the extent there is any relaxation of this even-handed regulation, it is in favor of the local agencies. Except for municipal separate storm sewer systems, the Clean Water Act requires point source dischargers, including discharges of storm water associated with industrial or construction activity, to comply strictly with water quality standards. (33 U.S.C. § 1311(b)(1)(C), *Defenders of Wildlife v. Browner* (1999) 191 F.3d 1159, 1164-1165 [noting that industrial storm water discharges must strictly comply with water quality standards].) As discussed in prior State Water Resources Control Board decisions, in many respects this Order does not require strict compliance with water quality standards. (SWRCB Order No. WQ 2001-15, p. 7.) The Order, therefore, regulates the

discharge of waste in municipal storm water more leniently than the discharge of waste from non-governmental sources.

Third, the local agency Permittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order subject to certain voting requirements contained in the California Constitution. (See California Constitution XIII D, section 6, subdivision (c); see also *Howard Jarvis Taxpayers Association v. City of Salinas* (2002) 98 Cal. App. 4th 1351, 1358-1359.). The fact sheet demonstrates that numerous activities contribute to the pollutant loading in the municipal separate storm sewer system. Local agencies can levy service charges, fees, or assessments on these activities, independent of real property ownership. (See, e.g., *Apartment Ass'n of Los Angeles County, Inc. v. City of Los Angeles* (2001) 24 Cal.4th 830, 842 [upholding inspection fees associated with renting property].) The ability of a local agency to defray the cost of a program without raising taxes indicates that a program does not entail a cost subject to subvention. (*County of Fresno v. State of California* (1991) 53 Cal.3d 482, 487-488.)

Fourth, the Permittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their discharges. (See finding C.5., supra.) To the extent that the local agencies have voluntarily availed themselves of the permit, the program is not a state mandate. (Accord *County of San Diego v. State of California* (1997) 15 Cal.4th 68, 107-108.) Likewise, where MS4 Permittees are regulated under a Best Management Practices (BMP) based storm water management program rather than end-of-pipe numeric limits, there exists no compulsion of a specific regulatory scheme that would violate the 10th Amendment to the United States Constitution. (See *City of Abilene v. U.S. E.P.A.* (5th Cir. 2003) 325 F.3d 657, 662-663 [noting that municipalities can choose between a management permit or a permit with numeric limits].) The local agencies' voluntary decision to file a report of waste discharge proposing a program-based permit is a voluntary decision not subject to subvention. (See *Environmental Defense Center v. USEPA* (9th Cir. 2003) 344 F.3d 832, 845-848.)

Fifth, the local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIIIB, Section (6) of the California Constitution.

8. Under § 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Coastal States with approved coastal zone management programs are required to address non-point pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: 1) agriculture; 2) silviculture; 3) urban; 4) marinas; and 5) hydromodification. This Waste Discharge Requirement addresses the management measures required for the urban category and the hydromodification category, with the exception of septic systems.

9. The Regional Water Board addresses septic systems through the administration of non-Chapter 15 regulatory programs and the implementation of Regional Water Board Order No.R4-2004-0146. Septic systems are also addressed under State Assembly Bill (AB) 885 (2000). The Regional Water Board will implement and enforce regulations issued by the State Board pursuant to AB 885. Taken together, these State and Local agency requirements when imposed on septic system operators are expected to reduce the bacterial contamination of storm water from improperly maintained septic systems.

10. The State Water Board has issued waste discharge requirements for discharges from utility vaults (CAG990002). The Regional Water Board has issued waste discharge requirements for discharges from well heads and hydrostatic pipe testing (CAG674001). These discharges to the MS4 shall be conducted under coverage of a separate NPDES permit specific to that activity.

11. On May 18, 2000, the U.S. EPA established numeric criteria for priority toxic pollutants for the State of California (California Toxics Rule (CTR) 65 Fed. Reg. 31682 (40 CFR131.38)) for the protection of human health and aquatic life. These apply as ambient water quality criteria for inland surface waters, enclosed bays and estuaries.

12. The State Water Board adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) in 2005. The California Ocean Plan establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's coastal waters. It applies to point and nonpoint source discharges. The Ocean Plan identifies the applicable beneficial uses of marine waters that include preservation and enhancement of designated Areas of Special Biological Significance (ASBS) (now called "State Water Quality Protection Areas") and establishes a set of narrative and numerical water quality objectives designed to protect beneficial uses. The SWRCB adopted the California Ocean Plan, and both the SWRCB and the six coastal Regional Water Quality Control Boards (RWQCBs) implement and interpret the California Ocean Plan.

13. This Regional Water Board adopted a revised Water Quality Control Plan (Basin Plan) for the Los Angeles Region on June 13, 1994. The Basin Plan specifies the beneficial uses of Ventura County waterbodies and their tributary streams, and contains both narrative and numerical water quality objectives for these receiving waters. The following beneficial uses identified in the Basin Plan apply to all or portions of each watershed covered by this Order:
    (a) Municipal and domestic supply
    (b) Agricultural supply
    (c) Industrial service supply
    (d) Industrial process supply
    (e) Ground water recharge
    (f) Freshwater replenishment

(g) Navigation
(h) Hydropower generation
(i) Water contact recreation
(j) Non-contact water recreation
(k) Ocean commercial and sport fishing
(l) Warm freshwater habitat
(m) Cold freshwater habitat
(n) Preservation of Areas of Special Biological Significance
(o) Saline water habitat
(p) Wildlife habitat
(q) Preservation of rare and endangered species
(r) Marine habitat
(s) Fish migration
(t) Fish spawning
(u) Shellfish harvesting

14. On March 22, 1999 the Consent Decree in Heal the Bay, Inc.; Santa Monica Baykeeper, Inc. v. Browner, Case No. 98-4825 SBA was approved. Under Establishment of TMDLs- The parties understand that California has the initial opportunity pursuant to § 303(d) of the CWA to adopt and submit to U.S. EPA for approval TMDLs to be established under this Consent Decree. TMDLs developed by Regional Water Boards are generally adopted through Basin Plan amendments. Basin plan amendments adopted by the State Board pursuant to Water Code section 13246, and the regulatory portions must be approved by the Office of Administrative Law pursuant to Government Code section 11353(b). TMDLs established pursuant to CWA section 303(d)(1) must be submitted to U.S. EPA for approval pursuant to section 303(d)(2), and incorporated into the state's water quality management plan

15. The Regional Water Board has adopted amendments to the Basin Plan, to incorporate TMDLs for the following:
    (a) The following TMDLs have been or will be incorporated into the Basin Plan within the term of the Order.
        (1) Santa Clara River - Nitrogen Compounds
            (A) Regional Water Board Resolution No. 2003-011
            (B) State Water Board Resolution No. 2003-0073
            (C) OAL file No. 04-0123-35
            (D) U.S. EPA approval date March 18, 2004
            (E) Final fee exemption date March 23, 2004 (effective date).
            (F) Compliance is 1 year after effective date (March 23, 2005)

        (2) Malibu Creek and Lagoon - Bacteria.
            (A) Regional Water Board Resolution No. 2004-019
            (B) State Water Board Resolution No. 2005-0072
            (C) OAL file No. 05-1018-03 S
            (D) U.S. EPA approval date January 10, 2006

(E) Final fee exemption date January 24, 2006 (effective date)
(F) Compliance for Summer Dry is 3 years after effective date (January 24, 2009)
(G) Compliance for Winter Dry is 6 years after effective date (January 24, 2012)
(H) Compliance for Wet Weather is 10 years after effective date (January 24, 2016), which is beyond the term of this Order

(3) Toxicity, Chlorpyrifos and Diazinon in the Calleguas Creek, Its Tributaries and Mugu Lagoon.
(A) Regional Water Board Resolution No. 2005-009
(B) State Water Board Resolution No. 2005-0067
(C) OAL file No. 05-1110-02 S
(D) U.S. EPA approval date March 14, 2006
(E) Final fee exemption date March 24, 2006 (effective date)
(F) Compliance for Toxicity and Interim WLA is effective date (March 24, 2006)
(G) Compliance for Final WLA is 2 years after effective date (March 24, 2008)

(4) Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs), and Siltation in Calleguas Creek, Its Tributaries and Mugu Lagoon.
(A) Regional Water Board Resolution No. 2005-010
(B) State Water Board Resolution No. 2005-0068
(C) OAL file No. 05-1206-03 S
(D) U.S. EPA approval date March 14, 2006
(E) Final fee exemption date March 24, 2006 (effective date)
(F) Compliance for Interim WLA is effective date (March 24, 2006)
(G) Compliance for Final WLA is 20 years after effective date (March 24, 2026), which is beyond the term of this Order

(5) Calleguas Creek Watershed Metals
(A) Regional Water Board Resolution No. 2006-012
(B) State Water Board Resolution No. 2006-0078
(C) OAL file No. 06-1222-015 S
(D) U.S. EPA approval date March 26, 2007
(E) Final fee exemption date March 27, 2007 (effective date)
(F) Compliance for Interim WLA is effective date (March 27, 2007)
(G) Compliance for Final WLA is Within 15 years after the effective date (March 27, 2022), which is beyond the term of this Order

(6) <u>Revolon Slough & Beardsley Wash Trash TMDL</u>
(A) Regional Water Board Resolution No. 2007-007
(B) State Water Board Resolution No 2007-0076
(C) OAL file No 2007-1227-05 S

(D) U.S. EPA approval date February 27, 2008
(E) Final fee exemption date March 6, 2008 (effective date)
(F) Compliance for Trash Monitoring & Reporting Plan Submittal is 6 months from effective date (September 6, 2008)
(G) Compliance for Final WLA is 8 years from effective date (March 6, 2016)

(7) Ventura River Estuary Trash TMDL
(A) Regional Water Board Resolution No. 2007-008
(B) State Water Board Resolution No 2007-0072
(C) OAL file No 2007-1227-01 S
(D) U.S. EPA approval date February 27, 2008
(E) Final fee exemption date March 6, 2008 (effective date)
(F) Compliance for Trash Monitoring & Reporting Plan Submittal is 6 months from effective date (September 6, 2008)
(G) Compliance for Final WLA is 8 years from effective date (March 6, 2016)

(8) Harbor Beaches of Ventura County Bacteria TMDL
(A) Regional Water Board Resolution No. 2007-017
(B) State Water Board Resolution No 2008-0072
(C) OAL file No 2007-1023-01 S
(D) U.S. EPA approval date December 18, 2008
(E) Final fee exemption date January 17, 2009 (effective date)

16. The Regional Water Board adopted and approved requirements for new development and significant redevelopment projects in Ventura County to control the discharge of storm water pollutants in post-construction storm water, on January 26, 2000, in Board Resolution No. R-00-02. The Regional Water Board Executive Officer issued the approved Standard Urban Storm Water Mitigation Plans (SUSMPs) on March 8, 2000 for Los Angles County and the Cities in Los Angeles County. Since 2000, new development and redevelopment water quality criteria have been implemented by the Permittees to be consistent with SUSMP. The State Board affirmed the Regional Water Board action and SUSMPs in State Board Order No. WQ 2000-11, issued on October 5, 2000.
(a) A statewide policy memorandum (dated December 26, 2000), which interprets the Order to provide broad discretion to Regional Water Boards and identifies potential future areas for inclusion in SUSMPs and the types of evidence and findings necessary. Such areas include ministerial projects, projects in environmentally sensitive areas, and water quality design criteria for Retail Gasoline Outlets (RGOs, see Part 6 for definition). The Regional Water Board properly justified the extensions of SUSMPs and water quality criteria to ministerial projects, projects in environmentally sensitive areas, and RGOs, during the adoption of Regional Water Board Order 01-182. The Regional Water Board's action was upheld by the County of Los Angeles Superior Court (In Re:

County of Los Angeles v. State Water Resources Control Board (2006) 143 Cal.App.4th 985).

(b) The State Water Board's Chief Counsel interpreted the Order to encourage regional solutions and endorsed a mitigation fund or "bank" as alternatives for new development and significant redevelopment. The Regional Water Board has included provisions for regional solutions and the establishment of a mitigation bank in this Order.

17. The Regional Water Board supports Watershed Management planning to address water quality protection in the region. The objective of the Watershed Management planning is to provide a comprehensive and integrated strategy towards water resource protection, enhancement, and restoration while balancing economic and environmental impacts within a hydrologically defined drainage basin or watershed. It emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with available resources.

18. To facilitate compliance with federal regulations, the State Water Board has issued the following 4 Statewide General NPDES Permits associated with storm water:
    (a) Industrial General Permit (IASGP- Industrial Activities Storm Water General Permit), NPDES No. CAS000001, issued on November 19, 1991, reissued on September 17, 1992 and April 17, 1997, currently under review for reissuance.
    (b) Construction General Permit (CASGP- Construction Activities Storm Water General Permit), NPDES No. CAS000002, issued on August 20, 1992, reissued August 19, 1999, currently under review for reissuance.
    (c) Small Linear Underground/ Overhead Construction Projects General Permit (small LUPs), NPDES No. CAS000005, issued on June 18, 2003.
    (d) Small MS4 Permit WQ Order No. 2003-0005-DWQ, NPDES No. CAS000004, adopted on April 30, 2003.

19. Facilities discharging storm water associated with industrial activities, construction projects that disturb one or more acres of soil, or construction projects that disturb less than one acre but are part of a larger common plan of development or sale that in total disturbs 1 or more acres, and construction activities associated with small linear underground/ overhead projects that result in land disturbances greater than one acre, but less than five acres (small LUPs), are all required to obtain individual NPDES permits for storm water discharges, or be covered by the statewide General Permits by completing and filing a Notice of Intent (NOI) with the State Board. The U.S. EPA guidance anticipates coordination of the state-administered programs for industrial and construction activities with the local agency program to reduce pollutants in storm water discharges to the MS4.

20. State Water Board Resolution No. 68-16 contains the state Antidegradation Policy, titled “Statement of Policy with Respect to Maintaining High Quality Waters in California” (Resolution 68-16), which applies to all waters of the state, including

ground waters of the state, whose quality meets or exceeds (is better than) water quality objectives. Resolution No. 68-16 is considered to incorporate the federal Antidegradation Policy (40 CFR131.12) where the federal policy applies, (State Water Board Order WQO 86-17). Administrative policies that implement both, federal and state antidegradation policies acknowledge that an activity that results in a minor water quality lowering, even if incrementally small, can result in violation of Antidegradation Policies through cumulative effects, for example, when the waste is a cumulative, persistent, or bioaccumulative pollutant.

(a) Federal Antidegradation Policy (40 CFR131.12) states that the State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the Act.

(b) State Water Board Resolution No. 68-16 establishes essentially a 2-step process for compliance with the policy.

(1) Step 1- if a discharge will degrade high quality water, the discharge may be allowed if any change in water quality:

(A) Will be consistent with maximum benefit to the people of the State.

(B) Will not unreasonably affect present and anticipated beneficial use of such water.

(C) Will not result in water quality less than that prescribed in state policies (e.g., water quality objectives in Water Quality Control Plans).

(2) Step 2- any activities that result in discharges to high quality waters are required to:

(A) Meet waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to avoid a pollution or nuisance.
(B) Maintain the highest water quality consistent with the maximum benefit to the people of the State.

21. The State Water Board on June 17, 1999, adopted Order No. WQ 99-05, which specifies standard receiving water limitation language to be included in all municipal storm water permits issued by the State and Regional Water Boards.

22. Cal. Water Code § 13263(a) requires that waste discharge requirements issued by Water Boards shall implement any relevant water quality control plans that have been adopted; shall take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose; other waste discharges; and the need to prevent nuisance.

23. Clean Water Act section 402(p)(3)(B)(iii) requires municipal separate storm sewer system (MS4) operators to control pollution in storm water to the "maximum extent practicable" (MEP). The MEP requirement is analogous to a technology-based requirement in that it focuses upon the feasibility of pollutant reduction measures rather than achievement of water quality standards in the receiving waters to achieve improvements in the quality of the storm water that is discharged. Compliance with the MEP requirement can range from implementation of structural and nonstructural best management practices to installation of end-of-pipe treatment systems. MEP generally provides the MS4 operators the flexibility to determine what controls should be implemented through the development of a storm water management plan, subject to the Regional Board's approval. Nevertheless, MEP does not define the limits of pollution control measures that may be required of MS4 operators, and the requirement to implement controls that reduce pollutants to the MEP is not limited by the goal of attaining water quality standards. In some circumstances, compliance with MEP may result in controls more stringent than applicable WQS, and in others, less stringent. The Regional Board may use its discretion to impose other provisions beyond MEP, as it determines appropriate for the control of pollutants, including ensuring strict compliance with water quality standards. (Defenders of Wildlife v. Browner (1999) 191 F.3d 1159, 1168.)

24. The California Supreme Court has ruled that although Water Code section 13263 requires the Water Boards to consider the factors set forth in Water Code section 13241 when issuing an NPDES permit, the Water Boards may not consider the factors to justify imposing pollutant restrictions that are less stringent than the applicable federal regulations require (City of Burbank v. State Water Resources Control Bd. (2005) 35 Cal.4th 613). However, when the pollutant restrictions in an NPDES are more stringent than federal law requires, Water Code section 13263 requires that the Water Boards consider the factors described in section 13241 as they apply to those specific restrictions.

25. The City of Burbank case related to NPDES permits for publicly owned treatment works, not permits for municipal separate storm sewer systems (MS4s). Among other requirements, federal law requires MS4 permits to include requirements to effectively prohibit non-storm water discharges into the storm sewers, in addition to requiring controls to reduce the discharge of pollutants to the maximum extent practicable. Therefore, a 13241 analysis is not required for permit requirements that implement the effective prohibition on the discharge of non-storm water into the MS4, or for practicable controls to reduce the discharge of pollutants to the maximum extent, as those requirements are mandated by federal law.

26. The requirements in this Order may be more specific or detailed than those enumerated in federal regulations under 40 CFR122.26 or in U.S. EPA guidance. However, the requirements have been designed to be consistent with and within the federal statutory mandates described in CWA § 402(p)(3)(B)(ii) and (iii) and the related federal regulations. Consistent with federal law, all of the conditions in this permit could have been included in a permit adopted by U.S. EPA in the absence of the in lieu authority of California to issue NPDES permits.

27. The Board finds that all requirements in this order are practicable. Moreover, while commenters have alleged that the permit requirements are "beyond MEP," no commenter has presented evidence that demonstrates that any particular permit requirement is not actually practicable.

28. Notwithstanding findings 23 through 27, the Regional Board has developed an economic analysis of the permit's requirements, consistent with Water Code section 13241. That analysis is contained in the "Economic Considerations of the Proposed Storm Water (Wet Weather) and Non-Storm Water (Dry Weather) Discharges form the Municipal Separate Storm Sewer Systems within the Ventura County Watershed Protection District, County of Ventura and the Incorporated Cities Therein, June 2, 2008, which is contained in the administrative record for this Order. The Regional Board has considered all of the evidence that has been presented regarding the 13241 factors in adopting this permit, both as contained in the economic analysis and as reflected in the fact sheet and comments (and responses thereto) submitted to the many drafts of this permit. The Regional Board finds that the requirements in this Order are reasonably necessary to protect beneficial uses identified in the Basin Plan, and the economic information related to costs of compliance and other 13241 factors are not sufficient to justify failing to protect those beneficial uses. Where appropriate, additional time to implement certain measures and achieve water quality objectives can be provided through the iterative storm water management plan process.

F. Implementation

1. The California Environmental Quality Act (CEQA) (Cal. Pub. Resources Code § 2100 et seq.) requires that public agencies consider the environmental impacts of the projects they approve for development. CEQA applies to projects that are considered discretionary (a governmental agency can use its judgment in deciding whether and how to carry out or approve a project, § 15357) and does not apply to ministerial projects (the law requires a governmental agency to act on a project in a set way without allowing the agency to use its own judgment, § 15369). A ministerial project may be made discretionary by adopting local ordinance provisions or imposing conditions to create decision-making discretion in approving the project. In the alternative, Permittees may establish standards and objective criteria administratively for storm water mitigation for ministerial projects. For water quality purposes regardless of whether a project is discretionary or ministerial, the Regional Water Board considers that all new development and significant redevelopment activity in specified categories, that receive approval or permits from a municipality, are subject to storm water mitigation requirements in a manner that is consistent with and complies with the provisions of CEQA.

2. The objective of this Order is to ensure that discharges from the MS4 in Ventura County comply with water quality standards, including protecting the beneficial uses of receiving waters. To meet this objective, the Order requires that Best Management Practices (BMPs) will be implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable (MEP), and achieve water quality objectives and standards. The U.S. EPA envisioned that municipal storm water programs would be implemented in an iterative manner and improved with each iteration by using information and experience gained during the previous permit term (*Interpretative Policy Memorandum on Reapplication Requirements for MS4 permits* - 61 Fed. Reg. 41697). Municipalities are required to evaluate what is effective and make improvements in order to protect beneficial uses of receiving waters. This Order requires implementation of an effective combination of pollution control and pollution prevention measures, education, public outreach, planning, and implementation of source control BMPs and Structural and Treatment Control BMPs. The better–tailored BMPs combined with the performance objectives outlined in this Order have the purpose of attaining water quality objectives and standards (*Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*- 61 Fed. Reg. 43761). Where WLAs have been adopted for storm water (wet weather) and non-storm water (dry weather) discharges from MS4s, this Order requires Permittees to implement controls to achieve the WLAs within the compliance schedule provided in the TMDLs.

3. The implementation of measures set forth in this Order are reasonably expected to reduce the discharge of pollutants conveyed in storm water discharges into receiving waters, and to meet the TMDL WLAs for discharges from MS4s that have been adopted by the Regional Water Board.

4. The U.S. EPA has recommended that all future TMDLs and TMDL amendments be expressed as daily increments consistent with a federal court ruling (*Friends of the Earth, Inc. v. EPA, et al*. No. 05-5015 (D.C. Cir. 2006)). However, this interpretation does not affect the discretionary authority of the Regional Water Board to express NPDES permit limits and conditions in non daily terms because there is no express or implied statutory limitation (CWA §502(11)) (*Establishing TMDL "Daily Loads" in Light of the Decision by the U.S. Court of Appeals for the D.C. Circuit in Friends of the Earth, Inc. v. EPA, et al. (April 2006) and Implications for NPDES Permits*, U.S. EPA Office of Water, memorandum, Nov 15, 2006). This Order translates MS4 TMDL WLAs adopted by the Regional Water Board into forms "consistent with the assumptions and requirements of the TMDL".

5. During the term of the Order, the Permittees shall implement all necessary control measures to reduce pollutant(s) which cause or continue to cause or contribute to water quality impairments, but for which TMDLs have not yet been developed or approved, to eliminate the water quality impairment(s). Successful efforts to reverse the wet weather impairments during the permit term for such pollutants, may avoid the need for a WLA for wet weather or the need to develop a TMDL in the future.

6. This Order promotes land development and redevelopment strategies that consider water quality and water management benefits associated with smart growth techniques. Such measures may include hydromodification mitigation requirements, minimization of effective impervious area, integrated water resources planning, and low impact development guidelines. (Reference: *Protecting Water Resources with Smart Grow*th, EPA 231-R- 04-002, U.S. EPA 2004; *Using Smart Growth Techniques as Storm Water Best Management Practices,* EPA 231-B-05-002, U.S. EPA 2005; *Parking Spaces/Community Places: Finding the Balance through Smart Growth Solutions*, EPA 231-K-06-001, U.S. EPA 2006; *Protecting Water Resources with Higher-Density Development*, EPA 231-R-06-001, U.S. EPA 2006.)

7. The implementation of an effective Public Information and Participation Program is a critical component of a storm water management program. While commercial and industrial facilities are traditionally subject to multiple environmental regulations and receive environmental protection guidance from multiple sources, the general public, in comparison, receives significantly less education in environmental protection. An effective Public Information and Participation Program is required because:
   (a) Activities conducted by the public such as vehicle maintenance, improper household waste materials disposal, improper pet waste disposal and the improper application of fertilizers and pesticides have the potential to generate a significant amount of pollutants that could be discharged in storm water.
   (b) An increase in public knowledge of storm water regulations, proper storage and disposal of household wastes, proper disposal of pet wastes and appropriate home vehicle maintenance practices can lead to a significant reduction of pollutants discharged in storm water.

8. This Order also provides flexibility for Permittees to seek authorization from the Regional Water Board Executive Officer to substitute a BMP under this Order with an alternative BMP, if they can provide information and documentation on the effectiveness of the alternative, equal to or greater than the prescribed BMP in meeting the objectives of this Order.

9. This Order contemplates that the Permittees are responsible for considering potential storm water impacts when making planning decisions in order to fulfill the Permittees' CWA requirement to reduce the discharge of pollutants in municipal storm water to the MEP and attain water quality objectives from new development and redevelopment activities. However, the Permittees retain authority to make the final land-use decisions and retain full statutory authority for deciding what land uses are appropriate at specific locations within each Permittee's jurisdiction. This Order and its requirements are not intended to restrict or control local land use decision-making authority.

10. The State Water Board amended the Policy for the Implementation of Toxics Standards In Inland Surface Waters, Enclosed Bays and Estuaries of California (State Implementation Policy – SIP) on February 24, 2005. The SIP does not apply directly to the stormwater discharges. However, this Order includes a Monitoring Program that incorporates Minimum Levels (MLs) established under the State Implementation Policy. The MLs represent the lowest quantifiable concentration for priority toxic pollutants that is measurable with the use of proper method-based analytical procedures and factoring out matrix interference. The SIP's MLs therefore represent the best available science for determining MLs and are appropriate for a storm water monitoring program. The use of MLs allows the detection of toxic priority pollutants at concentrations of concern using recent advances in chemical analytical methods.

11. The International Storm Water Best Management Practices (BMP) Database was established in 1996 as a cooperative initiative between the U.S. EPA and the American Society of Civil Engineers (ASCE) to provide scientifically sound information to improve the design, selection and performance of storm water BMPs. The BMP database includes standardized BMP monitoring and reporting protocols, a storm water BMP database, BMP performance evaluation protocols, and BMP monitoring guidance. The storm water BMP database is updated approximately semi-annually to add new BMP studies and performance data. The International Storm Water Database is now maintained by the Water Environment Research Foundation (WERF).

12. This Order is not intended to prohibit the inspection for or abatement of vectors by the State Department of Public Health or local vector agencies in accordance with CA Health and Safety Code, § 116110 et seq. Certain Treatment Control BMPs if not properly designed, operated or maintained may create habitats for vectors (e.g. mosquitoes and rodents). This Order contemplates that the Permittees will closely cooperate and collaborate with local vector control agencies and the State Department

of Public Health for the implementation, operation, and maintenance of Treatment Control BMPs in order to minimize the risk to public health from vector borne diseases.

13. This Order contemplates that Permittees will ensure that implemented Treatment Control BMPs will not pose a safety or health hazard to the public. This Order contemplates that Permittees will ensure that the maintenance of implemented Treatment Control BMPs will comply with all applicable health and safety regulations, such as, but not limited to requirements for worker entry into confined spaces under OSHA Safety and Training education, § 1926.21(b)(6)(i).

14. This Order incorporates presumptive BMPs to reduce pollutants in storm water discharges from construction sites to the MEP. The BMPs are identified in Table 6 (BMPs at Construction sites less than 1 acre), Table 7 (BMPs at Construction Sites 1 acre or greater but less than 5 acres), and Table 8 (BMPs at Construction sites 5 acres or greater). These BMPs include erosion control, sediment control, and construction site waste management practices. The BMPs listed in part 4.F of the Order were selected based on the Water Boards' experience of regulating such sites since 1992, and are referenced in the *California Stormwater Quality Association (CASQA) Storm Water Best Management Practice Handbook Construction (January 2003)* and from the *Stormwater Quality Handbooks, Project Planning and Design Guide, Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Plan (WPCP) Preparation Manual, Construction Site Best Management Practices (BMPs) Reference Manual, March 2007* (Caltrans Document Number CTSW-RT-06-171.11-1) which serve as an industry standard for California. The BMPs identified in the Tables are technically feasible, practicable, and cost-effective. Where an identified BMP may be impracticable on a particular site, this Order includes a provision to select and implement an alternative BMP, through the BMP substitution provisions in subpart 4.A.2.

15. This Order incorporates presumptive BMPs to reduce pollutants in storm water discharges from commercial and industrial sites to the MEP. The BMPs are identified in Table 2 (BMPs at Restaurants), Table 3 (BMPs at Automotive Service Facilities), Table 4 (BMPs at Retail Gasoline Outlets), and Table 5 (BMPs at Nurseries). These BMPs include the implementation of good housekeeping practices designed to control pollutants at the source, promote the use of proper waste management practices, and implement control practices to keep pollutants away from any entrance to the storm drainage system. The BMPs listed in part 4.D of the Order were selected based on the Water Boards' experience of regulating such sites since 1992 and referenced in the California Stormwater Quality Association (CASQA) Storm Water Best Management Practice Handbook Commercial/Industrial Activity (January 2003) and from the Caltrans Storm Water Quality Handbook Maintenance Staff Guide May 2003 (Caltrans Document Number CTSW-RT-02-057), which serve as an industry standard for California. The BMPs identified in the Tables are technically feasible, practicable, and cost-effective. Where an identified BMP may be

impracticable, this Order includes a provision to select and implement an alternative BMP, through the BMP substitution provisions in subpart 4.A.2.

16. This Order incorporates presumptive BMPs to reduce pollutants in storm water discharges from Public Agency Activities to the MEP. The BMPs are identified in Table 10 (BMPs at Vehicle Maintenance/ Material Storage Facilities/ Corporation Yards). These BMPs include the implementation of good housekeeping practices designed to control pollutants at the source, promote the use of proper waste management practices, implement control practices to keep pollutants away from any entrance to the storm drainage system and from being deposited or discharged directly into waters of the U.S. The BMPs listed in part 4.G of the Order were selected based on the Water Boards' experience of regulating such sites since 1990, and are referenced in the Caltrans Storm Water Quality Handbook Maintenance Staff Guide May 2003 (Caltrans Document Number CTSW-RT-02-057), which serves as a statewide standard for the California Department of Transportation (Caltrans). The BMPs identified in the Table are technically feasible, practicable, and cost-effective, and are the standard of practice for Caltrans sites statewide. Where an identified BMP may be impracticable, this Order includes a provision to select and implement an alternative BMP, through the BMP substitution provisions in subpart 4.A.2.

17. This Order incorporates BMPs to ensure that authorized Non-Storm Water Discharges are not a source of pollutants to the MS4, Table 1 (Required Conditions for Non-Storm Water Discharges). The BMPs included are for the purpose of dechlorination and/or for prevention of erosion and sediment loss, or to reduce other harmful pollutants during the discharge of authorized non-storm water discharges to the MS4. The BMPs listed in part 1.A of the Order were selected from the *American Water Works Association AWWA Guidelines For The Development Of Your Best Management Practices (BMP) Manual For Drinking Water System Releases Developed by the CA-NV AWWA Environmental Compliance Committee (2005)* which serves as an industry standard for California, from the results of studies directed by the Los Angeles Water Board, - *Evaluation of Non-Storm Water Discharges to California Storm Drains and Potential Policies for Effective Prohibition Methods, Final Report*, University of California, Los Angeles, Contract No. 5-104-140-0 (1997), and *Water Quality Concerns and Regulatory Controls for Non Storm Water Discharges to Storm Drains*, Duke L.D. and M. Kihara, Journal of the American Water Resources Association, Vol. 34: 661-676, (1998), and from the Water Boards' experience of controlling authorized non-storm discharges to the MS4 since 1990. The BMPs identified in the Table are technically feasible, practicable, and cost-effective. Where an identified BMP may be impracticable, this Order includes a provision to select and implement an alternative BMP, through the BMP substitution provisions in subpart 4.A.2.

18. In accordance with Federal regulations at 40 CFR 124.8, a Fact Sheet has been prepared to explain the principal facts and the significant factual, legal, methodological, policy, and economic matters considered in preparing the Order. This Fact Sheet has been made a part of the Administrative Record.

19. The State Water Board adopted statewide General Waste Discharge Requirements for Sanitary Sewer Systems, (WQ Order No. 2006-0003) on May 2, 2006, to provide a consistent, statewide regulatory framework to address sanitary sewer overflows ("SSO Orders"). The SSO Order establishes requirements for public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and to report SSOs. SSOs that enter MS4s have the potential to impair the recreational use of receiving waters, and to harm public health. This Order establishes coordination, response, and notification requirements for MS4 Permittees when SSOs result in a discharge to the MS4 system.

20. This Order takes into consideration the housing needs in the area under the Permittees' jurisdiction by balancing the implementation of Smart Growth and Low Impact Development techniques with the protection of the water resources of the region. Although not required, the Regional Water Board considered the need for housing and the appropriate techniques to allow for reasonable development while protecting the receiving waters from degradation.

21. This Order may have an effect on costs required for compliance with the provisions contained herein. Although not required, the Regional Water Board has considered costs in preparing this Order. Though also not required, the Regional Water Board has also considered the factors set forth in Water Code section 13241.

G. Public Notification

1. The issuance of waste discharge requirements pursuant to California Water Code section 13370 et seq. is exempt from the California Environmental Quality Act in accordance with California Water Code section 13389. *County of Los Angeles et al., v. California Water Boards et al.*, (2006), 143 Cal.App.4th 985.

2. The Regional Water Board has notified the Permittees, and interested agencies and persons of its intent to issue waste discharge requirements for this discharge, and has provided them with an opportunity to make statements and submit their comments.

3. The Regional Water Board staff has conducted more than 35 meetings from February 9, 2007 through December 19, 2008, with Permittees, their representatives (Larry Walker and Associates, and Somach, Simmons & Dunn), and various stakeholders (Building Industry Association of Southern California/ Greater Los Angeles Ventura Chapter (BIAGLA/ VC), California State Dept. of Health Services, Calleguas Water District, California Stormwater Quality Association (CASQA), City of Downey, City of Los Angeles-EMD, Collation for Practical Regulation (CPR), Construction

Industry Coalition on Water Quality (CICWQ), County of Orange, Geosyntec Consultants, Golden State, Heal The Bay; Local Government commission, Los Angeles City; Los Angeles County Department of Public Works, Los Angeles County-SD, Los Angeles Department of Water & Power, Metropolitan Water District, Natural Resources Defense Council (NRDC), Richard Watson Association, San Bernardino Flood Control District, Santa Monica Bay Restoration Commission, Southern California Coastal Water Research Project, University of California Sea Grant, Ventura CoastKeeper). On April 5, 2007 and September 20, 2007 the Regional Water Board conducted workshops to discuss drafts of the NPDES Order and received input from the Permittees and the public regarding proposed changes.

4. This Order shall serve as a NPDES permit, pursuant to CWA § 402, and shall take effect 90 days from Order adoption date (August 5, 2009) provided the Regional Administrator of the U.S. EPA has no objections.

5. Pursuant to Cal. Water Code § 13320, any aggrieved party may seek review of this Order by filing a petition with the State Board within 30 days of the date of adoption of the Order by the Regional Water Board. A petition must be sent to:

   State Water Resources Control Board
   Office of the Chief Counsel
   P.O. Box 100
   Sacramento, CA 95812-0100

6. This Order may be modified or alternatively revoked or reissued prior to its expiration date or any administrative extension thereto, in accordance with 40 CFR122.41(f) and 122.62.

IT IS HEREBY ORDERED that the Permittees, in order to meet the provisions contained in Division 7 of the Cal. Water Code and regulations adopted thereunder, and the provisions of the CWA and regulations adopted thereunder, shall comply with the following:

PART 1 - DISCHARGE PROHIBITIONS

A. Prohibitions - Non-Storm Water Discharges

1. The Permittees shall, within their respective jurisdictions, effectively prohibit non-storm discharges into the MS4 and receiving waters, except where such discharges:
   (a) Originate from a State, Federal, or other source for which they are pre-empted from regulating by State or Federal law; or
   (b) Are covered by a separate individual or general NPDES permit, or conditional waiver for irrigated lands; or
   (c) Flows from fire fighting activities.

(d) Fall within one of the categories below, are not a source of pollutants that exceed water quality standards, and meet all conditions where specified by the Regional Water Board Executive Officer:
  (1) Category A – Natural flows
    (A) Stream diversions authorized by the State Water Board
    (B) Natural springs and rising ground water
    (C) Uncontaminated ground water infiltration [as defined by 40 CFR35.2005(20)][1]
    (D) Flows from riparian habitats or wetlands
  (2) Category B – Flows incidental to urban activities, providing conditions listed in table below:
    (A) Discharges from potable water sources[2]
    (B) Gravity flow from foundation, footing and crawl space drains.
    (C) Air conditioning condensate
    (D) Reclaimed and potable landscape irrigation runoff
    (E) Dechlorinated/ debrominated swimming pool discharges [see def. part 6]
    (F) Non-commercial car washing by residents or non-profit organizations
    (G) Sidewalk rinsing
    (H) Pooled non-storm water from treatment BMPs[3]

Table 1 – Required Conditions for Non-Storm Water Discharges

Type of Discharges:	**Conditions under which allowed:**	**Required conditions for discharge to occur:**
Stream diversions permitted by the State Board	Authorization by the State Water Board	Permittees shall comply with all conditions in the authorization.
Natural springs and rising ground water	1. Ground water dewatering requires a separate NPDES permit. 2. Segregate flow to prevent introduction of pollutants.	Permittees shall comply with all conditions in the authorization.
Uncontaminated ground water infiltration [as defined by 40 CFR 35.2005(20)]	NPDES permit for ground water dewatering is required within the Los Angeles Region including Ventura County	Permittees shall comply with all conditions in the authorization.

[1] NPDES permit for ground water dewatering is required within the Los Angeles Region including Ventura County.
[2] The term applies to low volume, incidental and infrequent releases that are innocuous from a water quality perspective. Those releases for dewatering or hydro-testing or flushing of water supply and distribution mains and incidental and infrequent releases from well heads shall be allowed with the implementation of appropriate BMPs until such time as a new General Permit is adopted that addresses those types of releases. Discharges from hydrostatic pipe testing shall be subject to separate NPDES general permit coverage (CAG674001) and discharges from utility vaults shall be conducted under coverage of a separate NPDES permit specific to that activity.
[3] All storm water BMPs shall at a minimum be maintained at a frequency as specified by the manufacturer, and designed to drain within 72 hours of the end of a rain. Storm water treatment BMPs may be drained to the MS4 under this Order if the discharge is not a source of pollutants. Sediments shall be disposed of properly, in compliance with all applicable local, state, and federal policies, acts, laws, regulations, ordinances, and statutes.

Type of Discharges:	Conditions under which allowed:	Required conditions for discharge to occur:
(Utility vault dewatering requires a separate NPDES permit.)		
Flows from riparian habitats or wetlands	Provided that all necessary permits or authorizations are received prior to diverting the stream flow.	Permittees shall comply with all conditions in the authorization.
Discharges from potable water sources	See Footnote #2. Provided discharges from water lines and potable water sources shall be dechlorinated, pH adjusted if necessary, reoxygenated, and volumetrically and velocity controlled to prevent resuspension of sediments.	See Footnote #2. To be discharged, this type of water shall be dechlorinated using aeration and/ or sodium thiosulfate and/ or other appropriate means and/or be allowed to infiltrate to the ground. BMPs such as sand bags or gravel bags, or other appropriate means shall be utilized to prevent sediment transport. All sediments shall be collected and disposed of in a legal and appropriate manner.
Drains for foundation, footing and crawl drains	Dewatering requires a separate NPDES permit.	Permittees shall comply with all conditions in the authorization.
Air conditioning condensate	Segregation of flow to prevent introduction of pollutants. Percolation whenever possible.	Permittees shall comply with all conditions in the authorization.
Water from crawl space pumps	Dewatering requires a separate NPDES permit within the Los Angeles Region including Ventura County	Permittees shall comply with all conditions in the authorization.
Reclaimed and potable landscape irrigation runoff	Segregation of flow to prevent introduction of pollutants.	Implement conservation programs to minimize this type of discharge by using less water.
Dechlorinated/ debrominated swimming pool discharges [see definition Part 6]	Where the discharge is not excepted by the sanitary sewer operator. Swimming pool discharges are to be dechlorinated, pH adjusted if necessary, aerated to remove chlorine if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments. Cleaning waste water and filter back wash shall not be discharged to municipal separate storm sewers. No discharges are allowed containing salts in excess of Water Quality Standards.	Pool water may be dechlorinated using time, aeration, and/ or sodium thiosulfate.

Type of Discharges:	Conditions under which allowed:	Required conditions for discharge to occur:
	Chlorine residual in discharge shall not exceed 0.1mg/L.	
Non-commercial car washing by residents or non-profit organizations	Preferably at a commercial carwash or designated area where wash water can percolate. Pumps or vacuums may be used to direct water to pervious areas.	Permittees shall comply with all conditions in the authorization.
Sidewalk rinsing	This may be undertaken only if high pressure low volume is used as described in the glossary under "Sidewalk Rinsing".	
Pooled storm water from treatment BMPs	All storm water BMPs shall at a minimum be maintained at a frequency as specified by the manufacturer. All storm water BMPs shall be designed to drain within 72 hours of the end of the rain event to avoid the breeding of vectors. Storm water treatment BMPs may be drained to the MS4 under this Order if the discharge is not a source of pollutants. The discharge shall cease before the discharge has become a source of a pollutant(s), (bottom sediment included). Sediments shall be disposed of properly, in compliance with all applicable local, state, and federal policies, acts, laws, regulations, ordinances, and statutes.	

2. If the Regional Water Board Executive Officer determines that any of the preceding categories of non-storm water discharges are a source of pollutants that exceed water quality standards, the Permittee(s) shall either:
   (a) Prohibit the discharge from entering the MS4; <u>or</u>
   (b) Authorize the discharge category and require implementation of appropriate or additional BMPs to ensure that the discharge will not be a source of pollutants; <u>or</u>
   (c) Require or obtain coverage under a separate RWQCB or SWRCB permit for discharge into the MS4.

<u>PART 2 – RECEIVING WATER LIMITATIONS</u>

1. Discharges from the MS4 that cause or contribute to a violation of water quality standards are prohibited.

2. Discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible, shall not cause or contribute to a condition of nuisance.

3. The Permittee shall comply with Receiving Water Limitations 1 and 2 through timely implementation of control measures and other actions to reduce pollutants in the storm water discharges in accordance with the requirements of this Order including any modifications. The Permittees' Program shall be designed to achieve compliance with Receiving Water Limitations 1 and 2. If exceedance(s) of water quality objectives or water quality standards (collectively WQS) persist, notwithstanding implementation of this permit, the Permittees shall ensure compliance with Receiving Water Limitations 1 and 2 by complying with the following procedure:
   (a) Upon determination by either the Permittees or the Regional Water Board that discharges are causing or contributing to an exceedance of an applicable WQS, the Permittee(s) upstream of the point of discharge shall promptly notify and thereafter submit a report to the Regional Water Board Executive Officer that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of WQSs. The report may be included with the Annual Report, unless the Regional Water Board Executive Officer directs an earlier submittal. The Regional Water Board Executive Officer may require modifications to the report.
   (b) Submit any modifications to the report required by the Regional Water Board Executive Officer within 30 days of notification.
   (c) Within 30 days following approval of the Report described above by the Regional Water Board Executive Officer, the Permittees shall revise their Program and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required.
   (d) Implement the revised Program and monitoring program according to the approved schedule.

4. Permittees shall annually report the effectiveness of BMPs in reducing exceedances of receiving water limitations. The Regional Board Executive Officer may direct implementation of additional BMPs if there are continuing or recurring exceedances of the same receiving water limitation.

PART 3 - STORM WATER QUALITY MANAGEMENT PROGRAM IMPLEMENTATION

A. General Requirements

1. Each Permittee shall, at a minimum, adopt and implement applicable terms of this Order within its jurisdictional boundary. The Principal Permittee shall be responsible for program coordination as described in this Order as well as compliance with applicable portions of the permit within its jurisdiction. This Order shall be implemented no later than August 5, 2009, unless a later date has been specified for a

particular provision in this Order and provided the Regional Administrator of the U.S. EPA has no objections.

2. Each Permittee shall comply with the requirements of 40 CFR122.26(d)(2) and implement programs and control measures so as to reduce the discharges of pollutants in storm water to the MEP and achieve water quality standards.

3. Each Permittee shall require that treatment control BMPs being implemented under the provisions of this Order shall be designed, at a minimum, to achieve the BMP performance criteria for storm water pollutants likely to be discharged as identified in Attachment "C", for an 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area using a 48 to 72-hour draw down time, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998). Expected BMP pollutant removal performance for effluent quality was developed from the WERF-ASCE/ U.S. EPA International BMP Database. Permittees shall select Treatment BMPs based on the primary class of pollutants likely to be discharged from the site/facility (e.g. metals from an auto repair shop). Permittees may develop guidance for appropriate Treatment BMPs for project type based on Attachment "C". For the treatment of pollutants causing impairments within the drainage of the impaired waterbody, permittees shall select BMPs from the top three performing BMP categories or alternative BMPs that are designed to meet or exceed the performance of the highest performing BMP for the pollutant causing impairment.

4. Each Permittee shall implement programs and measures to comply with the TMDLs' WLAs for the MS4 as specified in Part 5.

5. If TMDL requirements, including Implementation Plans and Reports, address substantially similar requirements as the MS4 permit, the Executive Officer may approve the applicable reports, plans, data or submittals under the applicable TMDL as fulfilling requirements under the MS4.

B. Legal Authority

1. Permittees shall possess the necessary legal authority to prohibit, including, but not limited to:
   (a) Illicit connections and illicit discharges, and to remove illicit connections.
   (b) The discharge of non-storm water to the MS4 from:
      (1) Washing or cleaning of gas stations, auto repair garages, or other types of automotive service facilities
      (2) Mobile auto washing, carpet cleaning, steam cleaning, sandblasting and other such mobile commercial and industrial operations
      (3) Areas where repair of machinery and equipment which are visibly leaking oil, fluid or antifreeze, is undertaken

(4) Storage areas for materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials
(5) Swimming pools[1] that have a concentration greater than:
  (A) Chlorine/ bromine- 0.1mg/L
  (B) Chloride- 250mg/L
(6) Swimming pool filter backwash
(7) Decorative fountains and ponds
(8) Industrial/ Commercial areas, including restaurant mats
(9) Concrete truck cement, pumps, tools, and equipment washout
(10) Spills, dumping, or disposal of materials other, such as:
  (A) Litter, landscape and construction debris, garbage, food, animal waste, fuel or chemical wastes, batteries, and any other materials which have the potential to adversely impact water quality; <u>and</u>
  (B) Any pesticide, fungicide or herbicide
(11) Stationary and mobile pet grooming facilities
(12) Trash container leachate

2. The Permittees shall possess adequate legal authority to:
(a) Control through interagency agreement, the contribution of pollutants from one portion of the MS4 to another portion of the MS4.
(b) Require persons within their jurisdiction to comply with conditions in the Permittees' ordinances, permits, contracts, model programs, or orders (i.e. hold dischargers to its MS4 accountable for their contributions of pollutants and flows).
(c) Utilize enforcement measures (e.g., stop work orders, notice of violations, fines, referral to City, County, and/ or District Attorneys, referral to strikeforces, etc.) by ordinances, permits, contracts, orders, administrative authority, and civil and criminal prosecution.[2]
(d) Control pollutants, including potential contribution[3] in discharges of storm water runoff associated with industrial activities, including construction activities to its MS4, and control the quality of storm water runoff from industrial sites, including construction sites.

(e) Carry out all inspections, surveillance and monitoring procedures necessary to determine compliance and non-compliance with permit conditions including the prohibition on illicit discharges to the MS4.
(f) Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality objectives.
(g) Require that Treatment Control BMPs be properly operated and maintained.

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[1] MS4s discharging directly to the ocean are not subject to this prohibition.
[2] In the case of private responsible parties such as, HOAs, the Permittee must retain enforcement authority.
[3] "Potential contributions" and "potential to discharge," means adequate legal authority to prevent an actual discharge of pollutants to the municipal separate storm sewer system.

3. Each Permittee has adopted a Storm Water Quality Ordinance based upon a countywide model. Each Permittee shall ensure, no later than May 7, 2011, that its Storm Water Quality Ordinance authorizes the Permittee to enforce all requirements of this Order.

4. Each Permittee shall submit no later than two years after Order adoption date, a statement by its legal counsel that the Permittee has obtained and possesses all necessary legal authority to comply with this Order through adoption of ordinances and/ or municipal code modifications.

C. Fiscal Resources

1. The Permittees shall implement the activities required to comply with the provisions of this Order.[1] Each Permittee shall:
   (a) Submit an Annual Budget Summary that shall include:
      (1) Budgets for the upcoming report year (estimated expenditure) for the following specific categories (estimated percentages and written explanations where necessary):
         (A) Program Management Activities.
            (i) Overall Administrative costs
         (B) Program Implementation Activities (permit related activities only). Provide figures breakdown of expenditures for the categories below:
            (i) Illicit connection/ illicit discharge program.
            (ii) Development planning and approval
            (iii) Construction program including inspection activities
            (iv) Industrial/ Commercial program including inspection activities
            (v) Public Agency Activities
               (I) Maintenance and inspection of Treatment Control BMPs
               (II) Municipal Street Sweeping
               (III) Municipal Drainage Maintenance including catch basin clean-outs
               (IV) Other costs associated with storm water management (describe)
            (vi) Public Information and Participation.
            (vii) Monitoring Program
            (viii) Miscellaneous Expenditures (describe)

D. Modifications/ Revisions

1. No later than two years after the Order adoption date, each Permittee shall modify its storm water management programs, protocols, practices, and municipal codes to make them consistent with the requirements herein.

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[1] The sources of funding may be the general funds, and/or Benefit Assessment, plan review fees, permit fees, industrial/ commercial user fee, revenue bonds, grants or other similar funding mechanism.

E. Designation and Responsibilities of the Principal Permittee

1. The Ventura County Watershed Protection District is hereby designated as the Principal Permittee. The Principal Permittee shall:
   (a) Participate in the County Environmental Crimes Task Force
   (b) Coordinate and facilitate activities necessary to comply with the requirements of this Order, but the Principal Permittee is not responsible for ensuring compliance of any other individual Permittee
   (c) Coordinate permit activities among Permittees and act as liaison between the Permittees and the Regional Water Board on permitting issues
   (d) Provide technical and administrative support for committees that will be organized to implement this Order and its requirements
   (e) Evaluate, assess, and synthesize the results of the monitoring program and the effectiveness of the implementation of BMPs
   (f) Convene the Committee Meetings constituted pursuant to subpart 4.F.1., below, upon designation of representatives
   (g) Implement the Countywide Monitoring Program required under the Order and evaluate, assess and synthesize the results of the monitoring program
   (h) Provide personnel and fiscal resources for the collection, processing and submittal to the Regional Water Board of monitoring and annual reports, and summaries of other reports required under this Order

F. Responsibilities of the Permittees

1. Each Permittee is required to comply with the requirements of this Order applicable to discharges within its boundaries (see Findings- Permit Coverage D.1 and D.2). Permittees are not responsible for the implementation of the provisions applicable to the Principal Permittee or other Permittees. Each Permittee shall:
   (a) Comply with the requirements of this Order and any modifications thereto
   (b) Coordinate among its internal departments and agencies, as necessary, to facilitate the implementation of the requirements of this Order applicable to such Permittees in an efficient and cost-effective manner
   (c) Participate in intra-agency coordination (e.g., Planning Department, Fire Department, Building and Safety, Code Enforcement, Public Health, Parks and Recreation, and others) necessary to successfully implement the provisions of this Order
   (d) Report, in addition to the Budget Summary, any supplemental dedicated budgets for the same categories
   (e) Participate in Committee Meetings, as necessary

PART 4 - SPECIAL PROVISIONS (BASELINE)

A. General Requirements

1. This Order and the provisions herein are intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water to the MEP and not cause or contribute to exceedances of water quality standards for the permitted areas in the County of Ventura.

2. Best Management Practice Substitution
   (a) The Regional Water Board Executive Officer may approve any site-specific BMP substitution upon written request by a Permittee(s) and after public notice, if the Permittee can document that:
      (1) The proposed alternative BMP or program will meet or exceed the objective of the original BMP or program in the reduction of storm water pollutants.
      (2) The fiscal burden of the original BMP or program is greater than the proposed alternative and does not achieve a greater improvement in storm water quality.
      (3) The proposed alternative BMP or program will be implemented within a similar period of time.
      (4) BMP substitution will be in accordance with the public review provisions of the Order (Part 7.C.1 and Part 7.C.2).

B. Watershed Initiative Participation

1. The Principal Permittee shall participate in water quality meetings for watershed management and planning, including but not limited to the following:
   (a) Southern California Stormwater Monitoring Coalition (SMC)
   (b) Other Watershed planning groups as appropriate

2. The Principal Permittee shall participate in the following regional water quality programs, and projects for watershed management and planning:
   (a) SMC Regional Monitoring Programs
      (1) Southern California Regional Bioassessment
         (A) Level of effort per watershed
            (i) Probabilistic sites per watershed
               (I) Ventura River - Six
               (II) Santa Clara River - Three
               (III) Calleguas Creek - Six
            (ii) Integrator sites per watershed
               (I) Ventura River - One
               (II) Santa Clara River - One
               (III) Calleguas Creek – One
            (iii) Fixed bioassessment sites

(I) The Permittees shall perform bioassessment at one fixed urban site in each major watershed. Site selection shall be determined by the results of the first year SMC results, as approved by the Executive Officer.

(b) Southern California Bight Projects

(1) Regional Monitoring Survey – 2008, and successive years.

C. Public Information and Participation Program (PIPP)

1. The Principal Permittee shall implement a Public Information and Participation Program (PIPP) that includes, but is not limited to, the requirements listed in this part. The Principal Permittee shall coordinate with Permittees to implement specific PIPP requirements. The objectives of the PIPP are as follows:

   (a) To increase the knowledge of the target audience about the MS4, the adverse impacts of storm water pollution on receiving waters and potential solutions to mitigate the impacts

   (b) To change the waste disposal and storm water pollution generation behavior of target audiences by encouraging implementation of appropriate solutions

   (c) To involve and engage communities in Ventura County to participate in mitigating the impacts of storm water pollution

2. Residential Program

   (a) "No Dumping" Message

   Each Permittee shall label all storm drain inlets that they own with a legible “no dumping” message. In addition, signs with prohibitive language discouraging illegal dumping shall be posted at designated public access points to creeks, other relevant waterbodies, and channels. Signage and storm drain messages shall be legible and maintained.

   (b) Public Reporting

   Each Permittee shall identify staff who will serve as the contact person(s) for reporting clogged catch basin inlets and illicit discharges/dumping, faded or missing catch basin labels, and general storm water management information. Permittees shall include this information, updated by July 1 of each year, in public information media such as the government pages of the telephone book, and internet web sites. The Principal Permittee shall compile a list of the general public reporting contacts submitted by all Permittees and make this information available on the web site (http://www.vcstormwater.org/contact.htm) and upon request. Each Permittee is responsible for providing current, updated information to the Principal Permittee.

   (c) Outreach and Education

   (1) Collaboratively, the Permittees shall implement the following activities:

   (A) Conduct a Storm Water pollution prevention advertising campaign.

   (B) Conduct Storm Water pollution prevention public service announcements.

(C) Distribute storm water pollution prevention public education materials within 365 days of the adoption of this Order (i.e. May 7, 2010) to:
  (i) Automotive parts stores
  (ii) Home improvement centers/ lumber yards/ hardware stores
  (iii) Pet shops/ feed stores

(D) Public education materials shall include, but are not limited to information on the proper disposal, storage, and use of:
  (i) Vehicle waste fluids
  (ii) Household waste materials
  (iii) Construction waste materials
  (iv) Pesticides and fertilizers (including integrated pest management practices-IPM)
  (v) Green waste (including lawn clippings and leaves)
  (vi) Animal wastes

(E) Work with existing local watershed groups or organize watershed Citizen Advisory Groups/ Committees to develop effective methods to educate the public about storm water pollution no later than May 7, 2010.

(F) Organize events targeted to residents and population subgroups; and

(G) Maintain the Countywide storm water website (www.vcstormwater.org), which shall include educational material listed in the preceding subpart C.2(c)(1)(D).

(2) The Principal Permittee shall develop a strategy to educate ethnic communities through culturally effective methods. Details of this strategy should be incorporated into the PIPP, and implemented, no later than May 7, 2010.

(3) Each Permittee shall continue the existing outreach program to residents on the proper disposal of litter, green waste, pet waste, proper vehicle maintenance, lawn care and water conservation practices.

(4) Each Permittee shall conduct educational activities within its jurisdiction and participate in countywide events.

(5) The Permittees shall make a minimum of 5 million impressions per year to the general public related to storm water quality, with a minimum of 2.5 million impressions via newspaper, local TV access, local radio and/ or internet access.

(6) The Principal Permittee, in cooperation with the Permittees, shall provide schools within each School District in the County with materials, including, but not limited to, videos, live presentations, and other information necessary to educate a minimum of 50 percent of all school children (K-12) every 2 years on storm water pollution. Alternatively, a Permittee may submit a plan to the Regional Water Board Executive Officer for consideration no later than August 5, 2009 (90 days after adoption of the Order), to provide outreach in lieu of the school curriculum. Pursuant to Water Code section 13383.6, the Permittees, in lieu of providing educational materials/ funding to School Districts in the County, may opt to provide an

equivalent amount of funds or fraction thereof to the Environmental Education Account established within the State Treasury.

(7) Each Permittee shall provide the contact information for their appropriate staff responsible for storm water public education activities to the Principal Permittee and contact information changes no later than 30 days after a change occurs.

(8) The Permittees shall develop and implement a behavioral change assessment strategy no later than May 7, 2010, in order to determine whether the PIPP is demonstrably effective in changing the behavior of the public. The strategy shall be developed based on current sociological data and studies.

(d) Pollutant-Specific Outreach

The Principal Permittee, in cooperation with the Permittees, shall coordinate to develop outreach programs that focus on metals, urban pesticides, bacteria and nutrients as the pollutants of concern no later than May 7, 2010. Metals may be appropriately addressed through the Industrial/ Commercial Facilities Program (e.g. the distribution of educational materials on appropriate BMPs for metal fabrication and recycling facilities that have been identified as a potential source). Region-wide pollutants may be included in the Principal Permittee's mass media outreach program.

3. Businesses Program

(a) Corporate Outreach

(1) The Permittees shall work with other regional or statewide agencies and, associations such as the California Storm Water Quality Association (CASQA), to develop and implement a Corporate Outreach program to educate and inform corporate franchise operators and/or local facility managers about storm water regulations and BMPs. Once developed, the program shall target a minimum of four Retail Gasoline Outlets (RGO) franchisers and cover a minimum of 80% of RGO franchisees in the county, four retail automotive parts franchisers, two home improvement center franchisers and six restaurant franchisers. Corporate outreach for all target facilities shall be conducted not less than twice during the term of this Order, with the first outreach contact to begin no later than two years after Order adoption date. At a minimum, this program shall include:

(A) Confer with franchise operators and/or local facility managers to explain storm water regulations.

(B) Distribution and discussion of educational material regarding storm water pollution and BMPs, and provide managers with recommendations to facilitate employee and facility compliance with storm water regulations.

(b) Business Assistance Program

(1) The Permittees shall implement a Business Assistance Program to provide technical information to small businesses to facilitate their efforts to reduce the discharge of pollutants in storm water. The Program shall include:

(A) On-site, telephone or e-mail consultation regarding the responsibilities of businesses to reduce the discharge of pollutants, procedural requirements, and available guidance documents.
(B) Distribution of storm water pollution prevention education materials to operators of auto repair shops, car wash facilities (including mobile car detailing), mobile carpet cleaning services, commercial pesticide applicator services and restaurants.

D. Industrial/ Commercial Facilities Program

I. Each Permittee shall require implementation of pollutant reduction and control measures, unless precluded by local ordinances, at industrial and commercial facilities, with the objective of reducing pollutants in storm water. Except where specified otherwise in this Order, pollutant reduction and control measures may be used alone or in combination, and may include Treatment Control, Source Control BMPs, and operation and maintenance procedures, which may be applied before, during, and/ or after pollutant generating activities. At a minimum, the Industrial/ Commercial Facilities Control Program shall include requirements to:
(a) Track
(b) Inspect
(c) Ensure compliance with municipal ordinances at industrial and commercial facilities that are critical sources of pollutants in storm water

1. Inventory of Critical Sources
(a) Each Permittee shall maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of storm water pollution. Critical Sources to be tracked are summarized below, and specified in Attachment "D":
(1) Commercial Facilities
(A) Restaurants
(B) Automotive service facilities
(C) RGOs and automotive dealerships
(D) Nurseries and nursery centers
(2) U.S. EPA Phase I, II Facilities
(3) Other Federally-mandated Facilities [as specified in 40 CFR122.26(d)(2)(iv)(C)]
(A) Municipal landfills
(B) Hazardous waste treatment, disposal, and recovery facilities
(C) Facilities subject to SARA Title III (also known as the Emergency Planning and Community Right-to-Know Act (EPCRA))
(b) Each Permittee shall include the following minimum fields of information for each critical source industrial and commercial facility
(1) Name of facility and name of owner/ operator.
(2) Address of facility

(3) Coverage under the IASGP or other individual or general NPDES permits or any applicable waiver issued by the Regional or State Board pertaining to runoff discharges.

(4) A narrative description including Standard Industrial Classification (SIC) System/ North American Industry Classification System (NAICS) codes that best describe the industrial activities performed and principal products used at each facility and status of exposure to storm water.

(c) The Regional Water Board recommends that Permittees include additional fields of information, such as material usage and/ or industrial output, and discrepancies between SIC System/ NAICS Code designations (as reported by facility operators) and identify the actual type of industrial activity that has the potential to pollute storm water. In addition, the Regional Water Board recommends the use of an automated database system, such as a Geographical Information System (GIS) or Internet-based system.

(d) Each Permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (e.g. business licenses, pretreatment permits, sanitary sewer hook-up permits, and similar information).

2. Inspect Critical Sources

(a) Commercial Facilities

Permittee shall inspect all facilities identified in subpart 4.D.1. twice during the 5-year term of the Order, provided that the first inspection occurs no later than May 7, 2011. A minimum interval of 6 months between the first and the second mandatory compliance inspection is required. In addition, each Permittee shall implement the activities outlined in the following subparts. At each facility, inspectors shall verify that the operator is implementing the source control BMPs. The Permittees may require implementation of additional BMPs where storm water flows from the MS4 discharge to an environmentally sensitive area (ESA, see Part 6 for definition) or a CWA § 303(d) listed waterbody (see subpart 3(b) below).

(1) Restaurants-
Level of inspections: Each Permittee shall inspect all restaurants within its jurisdiction to confirm that storm water BMPs are being effectively implemented in compliance with State law, County and municipal ordinances. BMPs in Table 2 (BMPs at Restaurants) shall be implemented, unless the pollutant generating activity does not occur.

Table 2 - BMPs at Restaurants

Pollutant-Generating Activity	**BMP Narrative Description**	**2003 California Stormwater BMP Handbook Industrial and Commercial BMP Identification #**
Waste/ Hazardous Materials Storage, Handling and Disposal	Implementation of effective storage, handling and disposal procedures for hazardous materials.	By Municipality
Unauthorized Non-Storm Water Discharges	Effective elimination of non-storm water discharges.	SC-10
Accidental Spills/ Leaks	Implementation of effective spills/ leaks prevention and response procedures.	SC-11
Outdoor Storage of Raw Materials	Implementation of effective source control practices and structural devices.	SC-33
Storage and Handling of Solid Waste	Implementation of effective solid waste storage/ handling practices and appropriate control measures	SC-34
Parking/ Storage Area Maintenance	Implementation of effective parking/ storage area designs and housekeeping/ maintenance practices	SC-43
Storm Water Conveyance System Maintenance	Implementation of proper conveyance system operation and maintenance protocols.	SC-44

(2) Automotive Service Facilities-

Level of Inspection: Each Permittee shall confirm that BMPs are being effectively implemented at each facility within its jurisdiction, in compliance with County and municipal ordinances. The inspections shall verify that BMPs in Table 3 (BMPs at Automotive Service Facilities) are being implemented, unless the pollutant generating activity does not occur.

Table 3 - BMPs at Automotive Service Facilities

Pollutant-Generating Activity	**BMP Narrative Description**	**2003 California Stormwater BMP Handbook Industrial and Commercial BMP Identification #**
Unauthorized Non-Storm Water Discharges	Effective elimination of non-storm water discharges.	SC-10
Accidental Spills/ Leaks	Implementation of effective spills/ leaks prevention and response procedures.	SC-11
Vehicle/ Equipment Fueling	Implementation of effective fueling source control devices and practices.	SC-20
Vehicle/ Equipment Cleaning	Implementation of effective equipment/ vehicle cleaning practices and appropriate wash water management practices	SC-21
Vehicle/ Equipment Repair	Implementation of effective vehicle/ equipment repair practices and source control devices.	SC-22
Outdoor Liquid Storage	Implementation of effective outdoor liquid storage source controls and practices.	SC-31
Outdoor Storage of Raw Materials	Implementation of effective source control practices and structural devices.	SC-33
Storage and Handling of Solid Waste	Implementation of effective solid waste storage/ handling practices and appropriate control measures	SC-34
Parking/ Storage Area Maintenance	Implementation of effective parking/ storage area designs and housekeeping/ maintenance practices	SC-43
Storm Water Conveyance System Maintenance Practices	Implementation of proper conveyance system operation and maintenance protocols.	SC-44

(3) Retail Gasoline Outlets and Automotive Dealerships-
Level of Inspections: Each Permittee shall confirm that BMPs are being effectively implemented at each facility within its jurisdiction, in compliance with County and municipal ordinances. The inspections shall verify that BMPs in Table 4 (BMPs at Retail Gasoline Outlets) are being implemented, unless the pollutant generating activity does not occur.

Table 4 - BMPs at Retail Gasoline Outlets

Pollutant-Generating Activity	**BMP Narrative Description**	**2003 California Stormwater BMP Handbook Industrial and Commercial BMP Identification #**
Unauthorized Non-Storm Water Discharges	Effective elimination of non-storm water discharges.	SC-10
Accidental Spills/ Leaks	Implementation of effective spills/ leaks prevention and response procedures.	SC-11
Vehicle/ Equipment Fueling	Implementation of effective fueling source control devices and practices.	SC-20
Vehicle/ Equipment Cleaning	Implementation of effective wash water control devices.	SC-21
Outdoor Storage of Raw Materials	Implementation of effective source control practices and structural devices.	SC-33
Storage and Handling of Solid Waste	Implementation of effective solid waste storage/ handling practices and appropriate control measures	SC-34
Building and Grounds Maintenance	Implementation of effective facility maintenance practices.	SC-41
Parking/ Storage Area Maintenance	Implementation of effective parking/ storage area designs and housekeeping/ maintenance practices	SC-43

(4) Commercial Nurseries and Nursery Centers (Merchant Wholesalers, Nondurable Goods, and Retail Trade)-

Level of Inspection: Each Permittee shall confirm that BMPs are being effectively implemented at each facility within its jurisdiction, in compliance with County and municipal ordinances. The inspections shall verify that BMPs in Table 5 (BMPs at Nurseries) are being implemented, unless the pollutant generating activity does not occur.

Table 5 - BMPs at Nurseries

Pollutant-Generating Activity	BMP Narrative Description	2003 California Stormwater BMP Handbook Industrial and Commercial BMP Identification #
Unauthorized Non-Storm Water Discharges	Effective elimination of non-storm water discharges.	SC-10
Outdoor Loading/ Unloading	Implementation of effective outdoor loading/ unloading practices.	SC-30
Outdoor Liquid Storage	Implementation of effective outdoor liquid storage source controls and practices.	SC-31
Outdoor Equipment Operations	Implementation of effective outdoor equipment source control devices and practices.	SC-32
Outdoor Storage of Raw Materials	Implementation of effective source control practices and structural devices.	SC-33
Building and Grounds Maintenance	Implementation of effective facility maintenance practices.	SC-41

(b) Industrial Facilities

Each Permittee shall conduct compliance inspections as specified below.

(1) **Frequency of Inspection**

(A) Each Permittee shall perform an initial inspection at all industrial facilities identified by the U.S. EPA in 40 CFR122.26(c) no later than 2 years after Order adoption date. After the initial inspection, all facilities determined as having exposure of industrial activities to storm water are subject to a second mandatory compliance inspection. A minimum interval of 6 months between the first and the second compliance inspection is required.

(B) Following the first mandatory compliance inspection, a Permittee shall perform a second mandatory compliance inspection yearly at a minimum of 20% of the facilities determined not to have exposure of industrial activities to storm water. The purpose of this inspection is to verify the continuity of the no exposure status. Facilities determined

as having exposure will be notified that they must obtain coverage under the IASGP. A facility need not be inspected more than twice during the term of the Order unless subject to an enforcement action. A minimum interval of 6 months in between the first and the second compliance inspection is required.

(C) Applicable to all facilities: A Permittee need not inspect facilities that have been inspected by the Regional Water Board within the previous 24 month interval. However, if the Regional Water Board performed only one inspection, the Permittee shall conduct the second required mandatory compliance inspection.

(2) **Level of Inspection:** Each Permittee shall confirm that each operator:

(A) Has a current Waste Discharge Identification (WDID) number for facilities discharging storm water associated with industrial activity, and that a Storm Water Pollution Prevention Plan (SWPPP) is available on-site.

(B) Is effectively implementing BMPs in compliance with County and municipal ordinances. Facilities must implement the source control BMPs identified in subpart 4.D.2. and Appendix D, *California Stormwater Industrial and Commercial BMP Handbook (2003)*; or

(C) Has applied and has a current No Exposure Certification (and WDID number) for facilities subject to this requirement.

3. Ensure Compliance of Critical Sources

(a) **BMP Implementation:** Facilities must implement the source control BMPs identified in Part 4.D.2. and, as applicable, Appendix D, *California Stormwater Industrial and Commercial BMP Handbook (2003)*. In the event that a Permittee determines that a BMP is infeasible at any site, the Permittee shall require implementation of similar BMPs that will achieve the equivalent reduction of pollutants in the storm water discharges. Likewise, for those BMPs that are not protective of water quality standards, Permittees may require additional site-specific controls.

(b) **Environmentally Sensitive Areas (ESAs) and Impaired Waters:** For critical sources that discharge to MS4s that directly discharge to ESAs or to CWA § 303(d) listed impaired waterbodies, the Permittees shall require operators to implement additional pollutant specific controls to reduce pollutants in storm water runoff that are causing or contributing to exceedances of water quality objectives. A Regional Board approved TMDL Implementation Plan for the receiving water will substitute for this requirement.

(c) **Progressive Enforcement:** Each Permittee shall implement a progressive enforcement policy to ensure that facilities are brought into compliance with all storm water requirements within a reasonable time period as specified below.

(1) In the event that a Permittee determines, based on an inspection conducted, that an operator has failed to adequately implement all necessary BMPs, that Permittee shall take progressive enforcement actions which, at a minimum,

shall include a follow-up inspection within 4 weeks from the date of the initial inspection.

(2) In the event that a Permittee determines that an operator has failed to adequately implement BMPs after a follow-up inspection, that Permittee shall take enforcement action as established through authority in its municipal code and ordinances or through the judicial system.

(3) Each Permittee shall maintain records and make them available on request to the Regional Water Board, including inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating a good faith effort to bring facilities into compliance.

4. Interagency Coordination

(a) **Referral of Violations of the Municipal Storm Water Ordinances and California Water Code § 13260:** A Permittee may refer a violation(s) of § 13260 by Industrial and Commercial facilities to the Regional Water Board provided that under its municipal storm water ordinance the Permittee has made a good faith effort of progressive enforcement. At a minimum, a Permittee's good faith effort must be documented with:

(1) Two follow-up inspections
(2) Two warning letters or notices of violation

(b) **Referral of Violations of the Industrial Activities Storm Water General Permit (IASGP), including Requirements to File a Notice of Intent or No Exposure Certification:** For those facilities in violation of the municipal storm water ordinance and subject to the IASGP, Permittees may escalate referral of such violations to the Regional Water Board (electronically on a quarterly basis to the Regional Water Board's Storm Water Site at MS4stormwaterrb4@waterboards.ca.gov) after one inspection and one written notice (copied to the Regional Water Board) to the operator regarding the violation. In making such referrals, Permittees shall include, at a minimum, the following documentation:

(1) Name of the facility
(2) Operator of the facility
(3) Owner of the facility
(4) WDID Number (if applicable)
(5) Industrial activity being conducted at the facility that is subject to the IASGP
(6) Records of communication with the facility operator regarding the violation, which shall include at least an inspection report
(7) The written notice of the violation copied to the Regional Water Board

(c) **Investigation of Complaints Regarding Facilities – Transmitted by the Regional Water Board Staff:** Each Permittee shall initiate, within one business day,[1] investigation of complaints (other than non-storm water discharges) to the MS4 from facilities within its jurisdiction. The initial investigation shall include, at a minimum, a limited inspection of the facility to confirm the complaint to determine if the facility is effectively complying with the municipal storm water urban runoff ordinances and, if necessary, to oversee corrective action.

(d) **Assistance of Regional Water Board Enforcement Actions:** As directed by the Regional Water Board Executive Officer, Permittees shall assist Regional Water Board enforcement actions by: helping in identification of current owners, operators, and lessees of facilities; providing staff, when available, for joint inspections with Regional Water Board inspectors; appearing as witnesses in Regional Water Board enforcement hearings; and providing copies of inspection reports and other progressive enforcement documentation.

(e) **Participation in a Task Force:** The Permittees shall participate with the Regional Water Board, and other public agencies on an enforcement task force such as the Storm Water Task Force, to communicate concerns regarding special cases of storm water violations by industrial and commercial facilities and to develop a coordinated approach to enforcement action.

E. Planning and Land Development Program

I. Purpose

1. The Permittees shall implement a Planning and Land Development Program pursuant to part 4.E. for all New Development and Redevelopment projects subject to this Order to:
   (a) Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, safeguarding of environmentally sensitive areas, mixing of land uses (e.g., homes, offices, and shops), transit accessibility, and better pedestrian and bicycle amenities.
   (b) Minimize the adverse impacts from storm water runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of waterbodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100).
   (c) Minimize the percentage of effective impervious surfaces on land developments to mimic predevelopment water balance through infiltration, evapotranspiration and reuse.
   (d) Minimize pollutant loadings from impervious surfaces such as roof-tops, parking lots, and roadways through the use of properly designed, technically appropriate

[1] Permittees may comply with the Permit by taking initial steps (such as logging, prioritizing, and tasking) to "initiate" the investigation within that one business day. However, the Regional Water Board would expect that the initial investigation, including a site visit, to occur within four business days.

BMPs (including Source Control BMPs such as good housekeeping practices), Low Impact Development Strategies, and Treatment Control BMPs.

(e) Properly select, design and maintain Treatment Control BMPs and Hydromodification Control BMPs to address pollutants that are likely to be generated, assure long-term function, and to avoid the breeding of vectors.[1]

(f) Prioritize the selection of BMPs suites to remove storm water pollutants, reduce storm water runoff volume, and beneficially reuse storm water to support an integrated approach to protecting water quality and managing water resources in the following order of preference:
   (1) Infiltration BMPs
   (2) BMPs that store and reuse storm water runoff.
   (3) BMPs that incorporate vegetation to promote pollutant removal and runoff volume reduction and integrate multiple uses
   (4) BMPs which percolate runoff through engineered soil and allow it to discharge downstream slowly
   (5) Approved modular/ proprietary treatment control BMPs that are based on LID concepts and that meet pollution removal goals

II. Applicability

1. New Development Projects.

(a) Development projects subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution, prior to completion of the project(s), are:
   (1) All development projects equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious surface area
   (2) Industrial park 10,000 square feet or more of surface area
   (3) Commercial strip mall 10,000 square feet or more of impervious surface area
   (4) Retail gasoline outlet 5,000 square feet or more of surface area
   (5) Restaurant (SIC 5812) 5,000 square feet or more of surface area
   (6) Parking lot 5,000 square feet or more of impervious surface area, <u>or</u> with 25 or more parking spaces
   (7) Streets, roads, highways, and freeway construction of 10,000 square feet or more of impervious surface area shall incorporate USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets to the maximum extent practicable.
   (8) Automotive service facilities (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) [5,000 square feet or more of surface area]
   (9) Redevelopment projects in subject categories that meet Redevelopment thresholds (identified in subpart E.II.2 below)

[1] Treatment BMPs when designed to drain within 72 hours of the end of rainfall minimize the potential for the breeding of vectors.

(10) Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:
  (A) Discharge storm water runoff that is likely to impact a sensitive biological species or habitat; and
  (B) Create 2,500 square feet or more of impervious surface area

(11) Single-family hillside homes. To the extent that a Permittee may lawfully impose conditions, mitigation measures or other requirements on the development or construction of a single-family home in a hillside area as defined in the applicable Permittee's Code and Ordinances, each Permittee shall require that during the construction of a single-family hillside home, the following measures to be implemented:
  (A) Conserve natural areas
  (B) Protect slopes and channels
  (C) Provide storm drain system stenciling and signage
  (D) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability
  (E) Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability

2. Redevelopment Projects

(a) Redevelopment projects subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution, prior to completion of the project(s), are:
  (1) Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on development categories identified in subpart 4.E.III.1.
  (2) Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, the entire project must be mitigated.
  (3) Where Redevelopment results in an alteration to less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, only the alteration must be mitigated, and not the entire development.

(b) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

(c) Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

3. Effective Date –The New Development and Redevelopment requirements contained in Section E of the Order shall begin 90 calendar days after Regional Board Executive Officer approval of the changes to the Technical Guidance Manual needed to comply with this permit. After that date all discretionary permit projects or project phases that have not been deemed complete for processing, or discretionary permit projects without vesting tentative maps that have not requested and received an extension of previously granted approvals must comply with the requirements in Section E. Projects that have been deemed complete prior to the update of the technical design manual are not subject to this section. For Permittee's projects the effective date shall be the date the governing body or their designee approves initiation of the project design.

III. New Development/ Redevelopment Performance Criteria

1. Integrated Water Quality/ Flow Reduction/Resources Management Criteria
   (a) Except as provided in subpart 4.E.III.1.(c) below, Permittees shall require all New Development and Redevelopment projects identified in subpart 4.E.II to control pollutants, pollutant loads, and runoff volume emanating from impervious surfaces through infiltration, storage for reuse, evapotranspiration, or bioretention/ biofiltration by reducing the percentage of Effective Impervious' Area (EIA) to 5 percent or less of the total project area.
   (b) Impervious surfaces may be rendered "ineffective", and thus not count toward the 5 percent EIA limitation, if the stormwater runoff from those surfaces is fully retained on-site for the design storm event specified in provision (c), below. To satisfy the EIA limitation and low-impact development requirements, the permittees must require stormwater runoff to be infiltrated, reused, or evapotranspired on-site through a stormwater management technique allowed under the terms of this permit and implementing documents.
   (c) The permittees shall require all features constructed or otherwise utilized to render impervious surfaces "ineffective", as described in provision (b), above, to be properly sized to infiltrate, store for reuse, or evapotranspire, without any runoff at least the volume of water that results from:
      (1) The 85th percentile 24-hour runoff event determined as the maximized capture stormwater volume for the area using a 48 to 72-hour draw down time, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998);
      (2) The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in the Ventura County Technical Guidance Manual for Storm Water Quality Control Measures (July 2002 and its revisions); or
      (3) The volume of runoff produced from a 0.75 inch storm event.

(d) To address any impervious surfaces that may not be rendered "ineffective", surface discharge of stormwater runoff if any, that results from New Development and Redevelopment projects identified in subpart 4.E.II which have complied with subparts 4.E.III.1.(a)-(c), above, shall be mitigated in accordance with subpart 4.E.III.4.

2. Alternative Compliance for Technical Infeasibility

(a) To encourage smart growth and infill development of existing urban centers where on-site compliance with post-construction requirements may be technically infeasible, the permittees may allow projects that are unable to meet the Integrated Water Quality/Flow Reduction/Resources Management Criteria in subpart 4.E.III.1, above, to comply with this permit through the alternative compliance measures described in subpart 4.E.III.2.(c), below.

(b) To utilize alternative compliance measures, the project applicant must demonstrate that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Technical infeasibility may result from conditions including the following:

(1) Locations where seasonal high groundwater is within 5 feet of the surface
(2) Locations within 100 feet of a groundwater well used for drinking water
(3) Brownfield development sites or other locations where pollutant mobilization is a documented concern
(4) Locations with potential geotechnical hazards
(5) Smart growth and infill or redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the on-site volume retention requirement
(6) Other site or implementation constraints identified in the LID Technical Guidance document required by subpart 4.E.IV.4.

(c) Alternative Compliance Measures. When a permittee finds that a project applicant has demonstrated technical infeasibility, the permittee shall identify alternative compliance measures that the project will need to comply with as a substitute for the otherwise applicable post-construction requirements listed in subparts 4.E.III.1.(a)-(c) of this permit. The Ventura County Technical Guidance Manual shall be revised to identify the alternative compliance measures and shall include the following requirement:

(1) Minimum on-site requirement. The project must reduce the percentage of Effective Impervious Area to no more than 30 percent of the total project area and treat all remaining runoff pursuant to the design and sizing requirements of subparts 4.E.III.1.(b)-(d).
(2) Offsite mitigation volume. The difference in volume between the amount of stormwater infiltrated, reused, and/ or evapotranspired by the project on-site and the otherwise applicable requirements of subparts 4.E.III.1.(a)-(c) (the "offsite mitigation volume'), above, must be mitigated by the project applicant either by performing offsite mitigation that is approved by the

permittee or by providing sufficient funding for public or private offsite mitigation to achieve equivalent stormwater volume and pollutant load reduction through infiltration, reuse, and/ or evapotranspiration.

(3) Location of off site mitigation. Offsite mitigation projects must be located in the same sub-watershed (defined as draining to the same hydrologic area in the Basin Plan) as the new development or redevelopment project. A list of eligible public and private offsite mitigation projects available for funding shall be identified by the Permittees and provided to the project applicant. Off site mitigation projects include green streets projects, parking lot retrofits, other site specific LID BMPs, and regional BMPs. Project applicants seeking to utilize these alternative compliance provisions may propose other offsite mitigation projects, which the Permittees may approve if they meet the requirements of this subpart.

(4) Timing and Reporting Requirements for Offsite Mitigation Projects. The Permittee(s) shall develop a schedule for the completion of offsite mitigation projects, including milestone dates to identify fund, design, and construct the projects. Offsite mitigation projects shall be completed as soon as possible, and at the latest, within 4 years of the certificate of occupancy for the first project that contributed funds toward the construction of the offsite mitigation project, unless a longer period is otherwise authorized by the Executive Officer. For public offsite mitigation projects, the permittees must provide in their annual reports a summary of total offsite mitigation funds raised to date and a description (including location, general design concept, volume of water expected to be retained, and total estimated budget) of all pending public offsite mitigation projects. Funding sufficient to address the offsite mitigation volume must be transferred to the permittee (for public offsite mitigation projects) or to an escrow account (for private offsite mitigation projects) within one year of the initiation of construction.

(5) The project applicant must demonstrate that the EIA achieved on-site is as close to 5 percent EIA as technically feasible, given the site's constraints.

(d) Watershed equivalence. Regardless of the methods through which permittees allow project applicants to implement alternative compliance measures, the sub-watershed -wide (defined as draining to the same hydrologic area in the Basin Plan) result of all development must be at least the same level of water quality protection as would have been achieved if all projects utilizing these alternative compliance provisions had complied with subparts 4.E.III.1.(a)-(d) of the permit. The permittees shall provide in their annual report to the Regional Board a list of mitigation project descriptions and pollutant and flow reduction analyses (compiled from design specifications submitted by project applicants and approved by the permittee(s)) comparing the expected aggregate results of alternative compliance projects to the results that would otherwise have been achieved by meeting the 5 percent EIA requirement on-site.

3. Hydromodification (Flow/ Volume/ Duration) Control Criteria
   (a) Each Permittee shall require all New Development and Redevelopment projects identified in subpart 4.E.II to implement hydrologic control measures, to prevent accelerated downstream erosion and to protect stream habitat in natural drainage systems. The purpose of the hydrologic controls is to minimize changes in post-development hydrologic storm water runoff discharge rates, velocities, and duration. This shall be achieved by maintaining the project's pre-project storm water runoff flow rates and durations.
      (1) Description
         (A) Hydromodification control in natural drainage systems shall be achieved by maintaining the Erosion Potential (E_p) in streams at a value of 1, unless an alternative value can be shown to be protective of the natural drainage systems from erosion, incision, and sedimentation that can occur as a result of flow increases from impervious surfaces and damage stream habitat (see Attachment "E" - Determination of Erosion Potential)
         (B) Hydromodification control may include one, or a combination of on-site, regional subregional hydromodification control BMPs, LID strategies, or stream restoration measures, with preference given to LID strategies and hydromodification control BMPs. Any in-stream restoration measure shall not adversely affect the beneficial uses of the natural drainage systems
         (C) Natural drainage systems, which include unlined or unimproved (not engineered) creeks, streams, rivers and their tributaries, are located in the following watersheds:
            (i) Ventura River
            (ii) Santa Clara River
            (iii) Calleguas Creek
            (iv) Malibu Creek
            (v) Miscellaneous Ventura Coastal
         (D) The Southern California Storm Water Monitoring Coalition (SMC) is developing a regional methodology to eliminate or mitigate the adverse impacts of hydromodification as a result of urbanization, including hydromodification assessment and management tools.
            (i) The SMC has identified the following objectives for the Hydromodification Control Study (HCS):
               (I) Establishment of a stream classification for Southern California streams
               (II) Development of a deterministic or predictive relationship between changes in watershed impervious cover and stream-bed/ stream bank enlargement
               (III) Development of a numeric model to predict stream-bed/ stream bank enlargement and evaluate the effectiveness of mitigation strategies

(E) The Permittees shall participate in the SMC HCS to develop:
  (i) A regional stream classification system
  (ii) A numerical model to predict the hydrological changes resulting from new development
  (iii) A numerical model to identify effective mitigation strategies
(F) Until the completion of the SMC HCS, Permittees shall implement the Interim Hydromodification Control Criteria, described in subpart 4.E.III.3(a)(3)(A) below, to control the potential adverse impacts of changes in hydrology that may result from new development and redevelopment projects identified in subpart 4.E.II
(G) Existing single-family structures are exempt from the Hydromodification control requirements unless such projects disturb one acre or more of land or create, add, or replace 10,000 square feet or more of impervious surface area

(2) Exemptions to Hydromodification Controls. Permittees may exempt the following New Development and Redevelopment projects from implementation of Hydromodification controls where assessments of downstream channel conditions and proposed discharge hydrology indicate that adverse Hydromodification effects to present and future beneficial uses of Natural Drainage Systems are unlikely:
  (A) All projects that disturb less than one acre.
  (B) Projects that are replacement, maintenance or repair of a Permittee's existing flood control facility, storm drain, or transportation network.
  (C) Redevelopment Projects in the Urban Core that do not increase the effective impervious area or decrease the infiltration capacity of pervious areas compared to the pre-project conditions.
  (D) Projects that have any increased discharge go directly or via a storm drain to a sump, lake, area under tidal influence, into a waterway that has a 100-year peak flow (Q100) of 25,000 cfs or more, or other receiving water that is not susceptible to Hydromodification impacts;
  (E) Projects that discharge directly or via a storm drain into concrete or improved (not natural) channels (e.g., rip rap, sackcrete, etc.), which, in turn, discharge into receiving water that is not susceptible to Hydromodification impacts (as in D above).

(3) Interim Hydromodification Control Criteria
  (A) The Interim Hydromodification Control Criteria to protect natural drainage systems until Permittees complete Hydromodification Control Plans (HCPs), described in subpart 4.E.III.3(a)(4) below, are as follows:
    (i) **<u>Projects disturbing land area of less than fifty acres</u>** will be subject to LID and/or source or treatment BMPs as addressed in this permit. The combined effects of LID and the treatment BMPs are considered adequate for Hydromodification control for projects that disturb less than 50 acres.

(ii) **Projects disturbing land areas of fifty acres or greater**
Projects in this category shall develop and implement a Hydromodification Analysis Study (HAS) that demonstrates that post development conditions are expected to approximate the pre-project erosive effect of sediment transporting flows in receiving waters. The HAS must lead to the incorporation into the project design features intended to approximate, to the extent feasible, an Erosion Potential value of 1 or any alternative value that can be shown to be protective of the natural drainage systems from erosion, incision, and sedimentation that can occur as a result of flow increases from impervious surfaces and damage stream habitat in natural drainage systems, or

(I) Alternatively, project proponents in this category may elect to develop, in partnership with Permittees, an equivalent implementation method based on flow duration control in the form of nomographs relating planned impervious area and local soil type (infiltration rates) to determine hydromodification control BMP volume and land area requirements for the proposed project. The nomographs shall be derived from continuous simulation modeling using Ventura County specific rain gauge records and soil types, and calibrated using data from a local undeveloped watershed with similar conditions; or

(II) Alternatively, the Co-Permittees may revise the Ventura County Technical Guidance Manual for Stormwater Quality Control Measures to address projects that disturb more than 50 acres.

(4) Final Criteria

(A) The Permittees shall develop and implement watershed specific HCPs no later than 180 days after the completion of the SMC HCS.

(i) The HCP shall identify:

(I) Stream classifications

(II) Flow rate and duration control methods

(III) Sub-watershed mitigation strategies

(IV) Stream restoration measures, which will maintain the stream and tributary Erosion Potential at 1 unless an alternative value can be shown to be protective of the natural drainage systems from erosion, incision, and sedimentation that can occur as a result of flow increases from impervious surfaces and damage stream habitat in natural drainage system tributaries

(B) The HCP shall contain the following elements:

(i) Hydromodification Management Standards

(ii) Natural Drainage Areas and Hydromodification Management Control Areas

(iii) New Development and Redevelopment Projects subject to the HCP
(iv) Description of authorized Hydromodification Management Control BMPs
(v) Hydromodification Management Control BMP Design Criteria.
(vi) For flow duration control methods, the range of flows to control for, and goodness of fit criteria
(vii) Allowable low critical flow, Q_c, which initiates sediment transport
(viii) Description of the approved Hydromodification Model.
(ix) Any alternate Hydromodification Management Model and Design
(x) Stream Restoration Measures Design Criteria
(xi) Monitoring and Effectiveness Assessment
(xii) Record Keeping

(C) The HCP shall be deemed in effect upon Executive Officer approval.

4. Water Quality Mitigation Criteria

(a) Each Permittee shall require all New Development and Redevelopment projects identified in subpart 4.E.II to implement post-construction storm water treatment BMPs and control measures to mitigate storm water pollution as follows:

(1) Projects disturbing land areas less than 50 acres

(A) Volumetric Treatment Control BMP

(i) The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area using a 48 to 72-hour draw down time, from the formula recommended in *Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998*); or

(ii) The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in the Ventura County Technical Guidance Manual for Storm Water Quality Control Measures (July 2002 and its revisions); or

(iii) The volume of runoff produced from a 0.75 inch storm event, prior to its discharge to a storm water conveyance system;[1] and/ or

(B) Flow Based Treatment Control BMP

(i) The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or

(ii) The flow of runoff produced from a rain event equal to at least 2 times the 85th percentile hourly rainfall intensity as determined from local rainfall records; or

[1] This option is available only for construction projects that disturb land area less than 5 acres.

(iii) Eight percent of the 50-year storm design flow rate as determined from the method recommended in the Ventura County Technical Guidance Manual for Storm Water Quality Control Measures (July 2002 and its revisions)

(2) Projects disturbing land area of 50 acres or greater

(A) Eighty percent of the average runoff volume using an appropriate public domain continuous flow model (such as Storm Water Management Model (SWMM) or Hydrologic Engineering Center – Hydrologic Simulation Program – Fortran (HEC-HSPF), using the local rainfall record and relevant BMP Performance data.

IV. Implementation

1. Maintenance Agreement and Transfer

(a) Prior to issuing approval for final occupancy each Permittee shall require that all new development and redevelopment projects subject to post-construction BMP requirements provide an operation and maintenance plan and verification of ongoing maintenance provisions for LID practices, Treatment Control BMPs, and Hydromodification Control BMPs including but not limited to: final map conditions, legal agreements, covenants, conditions or restrictions, CEQA mitigation requirements, conditional use permits, and/ or other legally binding maintenance agreements.

(1) Verification at a minimum shall include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; <u>and either</u>

(A) A signed statement from the public entity assuming responsibility for BMP maintenance; <u>or</u>

(B) Written conditions in the sales or lease agreement, which require the property owner or tenant to assume responsibility for BMP maintenance and conduct a maintenance inspection at least once a year; <u>or</u>

(C) Written text in project covenants, conditions, and restrictions (CCRs) for residential properties assigning BMP maintenance responsibilities to the Home Owners Association (HOA); <u>or</u>

(D) Any other legally enforceable agreement or mechanism that assigns responsibility for the maintenance of BMPs.

(b) Each Permittee shall require all development projects subject to post-construction BMP requirements to provide a plan for the operation and maintenance of all structural and treatment controls. The Operation and Maintenance plan shall follow the Technical Guidance Manual Appendix D "Maintenance Plan Guidance" (or subsequent guidance manual) for each BMP component. The plan shall be submitted for examination of relevance to keeping the BMPs in proper working order. Where BMPs are transferred to Permittee for ownership and maintenance, the plan shall also include all relevant costs for upkeep of BMPs in the transfer. Operation and Maintenance

plans for private BMPs shall be kept on-site for periodic review by Permittee inspectors.

2. Tracking, Inspection, and Enforcement of Post-Construction BMPs
   (a) Each Permittee shall implement a tracking system and an inspection and enforcement program for new development and redevelopment post-construction storm water BMPs as set fort in part 4.E. no later than May 7, 2010.
      (1) Implement a GIS or other electronic system for tracking projects that have been conditioned for post-construction BMPs. The electronic system, at a minimum, should contain the following information:
         (A) Municipal Project ID
         (B) State WDID No
         (C) Project Acreage
         (D) BMP Type and Description
         (E) BMP Location (coordinates)
         (F) Date of Acceptance
         (G) Date of Maintenance Agreement
         (H) Maintenance Records
         (I) Inspection Date and Summary
         (J) Corrective Action
         (K) Date Certificate of Occupancy Issued
         (L) Replacement or Repair Date
   (b) Inspect all development sites upon completion of construction and prior to the issuance of occupancy certificates to ensure proper installation of LID measures, structural BMPs, treatment control BMPs and Hydromodification control BMPs. The inspection may be combined with other inspections provided it is conducted by trained personnel.
   (c) Verify proper maintenance and operation of post-construction BMPs previously approved for new development and redevelopment and operated by the Permittees. The post construction BMP maintenance inspection program shall incorporate the following elements:
      (1) Post-construction BMP Maintenance Inspection checklist.
      (2) Inspection at least once every 2 years, beginning May 7, 2010, of post-construction BMPs to assess operation conditions with particular attention to:
      (3) Criteria and procedures for post construction Treatment Control and Hydromodification Control BMP repair, replacement, or re-vegetation.
   (d) For post construction BMPs operated and maintained by parties other than the Permitees the Permittees shall require annual reports by the other parties demonstrating proper maintenance and operations.
   (e) Undertake enforcement as appropriate based on the results of the inspection.

3. Alternative Post Construction Storm Water Mitigation Programs
   (a) A Permittee or a coalition of Permittees may apply to the Regional Water Board for approval of a Redevelopment Project Area Master Plan (RPAMP) for

redevelopment projects within the Redevelopment Project Areas, in consideration of exceptional site constraints that inhibit site-by-site or project-by-project implementation of post-construction requirements.

(b) Upon review and a determination by the Regional Water Board Executive Officer that the proposal is technically valid and appropriate, the Regional Water Board may consider for approval such a program if its implementation will:
   (1) Result in equivalent or superior reduction of storm water pollutant loads in comparison to individual projects regulated by this permit.
   (2) Satisfy, on a Redevelopment Project Area-wide basis, the hydromodification criteria of this section.
   (3) Reduce the percentage of Effective Impervious Area (EIA) to a target of 5 percent or less of the Redevelopment Project Area, using properly sized storm water treatment/ collection features, as described in this Section.
   (4) Be fiscally sustainable and have secure funding; and
   (5) Be completed in four years of the adoption date of this permit.

(c) The RPAMP should prioritize the implementation of LID storm water mitigation measures, as described in this section.

(d) A Permittee or a coalition of Permittees may apply to the Regional Water Board for approval of a Redevelopment Project Area Master Plan (RPAMP) that takes into consideration the balancing of water quality protection with the needs for adequate housing, population growth, public transportation and management, land recycling, and urban revitalization.

(e) For the RPAMP to be considered, a technical panel of the Local Government Commission or an equivalent state or regional planning agency must have reviewed and approved the proposed RPAMP, prior to its submittal to the Regional Water Board. The Regional Water Board Executive Officer may then consider the RPAMP for approval, or elect to submit it to the Regional Water Board for consideration.

(f) The RPAMP, on approval, may substitute in part or wholly for post-construction requirements.

(g) Redevelopment Project Areas include the following:
   (1) City Center areas
   (2) Historic District areas
   (3) Brownfield areas
   (4) Infill Development areas
   (5) Urban Transit Villages
   (6) Any other redevelopment area so designated by the Regional Water Board

(h) Nothing in these provisions shall be construed as to delay the implementation of post-construction control requirements, as approved in this Order.

4. Developer Technical Guidance and Information

(a) The Permittees shall update the Ventura County Technical Guidance Manual for Storm Water Quality Control Measures to include, at a minimum, the following:
   (1) Hydromodification Control criteria described in this Order, including numerical criteria.

(2) Expected BMP pollutant removal performance including effluent quality (ASCE/ U.S. EPA International BMP Database, CASQA New Development BMP Handbook, technical reports, local data on BMP performance, and the scientific literature appropriate for southern California geography and climate).
(3) Selection of appropriate BMPs for storm water pollutants of concern.
(4) Data on Observed Local Effectiveness and performance of implemented BMPs.
(5) BMP Maintenance and Cost Considerations.
(6) Guiding principles to facilitate integrated water resources planning and management in the selection of BMPs, including water conservation, groundwater recharge, public recreation, multipurpose parks, open space preservation, and redevelopment retrofits.
(7) LID principles and specifications, including the objectives and specifications for integration of LID strategies in the areas of:
(A) Site Assessment.
(B) Site Planning and Layout.
(C) Vegetative Protection, Revegetation, and Maintenance.
(D) Techniques to Minimize Land Disturbance.
(E) Techniques to Implement LID Measures at Various Scales
(F) Integrated Water Resources Management Practices.
(G) LID Design and Flow Modeling Guidance.
(H) Hydrologic Analysis.
(I) LID Credits.

(b) Permittees shall update the Technical Guidance Manual within 365 days of the adoption of this Order (May 7, 2010).
(c) The Permittees shall facilitate implementation of LID by providing key industry, regulatory, and other stakeholders with information regarding LID objectives and specifications contained in the LID Technical Guidance Section through a training program. The LID training program will include the following:
(1) LID targeted sessions and materials for builders, design professionals, regulators, resource agencies, and stakeholders
(2) A combination of awareness on national efforts and local experience gained through LID pilot projects and demonstration projects
(3) Materials and data from LID pilot projects and demonstration projects including case studies
(4) Guidance on how to integrate LID requirements into the local regulatory program(s) and requirements
(5) Availability of the LID Technical Guidance regarding integration of LID measures at various project scales
(6) Guidance on the relationship among LID strategies, Source Control BMPs, Treatment Control BMPs, and Hydromodification Control requirements
(d) The Permittees shall submit revisions to the Ventura County Technical Guidance Manual to the Regional Board for Executive Officer approval.

5. Project Coordination
   (a) Each Permittee shall facilitate a process for effective approval of post-construction storm water control measures. The process shall include:
      (1) Detailed BMP review including BMP sizing calculations, BMP pollutant removal performance, and municipal approval; and
      (2) An established structure for communication and delineated authority between and among municipal departments that have jurisdiction over project review, plan approval, and project construction through memoranda of understanding (MOU) or an equivalent agreement.

V. State Statute Conformity

1. California Environmental Quality Act (CEQA) Document Update
   (a) Each Permittee shall incorporate into its CEQA process no later than November 7, 2009 those additional procedures necessary for considering potential storm water quality impacts and providing for appropriate mitigation when preparing and reviewing CEQA documents.
      (1) The procedures shall require consideration of the following:
         (A) Potential impact of project construction on storm water runoff.
         (B) Potential impact of project post-construction activity on storm water runoff.
         (C) Potential for discharge of storm water from areas from material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas or loading docks, or other outdoor work areas.
         (D) Potential for discharge of storm water to impair the beneficial uses of the receiving waters.
         (E) Potential for the discharge of storm water to cause significant harm on the biological integrity of the waterways and waterbodies.
         (F) Potential for significant changes in the flow velocity or volume of storm water runoff to cause harm to or impair the beneficial uses of natural drainage systems.
         (G) Potential for significant increases in erosion at the project site or surrounding areas.

2. General Plan Update
   (a) Each Permittee shall amend, revise or update its General Plan to include watershed and storm water quality and quantity management considerations and policies when any of the following General Plan elements are updated or amended:
      (1) Land Use
      (2) Housing
      (3) Conservation
      (4) Open Space

(b) Each Permittee shall provide the Regional Water Board with the draft amendment or revision when a listed General Plan element or General Plan is noticed for comment in accordance with Cal. Govt. Code § 65350 *et seq*.

F. Development Construction Program

(I) Each Permittee shall implement a construction program that prevents illicit construction-related discharges of pollutants into the MS4, implements and maintains structural and non-structural BMPs to reduce pollutants in stormwater runoff from construction sites, reduces construction site discharges of pollutants from the MS4 to the MEP, and prevents construction site discharges from the MS4 from causing or contributing to a violation of water quality standards.

1. BMP Implementation - Construction Sites Less Than One Acre
   (a) Each Permittee shall require the implementation of an effective combination of erosion and sediment control BMPs from Table 6 to prevent erosion and sediment loss, and the discharge of construction wastes.[1]

Table 6 - BMPs at Construction sites less than 1 acre

Minimum Set of BMPs for All Construction Sites	**CASQA Handbook**	**Caltrans Handbook**
For Erosion Control		
Scheduling	EC-1	SS-1
Preservation of Existing Vegetation	EC-2	SS-2
Sediment Controls		
Silt Fence	SE-1	SC-1
Sand Bag Barrier	SE-8	SC-8
Stabilized Construction Site Entrance/Exit	TC-1	TC-1
Non-Storm Water Management		
Water Conservation Practices	NS-1	NS-1
Dewatering Operations (Groundwater dewatering only under NPDES Permit No. CAG994004).[2]	NS-2	NS-2
Waste Management		
Material Delivery and Storage	WM-1	WM-1
Stockpile Management	WM-3	WM-2
Spill Prevention and Control	WM-4	WM-4
Solid Waste Management	WM-5	WM-5
Concrete Waste Management	WM-8	WM-8
Sanitary/ Septic Waste Management	WM-9	WM-9

[1] The BMPs are taken from the *California BMP Handbook, Construction, January 2003* and the *Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual, March 2003*, and addenda.
[2] Ponded storm water may be discharged at a concentration of Total Suspended Solids (TSS) of 100mg/L or less.

2. BMP Implementation - Construction Sites One Acre but Less than 5 acres.
   (a) Each Permittee shall require the implementation of an effective combination of appropriate erosion and sediment control BMPs from Table 7 in addition to the ones identified in Table 6 to prevent erosion and sediment loss, and the discharge of construction wastes:

Table 7 - BMPs at Construction sites 1acre or greater but less than 5 acres

BMPs	**CASQA Handbook**	**Caltrans Handbook**
For Erosion Control		
Hydraulic Mulch	EC-3	SS-3
Hydroseeding	EC-4	SS-4
Soil Binders	EC-5	SS-5
Straw Mulch	EC-6	SS-6
Geotextiles and Mats	EC-7	SS-7
Wood Mulching	EC-8	SS-8
Sediment Controls		
Fiber Rolls	SE-5	SC-5
Gravel Bag Berm	SE-6	SC-6
Street Sweeping and/ or Vacuum	SE-7	SC-7
Storm Drain Inlet Protection	SE-10	SC-10
Additional Controls		
Wind Erosion Controls	WE-1	WE-1
Stabilized Construction Entrance/ Exit	TC-1	TC-1
Stabilized Construction Roadway	TC-2	TC-2
Entrance/ Exit Tire Wash	TC-3	TC-3
Non-Storm Water Management		
Vehicle and Equipment Washing	NS-8	NS-8
Vehicle and Equipment Fueling	NS-9	NS-9

3. BMP Implementation - Construction Sites 5 acres and Greater
   (a) Each Permittee shall require the implementation of an effective combination of the following BMPs in Table 8 (BMPs at Construction sites 5 acres or greater) in addition to the ones identified in Table 6 (BMPs at Construction sites less than 1 acre) and Table 7 (BMPs at Construction sites 1acre or greater but less than 5 acres) at all construction sites 5 acres and greater to prevent erosion and sediment loss, and the discharge of construction wastes. Erosion control BMPs shall be preferred to sediment control BMPs.

Table 8 - BMPs at Construction sites 5 acres or greater

BMPs	**CASQA Handbook**	**Caltrans Handbook**
Sediment Controls		
Sediment Basin	SE-2	SC-2
Check Dam	SE-4	SC-4
Tracking Control BMPs		
Stabilized Construction Entrance/ Exit	TR-1	TC-1
Non-Storm Water Management		
Vehicle and Equipment Maintenance	NS-10	NS-10
Waste Management		
Material Delivery and Storage	WM-1	WM-1
Spill Prevention and Control	WM-4	WM-4
Concrete Waste Management	WM-8	WM-8
Sanitary/ Septic Waste Management	WM-9	WM-9

4. Enhanced Construction BMP Implementation.
   (a) Each Permittee shall implement, or require implementation of, enhanced practices that preclude impacts to water quality posed by all construction sites on hillsides as defined in this Order and construction sites that directly discharge to a waterbody listed on the CWA § 303 (d) list for siltation or sediment, or that occur within or directly adjacent to an Environmentally Sensitive Area (ESAs). Construction sites located on hillsides, adjacent to CWA 303(d) listed waters for siltation or sediment, and directly adjacent to ESAs are termed "High risk sites."
   (b) Each Permittee shall require implementation of enhanced practices for high risk sites which shall include increased BMP inspection and maintenance requirements.
      (1) Each Permittee shall require that high risk sites shall be inspected by the project proponent's Qualified SWPPP Developer or Qualified SWPPP Practitioner or personnel or consultants who are Certified Professionals in Erosion and Sediment Control (CPESC) at the time of BMP installation, at least weekly during the wet season, and at least once each 24 hour period during a storm event that generates runoff from the site, to identify BMPs that need maintenance to operate effectively, that have failed or could fail to operate as intended.
      (2) During the wet season, the area of disturbance shall be limited to the area that can be controlled with an effective combination of erosion and sediment control BMPs. Enhanced sediment controls should be used in combination

with erosion controls and should target portions of the site that cannot be effectively controlled by standard erosion controls described above. Effective sediment and erosion control BMPs proposed by the proponent shall include the BMPs listed in Table 9 below. The project proponents are responsible to implement the BMPs below unless shown unnecessary. The Permittee shall require that the project proponent retain records of the inspection and a determination and rationale of the BMPs selected to control runoff.

Table 9 **-** Enhanced Construction BMP Implementation.

CONSTRUCTION SITE BMPs	**CASQA Handbook**	**Caltrans Handbook**
Erosion Controls		
Scheduling	EC-1	SS-1
Preservation of Existing Vegetation	EC-2	SS-2
Hydraulic Mulch	EC-3	SS-3
Hydroseeding	EC-4	SS-4
Soil Binders	EC-5	SS-5
Straw Mulch	EC-6	SS-6
Geotextiles and Mats	EC-7	SS-7
Wood Mulching	EC-8	SS-8
Slope Drains	EC-11	SS-11
Sediment Controls		
Silt Fence	SE-1	SC-1
Fiber Rolls	SE-5	SC-5
Sediment Basin	SE-2	SC-2
Check Dam	SE-4	SC-4
Gravel Bag Berm	SE-6	SC-6
Street Sweeping and/or Vacuum	SE-7	SC-7
Sand Bag Barrier	SE-8	SC-8
Storm Drain Inlet Protection	SE-10	SC-10
Additional Controls		
Wind Erosion Controls	WE-1	WE-1
Stabilized Construction Entrance/Exit	TC-1	TC-1
Stabilized Construction Roadway	TC-2	TC-2
Entrance/Exit Tire Wash	TC-3	TC-3
Advanced Treatment Systems[1]		
Non-Storm Water Management		
Water Conservation Practices	NS-1	NS-1
Dewatering Operations (Groundwater dewatering only under NPDES Permit No. CAG994004).19	NS-2	NS-2
Vehicle and Equipment Washing	NS-8	NS-8
Vehicle and Equipment Fueling	NS-9	NS-9

[1] If appropriate given natural background stormwater runoff and receiving water quality conditions.

CONSTRUCTION SITE BMPs	CASQA Handbook	Caltrans Handbook
Vehicle and Equipment Maintenance	NS-10	NS-10
Waste Management		
Material Delivery and Storage	WM-1	WM-1
Stockpile Management	WM-3	WM-2
Spill Prevention and Control	WM-4	WM-4
Solid Waste Management	WM-5	WM-5
Concrete Waste Management	WM-8	WM-8
Sanitary/Septic Waste Management	WM-9	WM-9

5. Local Agency Requirements
   (a) Each Permittee shall require for all construction sites 1 acre or greater, compliance with all conditions identified in the preceding subparts F.1 - F.4, and the following requirements:
      (1) Local Storm Water Pollution Prevention Plan (Local SWPPP),
         (A) Each Permittee shall require the preparation and submittal of a Local SWPPP, for the Permittee's review and written approval prior to issuance of a grading or construction permit for construction or demolition projects. The Permittees' approval signature shall be contained within the first pages of the Local SWPPP
            (i) The Permittee shall not approve any Local SWPPP unless it contains appropriate site-specific construction site BMPs, specific locations, and maintenance schedules.
            (ii) The Local SWPPP must include the rationale used for selecting or rejecting BMPs for various construction phases and weather conditions. The project architect, or engineer of record, or authorized qualified designee, must sign a statement on the Local SWPPP to the effect:
               (I) *"As the architect/ engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project's construction activities on storm water quality. The project owner and contractor are aware that the selected BMPs must be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity."*
      (2) <u>Certification Statement</u>
         (A) Each Permittee shall require that each landowner or the landowner's agent sign a statement on the Local SWPPP to the effect:
            (i) *"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of*

my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the Local SWPPP to reflect current conditions, or failing to properly and/ or adequately implement the Local SWPPP may result in revocation of grading and/ or other permits or other sanctions provided by law."

(ii) The Local SWPPP certification shall be signed by the property owner or owner's representative/designee. If the Local SWPPP or SWPPP is being prepared by the local agency then the appropriate authority of the local agency shall sign the document.

6. Roadway Paving or Repaving Operations (For Private or Public Projects)
   (a) Each Permittee shall require that for any project that includes roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces, that the following BMPs be implemented for each project:
      (1) Restrict paving and repaving activity to exclude periods of rainfall or predicted rainfall unless required by emergency conditions
      (2) Install sand bags or gravel bags and filter fabric at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat
      (3) Prevent the discharge of release agents including soybean oil, other oils, or diesel to the storm water drainage system or receiving waters.
      (4) Minimize non storm water runoff from water use for the roller and for evaporative cooling of the asphalt
      (5) Clean equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly
      (6) Collect liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly
      (7) Collect solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly
      (8) Cover the "cold-mix" asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm
      (9) Cover loads with tarp before haul-off to a storage site, and do not overload trucks
      (10) Minimize airborne dust by using water spray during grinding
      (11) Avoid stockpiling soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near storm water drainage system or receiving waters
      (12) Protect stockpiles with a cover or sediment barriers during a rain

7. Electronic Site Tracking System
   (a) Each Permittee shall use an electronic system to track grading permits, encroachment permits, demolition permits, building permits, or construction

permits (and any other municipal authorization to move soil and/ or construct or destruct that involves land disturbance) issued by each Permittee. To satisfy this requirement, the use of a database or GIS system is encouraged, but not required.

8. Inspections
   (a) Each Permittee shall inspect all construction sites for the implementation of storm water quality controls a minimum of once during the wet season. Concurrently, each Permittee shall ensure that:
      (1) The Local SWPPP is reviewed for compliance with local codes, ordinances, and permits.
      (2) A follow-up inspection takes place within two weeks for inspected sites that have not adequately implemented their Local SWPPP.
   (b) Each Permittee shall take additional enforcement actions to achieve compliance as specified in municipal codes, if compliance with municipal codes, ordinances, or permits has not been attained.
   (c) Each Permittee can refer sites to the Regional Water Board for joint enforcement actions for violation of municipal storm water ordinances and the Construction Activities Storm Water General Permit (CASGP), or Small Linear Underground/ Overhead Construction Projects General Permit (small LUPs), after conducting a minimum of 2 site inspections and issuing a minimum of 2 written notices to the operator regarding the violation (copied to the Regional Water Board). In making such referrals, Permittees shall include, at a minimum, the following documentation:
      (1) Name of the site
      (2) WDID number
      (3) Site developer
      (4) Site owner
      (5) Records of communication with the site operator regarding the violation(s), which shall include at least an inspection report
      (6) Written notice of the violation copied to the Regional Water
   (d) Prior to approving and/ or signing off for occupancy and issuing the Certificate of Occupancy for all construction projects subject to post-construction controls, each Permittee shall inspect the constructed site design, source control and treatment control BMPs to verify that they have been constructed in compliance with all specifications, plans, permits, ordinances, and this Order. The initial/ acceptance BMP verification inspection does not constitute a maintenance and operation inspection, as required in the preceding subpart E.IV.2(c).

9. State Conformity Requirements
   (a) Each Permittee shall ensure that no grading permit, encroachment permit, demolition permit, building permit, electrical permit, or construction permit (or any other municipal authorization to move soil and/ or construct or destruct

that involves land disturbance) is issued for any project requiring coverage under the CASGP or Small LUP General Permit[1] unless:

(1) Proof of filing a Notice of Intent for coverage under a State NPDES permit is demonstrated).
(2) Demonstration or Certification that a SWPPP has been prepared by the project developer.
(3) Proof of Change of Information form (COI) and a copy of the modified SWPPP(s) at any time a transfer of ownership takes place for the entire development or portions of the common plan of development where construction activities are still on-going.

10. Interagency Coordination

(a) **Referral of Violations:**
A Permittee may refer a violator of the municipal storm water ordinance and CWC § 13260 to the Regional Water Board provided that the Permittee has made a good faith effort at progressive enforcement consistent with the preceding subpart F.8(c). At a minimum, the Permittee's good faith effort shall be documented with:
(1) A minimum of 2 follow-up inspection reports (inspections completed within 3 months).
(2) A minimum of two warning letters or NOVs.

(b) **Referral of Non-filers under the CASGP or the Small LUP General Permit:**
Each Permittee shall refer non-filers (i.e., those projects which cannot demonstrate that they have a WDID number) under the CASGP or Small LUP General Permit, to the Regional Water Board, no later than 15 days after making a determination of failure to file. In making such referrals, Permittees shall include, at a minimum, the following documentation:
(1) Project location address
(2) Project description
(3) Developer or owners name with complete mailing address
(4) Project size
(5) Records of communication with the developer or owner regarding filing requirements

(c) **Investigation of Complaints Regarding Facilities – Transmitted by the Regional Water Board Staff:**
(1) Each Permittee shall initiate, within one business day,[2] an initial investigation of complaint(s) (other than non-storm water discharges) on the construction site(s) within its jurisdiction.

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[1] NPDES Permit No. CAS000005, Waste Discharge Requirements For Discharges of Storm Water Runoff Associated with Small Linear Underground/ Overhead Construction Projects (Small LUP General Permit) for any linear land disturbing activity or activities (cumulatively) that will cause one acre or more of land disturbance but not more than 5 acres.

[2] Permittees may comply with the Permit by taking initial steps (such as logging, prioritizing, and tasking) to "initiate" the investigation within that one business day. However, the Regional Water Board would expect that the initial investigation, including a site visit, to occur within four business days.

(A) The initial investigation shall include, at a minimum, an inspection on the facility and its perimeter to confirm the complaint and to determine if the site operator is effectively complying with the municipal storm water/ urban runoff ordinances, and to oversee corrective action.

(d) **Support of Regional Water Board Enforcement Actions – As directed by the Regional Water Board Executive Officer:**

(1) Each Permittee shall support Regional Water Board enforcement actions by:

(A) Assisting in identification of current owners, operators, and lessees of properties and sites.

(B) Providing staff, when available, for joint inspections with Regional Water Board inspectors.

(C) Appearing to testify as witnesses in Regional Water Board enforcement hearings.

(D) Providing copies of inspection reports and other progressive enforcement documentation.

G. Public Agency Activities Program

I. Each Permittee shall implement a Public Agency Activities Program to minimize storm water pollution impacts from public agency activities. Public Agency requirements consist of:

i. Public Construction Activities Management.
ii. Vehicle Maintenance/ Material Storage Facilities/ Corporation Yards Management/ Municipal Operations.
iii. Vehicle and Equipment Wash Areas
iv. Landscape and Recreational Facilities Management
v. Storm Drain Operation and Management
vi. Streets and Roads Maintenance
vii. Public Industrial Activities Management
viii. Emergency Procedures
ix. Employee Training
x. Infrastructure Maintenance

1. Public Construction Activities Management

(a) Each Permittee shall implement and comply with the Planning and Land Development Program requirements in part 4.E. of this Order at Permittee owned or operated public construction projects for project types identified in part 4.E of this Order.

(b) Each Permittee shall implement and comply with the appropriate Development Construction Program requirements in part 4.F. of this Order at Permittee owned or operated construction projects as applicable.

(c) For public projects including those under a Capital Improvement Project Plan that disturb less than one acre of soil the Permittees shall require the development and implementation of a Storm Water Pollution Control Plan. The SWPCP shall include BMPs as identified in Table 6.

2. Vehicle Maintenance/ Material Storage Facilities/ Corporation Yards Management/ Long Term Maintenance Programs
   (a) Each Permittee shall implement the activity specific BMPs[1] listed in Table 10 when such activities occur at Permittee owned/leased facilities and job sites including but not limited to vehicle/ equipment maintenance facilities, material storage facilities, and corporation yards, and at any area that includes the activities as described in the following Tables. Additionally, for any activity or area described in the footnote below,[2] each Permittee shall also implement the BMPs in the Caltrans Storm Water Quality Handbook Maintenance Staff Guide described as B-4 in Table 10 (BMPs at Vehicle Maintenance/ Material Storage Facilities/ Corporation Yards).

Table 10 - BMPs at Vehicle Maintenance/ Material Storage Facilities/ Corporation Yards
From the Caltrans Storm Water Quality Handbook Maintenance Staff Guide **Appendix B**

Activity Specific BMPs	**Page**
General BMPs	B-4
Flexible Pavement	B-9
Asphalt Cement Crack and Joint Grinding/ Sealing	B-9
Asphalt Paving	B-10
Structural Pavement Failure (Digouts) Pavement Grinding and Paving	B-11
Emergency Pothole Repairs	B-13
Sealing Operations	B-14
Rigid Pavement	B-15
Portland Cement Crack and Joint Sealing	B-15
Mudjacking and Drilling	B-16
Concrete Slab and Spall Repair	B-17
Slope/ Drains/ Vegetation	B-19
Shoulder Grading	B-19
Nonlandscaped Chemical Vegetation Control	B-21
Nonlandscaped Mechanical Vegetation Control/ Mowing	B-23
Nonlandscaped Tree and Shrub Pruning, Brush Chipping, Tree and Shrub Removal	B-24
Fence Repair	B-25
Drainage Ditch and Channel Maintenance	B-26
Drain and Culvert Maintenance	B-28
Curb and Sidewalk Repair	B-30
Litter/ Debris/ Graffiti	B-32
Sweeping Operations	B-32
Litter and Debris Removal	B-33
Emergency Response and Cleanup Practices	B-34
Graffiti Removal	B-36
Landscaping	B-37

[1] These BMPs are identified in Appendix B of the *Caltrans Storm Water Quality Handbook Maintenance Staff Guide, May 2003*, and its addenda. Other BMPs may be substituted upon approval by the Executive Officer.
[2] Scheduling and Planning; Spill Prevention and Control; Sanitary/ Septic Waste Management; Material Use; Safer Alternative Products; Vehicle/ Equipment Cleaning, Fueling, and Maintenance; Illicit Connections Detection, Reporting and Removal; Illegal Spill / Discharge Control and Maintenance Facility Housekeeping Practices.

Activity Specific BMPs	**Page**
Chemical Vegetation Control	B-37
Manual Vegetation Control	B-39
Landscaped Mechanical Vegetation Control/ Mowing	B-40
Landscaped Tree and Shrub Pruning, Brush Chipping, Tree and Shrub Removal	B-41
Irrigation Line Repairs	B-42
Irrigation (Watering), Potable and Nonpotable	B-43
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Storm Drain Stenciling	B-44
Roadside Slope Inspection	B-45
Roadside Stabilization	B-46
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Public Facilities	B-50
Public Facilities	B-50
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Sandblasting, Wet Blast with Sand Injection and Hydroblasting	B-54
Painting	B-56
Bridge Repairs	B-57
Other Structures	B-59
Pump Station Cleaning	B-59
Tube and Tunnel Maintenance and Repair	B-61
Tow Truck Operations	B-63
Toll Booth Lane Scrubbing Operations	B-64
Electrical	B-65
Sawcutting for Loop Installation	B-65
Traffic Guidance	B-67
Thermoplastic Striping and Marking	B-67
Paint Striping and Marking	B-68
Raised/ Recessed Pavement Marker Application and Removal	B-70
Sign Repair and Maintenance	B-71
Median Barrier and Guard Rail Repair	B-73
Emergency Vehicle Energy Attenuation Repair	B-75
Snow and Ice Control	B-76
Snow Removal	B-76
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Storm Maintenance	B-78
Minor Slides and Slipouts Cleanup/ Repair	B-78
Management and Support	B-80
Building and Grounds Maintenance	B-80
Storage of Hazardous Materials (Working Stock)	B-82
Material Storage Control (Hazardous Waste)	B-84
Outdoor Storage of Raw Materials	B-85
Vehicle and Equipment Fueling	B-86
Vehicle and Equipment Cleaning	B-87
Vehicle and Equipment Maintenance and Repair	B-88

Activity Specific BMPs	Page
Aboveground and Underground Tank Leak and Spill Control	B-90

3. Vehicle and Equipment Wash Areas
   (a) Each Permittee shall eliminate discharges of wash waters from vehicle and equipment washing no later than May 7, 2010 by implementing any of the following measures at existing facilities with vehicle or equipment wash areas:
      (1) Self-contain, and haul off for disposal
      (2) Equip with a clarifier
      (3) Equip with an alternative pre-treatment device; or
      (4) Plumb to the sanitary sewer
   (b) Each Permittee shall ensure that any municipal facilities constructed, redeveloped, or replaced has all vehicle and equipment wash areas plumbed to the sanitary sewer or be self contained and all wastewater/ washwater hauled for legal disposal.

4. Landscape, Park, and Recreational Facilities Management
   (a) Integrated Pest Management (IPM)
   IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Each Permittee shall implement an IPM program within 365 days of the adoption of this Order (May 7, 2010) that includes the following:
      (1) Pesticides are used only if monitoring indicates they are needed according to established guidelines.
      (2) Treatments are made with the goal of removing only the target organism.
      (3) Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial, non-target organisms, and the environment.
      (4) Its use of pesticides, including Organophosphates and Pyrethroids do not threaten water quality.
      (5) Partner with other agencies and organizations to encourage the use of IPM.
      (6) Adopt and verifiably implement policies, procedures, and/ or ordinances requiring the minimization of pesticide use and encouraging the use of IPM techniques (including beneficial insects) in the Permittees' overall operations and on municipal property.
      (7) Policies, procedures, and ordinances shall include commitments and timelines to reduce the use of pesticides that cause impairment of surface waters by implementing the following procedures:
         (A) Quantify pesticide use by its staff and hired contractors.
         (B) Prepare and annually update an inventory of pesticides used by all internal departments, divisions, and other operational units.
         (C) Demonstrate reductions in pesticide use.
   (b) Each Permittee shall implement the following requirements no later than November 3, 2009:

(1) Use a standardized protocol for the routine and non-routine application of pesticides (including pre-emergents), and fertilizers.
(2) Ensure no application of pesticides or fertilizers are applied to an area immediately prior to, during, or immediately after a rain event, or when water is flowing off the area.
(3) Ensure that no banned or unregistered pesticides are stored or applied.
(4) Ensure that all staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation, or are under the direct supervision of a pesticide applicator certified in the appropriate category.
(5) Implement procedures to encourage the retention and planting of native vegetation to reduce water, pesticide and fertilizer needs; and
(6) Store pesticides and fertilizers indoors or under cover on paved surfaces or use secondary containment.
    (A) Reduce the use, storage, and handling of hazardous materials to reduce the potential for spills.
    (B) Regularly inspect storage areas.
(7) Comply with the provisions and the monitoring requirements for application of aquatic pesticides to surface waters (WQ Order No. 2004-0008-DWQ) (Vector Control) and Order No. 2004-0009-DWQ (Weed Control).

5. Storm Drain Operation and Management
   (a) Catch Basin Cleaning
   (1) Each Permittee shall designate catch basin inlets within its jurisdiction as one of the following:
   Priority A: Catch basins that are designated as consistently generating the highest volumes of trash.
   Priority B: Catch basins that are designated as consistently generating moderate volumes of trash.
   Priority C: Catch basins that are designated as generating low volumes of trash.
   Within one year of Order adoption (May 7, 2010), Permittees shall submit a map or list of Catch Basins with their GPS coordinates and their designations. The map or list shall contain the rationale or data to support designations.
   (2) Each Permittee shall inspect catch basins according to the following schedule:
   Priority A: A minimum of 3 times during the wet season and once during the dry season every year.
   Priority B: A minimum of once during the wet season and once during the dry season every year.
   Priority C: A minimum of once per year.
   Catch basins shall be cleaned as necessary on the basis of inspections. Permittees shall maintain inspection records for Regional Board review.

(3) In addition to the preceding schedule, Permittees shall ensure that any catch basin that is determined to be at least 25% full of trash shall be cleaned out.

(b) Trash Management at Public Events

(1) Each Permittee shall require for any event in the public right of way or wherever it is foreseeable that substantial quantities of trash and litter may be generated, the following measures:

(A) Proper management of trash and litter generated; and

(B) Arrangement for temporary screens to be placed on catch basins; or

(C) Provide clean out of catch basins, trash receptacles, and grounds in the event area within 24 hours subsequent to the event.

(c) Trash Receptacles

(1) Each Permittee shall install trash receptacles, or equivalent trash capturing devices in areas subject to high trash generation within its jurisdiction no later than May 7, 2010.

(2) Each Permittee shall ensure that all trash receptacles are cleaned out and maintained as necessary to prevent trash overflow.

(d) Catch Basin Labels

(1) Each Permittee shall inspect the legibility of the catch basin stencil or label nearest each catch basin and inlet before the wet season begins.

(2) Each Permittee shall record and re-stencil or re-label within 15 days of inspection, catch basins with illegible stencils.

(e) Additional Trash Management Practices

(1) Each Permittee shall install trash excluders, or equivalent devices on or in catch basins or outfalls to prevent the discharge of trash to the storm drain system or receiving water no later than two years after Order adoption date in areas defined as Priority A (subpart 5(a)(1)) except in sites where the application of such BMP(s) alone will cause flooding. Lack of maintenance that causes flooding is not an acceptable exception to the requirement to install BMPs. Alternatively the Permittee may implement alternative or enhanced BMPs beyond the provisions of this permit (such as but not limited to increased street sweeping, adding trash cans near trash generation sites, prompt enforcement of trash accumulation, increased trash collection on public property, increased litter prevention messages or trash nets within the MS4) that provide substantially equivalent removal of trash. Permittees shall demonstrate that BMPs, which substituted for trash excluders provide equivalent trash removal performance as excluders. When outfall trash capture is provided, revision of the schedule for inspection and cleanout of catch basins in task 5.(a)(2) may be proposed by the Permittee for approval by the Executive Officer.

(f) Storm Drain Maintenance

(1) Each Permittee shall implement a program for Storm Drain Maintenance no later than November 3, 2009 that includes the following:

(A) Visual monitoring of Permittee-owned open channels and other drainage structures for debris at least annually.

(B) Remove trash and debris from open channel storm drains a minimum of once per year before the wet season.
(C) Eliminate the discharge of contaminants during MS4 maintenance and clean outs.
(D) Quantify the amount of materials removed using techniques appropriate for quantifying solid waste and ensure the materials are properly disposed of.

(g) Spill Response Plan
(1) Each Permittee shall implement a response plan for spills to the MS4 within their respective jurisdiction. The response Plan shall clearly identify agencies responsible and telephone numbers and e-mail address for contact and shall contain at a minimum the following:
(A) Investigation of all complaints received within 24 hours of the incident report.
(B) Response within 2 hours to spills for containment upon notification, except where such overflows occur on private property, in which case the response should be within 2 hours of gaining legal access to the property.
(C) Notification to appropriate public health agencies and the Office of Emergency Services (OES).

(h) Permittee Owned Treatment Control BMPs
(1) Each Permittee shall implement an inspection and maintenance program for all Permittee owned treatment control BMPs, including post-construction treatment control BMPs.
(2) Each Permittee shall ensure proper operation of all treatment control BMPs and maintain them as necessary for proper operation, including all post-construction treatment control BMPs.
(3) Any residual water produced by a treatment control BMP and not being internal to the BMP performance when being maintained shall be:
(A) Hauled away and legally disposed of; or
(B) Applied to the land without runoff; or
(C) Discharged to the sanitary sewer system (with permits or authorization); or
(D) Treated or filtered to remove bacteria, sediments, nutrients, and meet the limitations set in Table 11 (Discharge Limitations for Dewatering Treatment BMPs) prior to discharge to the MS4.

Table 11 - Discharge Limitations for Dewatering Treatment BMPs[1]

Parameter	Units	Limitation
Total Suspended Solids	mg/L	100
Turbidity	NTU	50
Oil and Grease	mg/L	10

[1] Technology based effluent limits.

6. Streets and Roads Maintenance
   (a) Maintenance
      (1) Each Permittee shall perform street sweeping of curbed streets in commercial areas and areas subject to high trash generation to control trash and debris at least two times per month.
   (b) Road Reconstruction
      (1) Each Permittee shall require that for any project that includes roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces, that the following BMPs be implemented for each project.
         (A) Restrict paving and repaving activity to exclude periods of rainfall or predicted rainfall[1] unless required by emergency conditions.
         (B) Install sand bags or gravel bags and filter fabric at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat;
         (C) Prevent the discharge of release agents including soybean oil, other oils, or diesel to the storm water drainage system or receiving waters.
         (D) Minimize non storm water runoff from water use for the roller and for evaporative cooling of the asphalt.
         (E) Clean equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
         (F) Collect liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.
         (G) Collect solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
         (H) Cover the "cold-mix" asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
         (I) Cover loads with tarp before haul-off to a storage site, and do not overload trucks.
         (J) Minimize airborne dust by using water spray during grinding.
         (K) Avoid stockpiling soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near storm water drainage system or receiving waters.
         (L) Protect stockpiles with a cover or sediment barriers during a rain.

7. Emergency Procedures
   (a) Each Permittee may conduct repairs of essential public service systems and infrastructure in emergency situations with a self-waiver of the provisions of this Order.
      (1) Where the self-waiver has been invoked, the Permittee shall submit to the Regional Water Board Executive Officer a statement of the occurrence of the emergency, an explanation of the circumstances, and the measures that were implemented to reduce the threat to water quality, no later than

[1] A probability of precipitation (POP) of 50% is required.

30 business days after the situation of emergency has passed.

(2) Minor repairs of essential public service systems and infrastructure in emergency situations (can be completed in less than one day) are not subject to the notification provisions. Appropriate BMPs to reduce the threat to water quality shall be implemented.

8. Municipal Employee and Municipal Contractor Training

(a) Each Permittee shall, no later than May 7, 2010 and annually thereafter before June 30, train all of their employees and contractors in targeted positions (whose interactions, jobs, and activities affect storm water quality) on the requirements of the overall storm water management program to:

(1) Promote a clear understanding of the potential for activities to pollute storm water.

(2) Identify opportunities to require, implement, and maintain appropriate BMPs in their line of work.

(b) Each Permittee shall, no later than May 7, 2010 and annually thereafter before June 30, train all of their employees and contractors who use or have the potential to use pesticides or fertilizers (whether or not they normally apply these as part of their work). Training programs shall address:

(1) The potential for pesticide-related surface water toxicity.

(2) Proper use, handling, and disposal of pesticides.

(3) Least toxic methods of pest prevention and control, including IPM.

(4) Reduction of pesticide use.

(c) Each Permittee shall, no later than May 7, 2010 and annually thereafter before June 30, train all of their employees and contractors who are responsible for illicit connections and illicit/ illegal discharges. Training programs shall address:

(1) Identification

(2) Investigation

(3) Termination

(4) Cleanup

(5) Reporting of Incidents

(6) Documentation of Incidents

H. Illicit Connections and Illicit Discharges Elimination Program

I. Each Permittee shall implement an Illicit Connections and Illicit Discharges (IC/ IDs) program to eliminate IC/IDs to the storm drain system, and shall document, track, and report all such cases in accordance with the elements and performance measures specified in the following subsections.

1. General

(a) Implementation - Each Permittee shall implement an IC/ ID Program. The IC/ ID procedures shall be documented and made available for public review.

(b) Tracking - All Permittees shall, no later than May 7, 2012, map at a scale and in a format specified by the Principal Permittee all known connections to their storm drain system. All Permittees shall map at a scale and in a format specified by the

Principal Permittee incidents of illicit connections and discharges since January 2009 on their baseline maps, and shall transmit this information to the Principal Permittee no later than May 7, 2012. Permittees shall use this information to identify priority areas for further investigation and elimination of IC/ ID.

2. Public Reporting
   (a) Permittees shall establish and maintain a phone hotline and internet site to receive all reports of IC/ ID complaints.
   (b) Permittees shall document the location of the reported IC/ ID and the actions undertaken in response to all IC/ ID complaints.

3. Illicit Connections
   (a) Screening for Illicit Connections
      (1) Each Permittee shall submit to the Principal Permittee:
         (A) A map at a scale and in a format specified by the Principal Permittee showing the location and length of underground pipes 18 inches and greater in diameter, and channels within their permitted area and operated by the Permittee in accordance with the following schedule:
            (i) All channeled portions of the storm drain system no later than May 7, 2010.
            (ii) All portions of the storm drain system consisting of storm drain pipes 36 inches in diameter or greater, no later than May 7, 2012. This provision is not meant to exclude Permittees from using equally effective alternative methods not listed in the manual.
            (iii) All portions of the storm drain system consisting of storm drain pipes 18 inches in diameter or greater, no later than May 7, 2014.
         (B) The status of suspected, confirmed, and terminated illicit connections.
      (2) Permittees shall conduct field screening of their storm drain systems in accordance with screening procedures described in the Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments (2004)[1]. Permittees shall conduct field screening of their storm drain system that has not been previously screened and reported to the Regional Board, for illicit connections in accordance with the following schedule:
         (A) All portions of the storm drain system consisting of storm drain pipes 36 inches in diameter or greater, no later than May 7, 2012.
         (B) High priority areas identified during the mapping of illicit connections and discharges, no later than May 7, 2012.
         (C) All portions of storm drain systems 50 years or older in age, no later than May 7, 2012.
      (3) Each Permittee shall maintain a list containing all connections under investigation for possible illicit connection and their status.

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[1] *Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments*. The Center for Watershed Protection, Pitt R., October 2004. Chapter 13, 13.1,13.2, 13.3, 13.4

(b) Response to Illicit Connections
(1) Investigation -
Each Permittee, upon discovery or upon receiving a report of a suspected illicit connection, shall complete an investigation within 21 days, to determine the following:
(A) Source of the connection.
(B) Nature and volume of discharge through the connection.
(C) Responsible party for the connection.
(2) Termination -
Each Permittee, upon confirmation of an illicit storm drain connection, shall ensure the following:
(A) Termination of the connection within 180 days of completion of the investigation, using formal enforcement authority to eliminate the illicit connection.
(3) Documentation -
Each Permittee shall keep records of all illicit connection investigations and the formal enforcement taken to eliminate all illicit connections.

4. Illicit Discharges
(a) Investigation -
Each Permittee shall investigate an illicit/ illegal discharge during or immediately following containment and cleanup activities, and shall take appropriate enforcement action to eliminate the illegal discharge.
(b) Abatement and Cleanup -
Each Permittee shall respond, within 1 business day of discovery or a report of a suspected illicit/ illegal discharge, with actions to abate, contain, and/or clean up all illegal discharges, including hazardous waste.
(c) Documentation -
Each Permittee shall maintain records of all illicit/ illegal discharge discoveries, reports of suspected illicit/ illegal discharges, their response to the illicit/ illegal discharges and suspected illicit/ illegal discharges, and the formal enforcement taken to eliminate all illicit/ illegal discharges.

I. REPORTING PROGRAM

1. The Principal Permittee in consultation with the Permittees and Regional Water Board staff shall convene an adhoc working group to develop an Electronic Reporting Program, the basis of which shall be the requirements in this Order. The Committee shall no later than May 7, 2010 submit the electronic reporting form in each subsequent year.

2. Each Permittee shall submit information required in the Reporting Program in a method as appropriate to the format approved by the Regional Water Board Executive Officer.

3. The Principal Permittee shall submit by December 15th of each year, an Annual Report to the Regional Water Board Executive Officer in the form one hard copy and three compact disk (CD) copies (or an electronic equivalent).

4. The Annual Report shall document the status of the Municipal Storm Water Program, an integrated summary of the results of analyses from:
   (a) The monitoring program described under Part 1- Monitoring Report.
   (b) The requirements described under Part 2- Program Report.

5. Plans shall be submitted to the Regional Water Board Executive Officer in the form of one hard copy and three compact disk (CD) copies (or an electronic equivalent).

6. Study Reports shall be submitted to the Regional Water Board Executive Officer in the form of one hard copy and three compact disk (CD) copies (or an electronic equivalent).

7. Progress Reports shall be submitted to the Regional Water Board Executive Officer in the form of one hard copy and three compact disk (CD) copies (or an electronic equivalent).

PART 5 - TOTAL MAXIMUM DAILY LOAD PROVISIONS

I. Part 56 of this Order incorporates provisions to assure that Ventura County MS4 Permittees comply with WLAs and other requirements of TMDLs covering impaired waters impacted by the Permittees' discharges.

II. Each Permittee shall attain the storm water WLAs incorporated into this Order by implementing BMPs in accordance with the TMDL Technical Reports, Implementation Plans, or as identified as a result of TMDL special studies specified in the Basin Plan Amendment.

III. The Permittees shall comply with the following Wasteload Allocations, consistent with the assumptions and requirements of the Wasteload Allocations documented in the Implementation Plans, including compliance schedules, associated with the State adoption and approval of the TMDL at compliance monitoring points established in each TMDL (40CFR122.44(d)(1)(vii)(B).

IV. TMDLs in effect and covered in this Order are the following:
   1. TMDL for Nutrients for Malibu Creek Watershed (Effective date: March 21, 2003)
   2. TMDL for Nitrogen Compounds and Related Effects in Calleguas Creek (Effective date: July 16, 2003)
   3. TMDL for Nitrogen Compounds for the Santa Clara River (Effective date: March 23, 2004).
   4. TMDL for Chloride in Santa Clara River, Reach 3 (Effective date: June 18, 2003)
   5. TMDL for Chloride in Upper Santa Clara River (Effective date: May 4, 2005)

6. TMDL for Toxicity, Chlorpyrifos and Diazinon in the Calleguas Creek, its Tributaries and Mugu Lagoon - (Effective date: March 24, 2006).
7. TMDL for Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation in Calleguas Creek, its Tributaries and Mugu Lagoon (Effective date: March 24, 2006).
8. TMDL for Bacteria in Malibu Creek and Lagoon (Effective date: January 24, 2006).
9. TMDL for Metals and Selenium in the Calleguas Creek, its Tributaries and Mugu Lagoon (Effective date: March 26, 2007)
10. TMDL for Trash in Revolon Slough and Beardsley Wash (Effective date: March 6, 2008).
11. TMDL for Boron, Chloride, Sulfate, and TDS in Calleguas Creek Watershed (Effective date: December 2, 2008)
12. TMDL for Trash in the Ventura River Estuary (Effective date: March 6, 2008).
13. TMDL for Bacteria in Harbor Beaches of Ventura County (Effective date: September 23, 2008).

IV. TMDL Interim WLAs incorporated into this Order due to compliance dates which exceed the term of this Order are the following:

1. Final Wet Weather Bacteria WLAs for Malibu Creek and Lagoon – (Compliance date: January 24, 2016).
2. Final Chloride WLAs for Upper Santa Clara River – (Compliance date: May 4, 2016)
3. Final Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation WLAs for Calleguas Creek, its Tributaries and Mugu Lagoon – (Compliance date: March 24, 2026).
4. Final Metals and Selenium WLAs for Calleguas Creek, its Tributaries and Mugu Lagoon (Compliance date: March 26, 2022)
5. Final Boron, Chloride, Sulfate, and TDS WLAs for Calleguas Creek watershed (Compliance date: December 2, 2023)

V. TMDL WLAs and Other TMDL Provisions Incorporated into this Order are as follows:

1. TMDL for Nutrients for Malibu Creek Watershed

(a) Summer Load Allocations

	Nitrogen (lbs/day)	Phosphorus (lbs/day)
- Runoff from developed areas	26	2.6
- Golf Course Fertilization	37	6.6
- Dry Weather Urban Runoff	52	4.6
- Other	56	4.1

(b) Winter concentration-based Load Allocations

	Nitrogen (Nitrate-N + Nitrite-N) (mg/L)
- Runoff from Developed Areas	8

- Golf Course Fertilization	8
- Dry Weather Urban Runoff	8
- Other	8

(c) Compliance Monitoring:
This TMDL was established and approved by U.S. EPA and did not include an implementation plan.

(d) Actions and Special Studies required for Malibu Creek MS4 permittees
(1) Extent of algal impairment. EPA recommends studies to investigate the current extent of impairment due to excessive algal growth in the creek by surveying algal biomass and species composition at multiple sites within the creek.
(2) Limiting factor analysis. EPA recommends further study to assess whether total nitrogen or total phosphorus or other parameters such as flow and light limit algal growth in the Malibu Creek watershed.
(3) Fate of nutrients in Malibu Lagoon. EPA recommends this special study to determine if the expected upstream reductions in nutrient loadings would result in desired improvements in water quality in the lagoon.

2. TMDL for Nitrogen Compounds and Related Effects in Calleguas Creek Watershed

The stormwater permitted discharges were considered minor sources of nitrogen to the Calleguas Creek. Therefore, WLAs are not assigned to storm water permitted discharges. The monitoring program of this TMDL includes data collection to quantify loadings and associated WLAs from these sources.

3. TMDL for Nitrogen Compounds in the Santa Clara River

(a) Waste Load Allocations:
(1) The Ventura County MS4 permittees discharging to the Santa Clara River (the cities of Fillmore and Santa Paula) ("Santa Clara MS4 permittees") shall implement BMPs to achieve the following MS4 wasteload allocations applicable to River Reach 3:

Ammonia nitrogen 30-day average	2.0 mg/L
Ammonia nitrogen 1-hour average	4.2 mg/L
Nitrate + Nitrite nitrogen 30-day average	8.1 mg/L

(b) Compliance Monitoring:
(1) Compliance with the WLAs is to be determined through receiving water monitoring conducted in accordance with the Santa Clara River Nitrogen TMDL Monitoring Program approved by the Executive Officer.
(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(c) Actions and Special Studies required of Santa Clara MS4 permittees:
(1) Annual Progress Reports. Santa Clara River MS4 permittees, either independently or in conjunction with other stakeholders, shall submit an annual progress report with respect to achievement of the WLAs.

4. TMDL for Chloride in Santa Clara River, Reach 3

(a) Waste Load Allocation:
MS4 permittees discharging to Santa Clara River, Reach 3 shall implement BMPs to achieve the following MS4 WLAs:
Chloride (mg/L) 80
(b) Compliance Monitoring: This TMDL was established and approved by U.S. EPA and did not include an implementation plan.
(c) Actions and Special Studies required of Santa Clara MS4 permittees:
(1) Annual Progress Reports. Santa Clara River MS4 permittees, either independently or in conjunction with other stakeholders, shall submit an annual progress report with respect to achievement of the WLAs.

5. TMDL for Chloride in Upper Santa Clara River

(a) Waste Load Allocation:
MS4 permittees discharging to Upper Santa Clara River shall implement BMPs to achieve the following WLAs
Chloride (mg/L) 100
(b) Compliance monitoring:
(1) Compliance with the WLAs is to be determined through receiving water monitoring conducted in accordance with the Santa Clara River Nitrogen TMDL Monitoring Program approved by the Executive Officer.
(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports and Implementation Plans. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.
(c) Actions and Special Studies required of Santa Clara MS4 permittees:
(1) Annual Progress Reports. Santa Clara River MS4 permittees, either independently or in conjunction with other stakeholders, shall submit an annual progress report with respect to achievement of the WLAs.

6. TMDL for Toxicity, Chlorpyrifos, and Diazinon in the Calleguas Creek, its Tributaries and Mugu Lagoon.

(a) Waste Load Allocations:
(1) MS4 permittees discharging to Calleguas Creek, its tributaries and Mugu Lagoon (Ventura County Watershed Protection District, County of Ventura and the cities of Camarillo, Moorpark, Oxnard, Simi Valley and Thousand

Oaks) ("Calleguas MS4 permittees") shall implement BMPs to achieve the following MS4 WLAs:

Toxicity WLA	1.0 TUc
Chlorpyrifos WLA	0.014 ug/L
Diazinon WLA	0.10 ug/L

(2) Pursuant to the TMDL, the final storm water WLAs for Toxicity, Chlorpyrifos and Diazinon, listed above, are receiving water concentrations measured in-stream at the base of each subwatershed within the Calleguas Creek watershed.

(b) Compliance Monitoring:

(1) Compliance with the WLAs is to be determined through the measurement of in-stream water quality at the base of each of the Calleguas Creek subwatersheds, in accordance with the Calleguas Creek Watershed TMDL Monitoring Program approved by the Executive Officer.

(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(3) If as a result of compliance monitoring and subsequent investigations it is determined that a Calleguas MS4 permittee is responsible for exceedance of the in-stream Toxicity WLA, that permittee shall initiate the TRE/TIE process as outlined in U.S. EPA's "Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System Program" (2000) or the approved Toxicity TMDL monitoring plan, and take appropriate action to eliminate the identified source of the toxicity.

(c) Actions and Special Studies required of Calleguas MS4 permittees:

(1) Special Study #1. Together with Calleguas POTW permittees, investigate the pesticides that will replace diazinon and chlorpyrifos in the urban environment, their potential impact on receiving waters and potential control measures. Special Study #1 was completed by March 24, 2008.

(2) Special Study #2. Together with Calleguas Agricultural Dischargers, consider results of monitoring of sediment concentrations by source/land use type through the special study required in the Calleguas OC Pesticide, PCB and Siltation TMDL Implementation Plan. Complete within 6 months of completion of the OCs TMDL special study #1.

(3) Pesticide Collection Program. Together with Calleguas POTW permittees, develop and implement a collection program for diazinon and chlorpyrifos and an educational program. Collection and education could occur through existing programs such as household hazardous waste collection events. The Pesticide Collection Program is to be implemented by March 24, 2009.

(4) Special Study #3. Together with Calleguas Agricultural Dischargers, consider the findings of transport rates developed through the OC Pesticide,

PCB and Siltation TMDL Implementation Plan. Complete within 6 months of completion of the OCs TMDL special study #1.

7. TMDL for Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation in the Calleguas Creek, its Tributaries and Mugu Lagoon.
   (a) Waste Load Allocations:
      (1) MS4 permittees discharging to Calleguas Creek, its tributaries or Mugu Lagoon (Ventura County Watershed Protection District, County of Ventura and the cities of Camarillo, Moorpark, and Simi Valley) ("Calleguas MS4 permittees") shall implement BMPs to achieve the interim WLAs listed in Table 12.

Table 12 - Interim Sediment Concentration WLAs (ng/g)

Constituent	Subwatershed					
	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Chlordane	25	17	48	3.3	3.3	3.4
4,4-DDD	69	66	400	290	140	5.3
4,4-DDE	300	470	1600	950	170	20
4.4-DDT	39	110	690	670	25	2
Dieldrin	19	3	5.7	1.1	1.1	3
PCBs	180	3800	7600	25700	25700	3800
Toxaphene	22900	260	790	230	230	260

      (2) Pursuant to the TMDL, the interim storm water WLAs for OC Pesticides, PCBs and Siltation, listed above, are annual average, sediment-based concentrations measured in surface waters at the base of each subwatershed within the Calleguas Creek watershed.
   (b) Compliance Monitoring:
      (1) Compliance with the WLAs is to be determined through the measurement of in-stream water quality at the base of each of the Calleguas Creek subwatersheds, in accordance with the Calleguas Creek Watershed TMDL Monitoring Program approved by the Executive Officer.
      (2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.
   (c) Actions and Special Studies required of Calleguas MS4 permittees:
      (1) Pesticide Collection Program. Together with Calleguas POTW permittees, implement a collection program and source control measures pursuant to a work plan approved by the Executive Officer. The Pesticide Collection Program is to be implemented by March 24, 2011.
      (2) Special Study #1. Together with Calleguas POTW permittees, Calleguas Agricultural Dischargers, and the Point Mugu Naval Base, submit a work

plan to quantify sedimentation in the Calleguas Creek Watershed, evaluate management methods to control siltation and contaminated sediment transport to Calleguas Creek, identify appropriate BMPs to reduce sediment loadings and evaluate the effect of sediment on habitat preservation in Mugu Lagoon for approval by the Executive Officer. This special study is also to evaluate the concentration of OC pesticides and PCBs in sediments from various sources/land use types. Special Study #1 is to be completed by March 24, 2014.

(3) Special Study #2. Together with Calleguas Agricultural Dischargers, identify areas of high OC concentrations and evaluate the effects of watershed protection and land use practices on water quality. Such practices include but are not limited to management of sediment reduction practices and structures, streambank stabilization, and other projects related to stormwater conveyance and flood control improvements in the Calleguas Creek watershed. Special Study #2 is to be completed based on the schedule provided in the workplan, submitted in March, 2007

(4) Special Study #3 – Together with Calleguas POTW permittees, Calleguas Agricultural Dischargers, and the Point Mugu Naval Base, evaluate natural attenuation rates and evaluate methods to accelerate organochlorine pesticide and polychlorinated biphenyl attenuation and examine the attainability of wasteload and load allocations in the Calleguas Creek Watershed. Special Study #3 is to be completed by March 24, 2016.

8. TMDL for Metals and Selenium in the Calleguas Creek, its Tributaries and Mugu Lagoon.

(a) Waste Load Allocations:

(1) MS4 permittees discharging to Calleguas Creek, its tributaries or Mugu Lagoon (Ventura County Watershed Protection District, County of Ventura and the cities of Camarillo, Moorpark, Oxnard, Simi Valley and Thousand Oaks) ("Calleguas MS4 permittees") shall implement BMPs to achieve the interim WLAs listed in Table 13 and Table 14.

Table 13 - Interim WLAs for Copper, Nickel and Selenium (ug/L)

Constituent	Calleguas and Conejo Creek (a)			Revolon Slough		
	Dry Daily Maximum (ug/L)	Dry Monthly Average (ug/L)	Daily Maximum (ug/L)	Dry Daily Maximum (ug/L)	Dry Monthly Average (ug/L	Daily Maximum (ug/L)
Copper	23	19	204	23	19	204
Nickel	15	13	(a)	15	13	(a)
Selenium	(b)	(b)	(b)	14(c)	13(c)	(a)

(A) The current loads do not exceed the TMDL under wet conditions, interim limits are not required
(B) Selenium allocations have not been developed for this reach as it is not on the 303(d) list
(C) Attainment of interim limits will be evaluated in consideration of background loading data, if available

(2) Pursuant to the TMDL, the interim storm water WLAs for copper, nickel, and selenium are receiving water concentrations measured in-stream at the base of Calleguas Creek and Revolon Slough and in Mugu Lagoon.

Table 14 - Mass-based WLAs for copper, nickel and selenium

Annual Cumulative Flow (million gallons per year)	Calleguas Creek (lbs/yr)	Revolon Slough (lbs/yr)
0-15,000	3.3	1.7
15,000-25,000	10.5	4
Above 25,000	64.6	10.2

(3) Pursuant to the TMDL, the interim storm water WLAs for mercury are suspended sediment loads measured in-stream at the base of Calleguas Creek and Revolon Slough and in Mugu Lagoon.
(4) Determination of the applicable interim WLA will be determined by calculating the total annual flow (October 1-September 30) in the Calleguas Creek watershed as measured by the flow gage at CSUCI.

(b) Compliance Monitoring:
(1) Compliance with the WLAs is to be determined through the measurement of in-stream water quality and total suspended solids (TSS) at the base of Calleguas Creek, Revolon Slough and in Mugu Lagoon, in accordance with the Calleguas Creek Watershed TMDL Monitoring Program approved by the Executive Officer.
(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(c) Actions and Special Studies required of Calleguas MS4 permittees:
(1) Conduct a source control study, develop and submit an Urban Water Quality Management Program (UWQMP) for copper, mercury, nickel, and selenium. Complete by March 26, 2009.
(2) Implement the UWQMP within one year of approval by Executive Officer.
(3) In cooperation with agricultural dischargers, evaluate the results of the OCs TMDL special study on sediment transport rates for applicability to the metals and selenium TMDL. Complete within 6 months of completion of the OCs TMDL special study #1.

(4) In cooperation with agricultural dischargers, include monitoring for copper, mercury, nickel and selenium in the OC pesticides TMDL special study – Monitoring of Sediment by Source and Land Use Type. The special study is to be completed by March 26, 2014.
(5) Evaluate the results of the OC Pesticides TMDL Special Study – Effects of BMPs on Sediment and Siltation, to determine the impacts on metals and selenium. Complete within 6 months of completion of the OC Pesticides special study #1.
(6) Evaluate the effectiveness of BMPs implemented under the UWQMP in controlling metals and selenium discharges. This is to be completed by March 26, 2013.
(7) Re-evaluate agricultural and urban waste load allocations for copper, mercury, nickel and selenium based on the evaluation of BMP effectiveness. By March 26, 2012, urban dischargers will have a required 25% reduction in the difference between the loadings at the time of the TMDL preparation and the final WLAs effective in 2022.
(8) In cooperation with POTW permittees and agricultural dischargers, conduct a study to identify selenium contaminated groundwater sources. Special Study is to be completed within one year of the approval of the workplan.
(9) In cooperation with agricultural dischargers, conduct a study to investigate metals "hot spots" and natural soils concentrations. This special study is to be completed within 2 years of the approval of the workplan.

9. TMDL for Bacteria in Malibu Creek and Lagoon
(a) Waste Load Allocations:
(1) MS4 permittees discharging to Malibu Creek or its tributaries (Ventura County Watershed Protection District, County of Ventura and the cities of Thousand Oaks and Simi Valley) ("Malibu MS4 permittees") shall achieve the WLAs identified in Resolution 2004-19. These WLAs are expressed as the number of daily or weekly sample days that may exceed the single sample limits or 30-day geometric mean bacteria targets in Resolution 2004-19.

Table 15 - Bacteria Targets

Parameters	Unit	Fresh Water Targets	
		Geometric Mean	Single Sample
E. coli	mg	126/ 100	235/ 100
Fecal coliform	mg	200/ 100	400/ 100

(2) The wasteload allocations are to be achieved no later than January 26, 2012.
(b) Compliance Monitoring:
(1) Achievement of the WLAs is to be determined through receiving water monitoring conducted in accordance with the Malibu Creek and Lagoon Bacteria TMDL Compliance Monitoring Program approved by the Executive Officer.

(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(c) Actions and Special Studies required of Malibu MS4 permittees:

(1) If TMDL compliance monitoring indicates that the Malibu MS4 permittees are causing or contributing to an exceedance of the WLAs in the receiving waters, the permittees shall conduct a source identification study and implement additional controls sufficient to achieve the WLAs in the receiving waters.

10. TMDL for Trash in Revolon Slough and Beardsley Wash

(a) Wasteload Allocations

(1) MS4 permittees discharging to Revolon Slough and Beardsley Wash (Ventura County Watershed Protection District, County of Ventura and the cities of Camarillo and Oxnard) shall implement BMPs to achieve the WLAs of zero trash.

(b) Compliance Monitoring

(1) Responsible jurisdictions will develop a TMRP for Executive Officer approval that describes the methodologies that will be used to assess and monitor trash in Revolon Slough and Beardsley Wash and/or within responsible jurisdiction land areas. The TMRP shall include a plan to establish the trash Baseline WLAs.

(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(c) Actions and Special Studies required of Revolon Slough and Beardsley Wash MS4 permittees

(1) Per the adopted Basin Plan Amendment, compliance with the TMDL may be either through a progressive implementation schedule of full capture devices or implementation of other measures to attain the required trash reduction.

11. TMDL for Trash in the Ventura River Estuary

(a) Wasteload Allocations

(1) MS4 permittees discharging to the Ventura River Estuary (Ventura County Watershed Protection District, County of Ventura and the City of Ventura) shall implement BMPs to achieve the WLAs of zero trash.

(b) Compliance Monitoring

(1) Responsible jurisdictions will develop a TMRP for Executive Officer approval that describes the methodologies that will be used to assess and monitor trash in the Ventura River Estuary and/or within responsible

jurisdiction land areas. The TMRP shall include a plan to establish the trash Baseline WLAs.

(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(c) Actions and Special Studies required of Revolon Slough and Beardsley Wash MS4 permittees

(1) Per the adopted Basin Plan Amendment, compliance with the TMDL may be either through a progressive implementation schedule of full capture devices or implementation of other measures to attain the required trash reduction.

12. TMDL for Boron, Chloride, Sulfate and TDS in Calleguas Creek Watershed

(a) Waste Load Allocation

Table 16 - Interim Dry Weather WLAs for Permitted Stormwater Dischargers

Constituent	Interim Limit 30-day average (mg/L)
Boron Total	1.3
Chloride Total	230
Sulfate Total	1289
TDS Total	1720

Table 17 - Final Dry Weather WLAs for Permitted Stormwater Dischargers

Subwatershed	Critical Condition Flow Rate (mgd)	Chloride Allocation (lb/day)	TDS Allocation (lb/day)	Sulfate Allocation (lb/day)	Boron Allocation (lb/day)
Simi	1.39	1,738	9,849	2,897	12
Las Posas	0.13	157	887	261	N/A
Conejo	1.26	1,576	8,931	2,627	N/A
Camarillo	0.06	72	406	119	N/A
Pleasant Valley (Calleguas)	0.12	150	850	250	N/A
Pleasant Valley (Revolon)	0.25	314	1,778	523	2

(b) Compliance Monitoring

(1) A monitoring plan will be submitted to the RWQCB for Executive Officer approval on June 2, 2009. Monitoring will begin one year after Executive

Officer approval of the monitoring plan to allow time for the installation of automated monitoring equipment.

(2) Compliance with the WLAs is to be determined through the measurement of in-stream water quality at the base of each of the Calleguas Creek subwatersheds, in accordance with the Calleguas Creek Watershed TMDL Monitoring Program approved by the Executive Officer.

(3) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(c) Actions and Special Studies required of Calleguas Creek Watershed MS4 permittees

Responsible jurisdictions including MS4 permittees shall submit compliance monitoring plan to the Los Angeles Regional Board for Executive Officer approval on June 2, 2009. Monitoring shall begin monitoring as outlined in the approved monitoring plan six months after approval of the work plan.

Responsible jurisdictions including MS4 permittees shall demonstrate that implementation actions have reduced the boron, sulfate, TDS, and chloride imbalance by 20%, 40%, 70% by December 2 of 2011, 2015, and 2018 respectively. Stormwater dischargers shall achieve WLAs, which shall be expressed as NPDES mass-based limits specified in accordance with federal regulations and state policy on water quality control by December 2, 2023.

13. TMDL for Bacteria in Harbor Beaches of Ventura County

(a) Waste Load Allocations

(1) MS4 permittees discharging to the Channel Islands Harbor Beaches (the County of Ventura, the Ventura County Watershed Protection District (VCWPD) and associated Municipal Separate Storm Sewer System (MS4) permittees in the Channel Islands Harbor subwatershed, and the City of Oxnard shall implement BMPs to achieve the interim WLAs listed in Table 18. All WLAs for summer dry-weather single sample bacteria densities at the Harbor Beaches of Ventura County are zero (0) days of allowable exceedances; winter dry weather and wet weather final WLAs are listed in Table 19 below.

The Basin Plan objectives that serve as the numeric targets for this TMDL are (single sample limits):

a. Total coliform density shall not exceed 10,000/100 ml.
b. Fecal coliform density shall not exceed 400/100 ml.
c. Enterococcus density shall not exceed 104/100 ml.
d. Total coliform density shall not exceed 1,000/100ml, if the ratio of fecal-to-total coliform exceeds 0.1.

Table 18 - Interim WLAs for Single Sample Exceedance Days

Location	Summer Dry Weather		Winter Dry Weather		Wet Weather	
	Daily Sampling	Weekly Sampling	Daily Sampling	Weekly Sampling	Daily Sampling	Weekly Sampling
Kiddie Beach	54	8	23	4	32	5
Hobie Beach	40	6	25	4	38	6

Table19 - Final Allowable Exceedance Days by Location

Location	Summer Dry-weather		Winter Dry-weather		Wet-weather	
	Daily Sampling	Weekly Sampling	Daily Sampling	Weekly Sampling	Daily Sampling	Weekly Sampling
Hobie Beach	0	0	3	1	17	3
Kiddie Beach	0	0	3	1	17	3

(2) Pursuant to the TMDL, the interim storm water WLAs for bacteria are from samples taken at existing monitoring sites in ankle to knee- high depths.

(b) Compliance Monitoring

(1) Compliance and monitoring for Harbor Beaches of Ventura County is based on existing monitoring protocols and locations. Monitoring shall continue at sampling locations (VCEHD 36000 and VCEHD37000) and at the current weekly monitoring frequency, consistent with AB411 compliance monitoring. Monitoring shall be conducted on a year-round basis at the current monitoring locations including the summer months (i.e., April to October) and winter months (i.e., November to March). Bacteria sampling shall be conducted in ankle- to knee-high water, consistent with AB411. However, if additional monitoring stations are added or if changes are made to the sampling frequencies or existing monitoring locations, then submittal of a monitoring plan is required for Executive Officer approval.

(2) If any WLA is exceeded at a compliance monitoring site, permittees shall implement BMPs in accordance with the TMDL Technical Reports, Implementation Plans or as identified as a result of TMDL special studies identified in the Basin Plan Amendment. Following these actions, Regional Water Board staff will evaluate the need for enforcement action.

(c) Actions and Special Studies required of Harbor Beaches of Ventura County MS4 permittees

(1) Per the adopted Basin Plan Amendment, compliance with the TMDL may be either through structural and non-structural BMPs or implementation of other measures to attain the required source control.

(2) Special studies are not required for implementation of the TMDL though conducting special studies is within the discretion of the responsible parties.

PART 6 - DEFINITIONS

The following are definitions for terms in this Order:

Adverse Impact - means a detrimental effect upon water quality or beneficial uses caused by a discharge or loading of a pollutant or pollutants.

Agriculture - means the science, art, and business of cultivating the soil, producing crops, and raising livestock.

Antidegradation Policies - means policies which protect surface and ground waters from degradation, and federal policies, which protect high quality surface waters. In particular, this policy protects waterbodies where existing quality is higher than that necessary for the protection of beneficial uses including the protection of fish and wildlife propagation and recreation on and in the water (*Statement of Policy with Respect to Maintaining High Quality Water in California*, State Board Resolution No. 68-16; 40 CRF 131.12).

Applicable Standards and Limitations - means all State, interstate, and Federal standards and limitations to which a "discharge" or a related activity is subject under the CWA, including effluent limitations, water quality standards, standards of performance, toxic effluent standards or prohibitions, best management practices, and pretreatment standards under § 301, § 302, § 303, § 304, § 306, § 307, § 308, § 403, and § 404 of CWA.

Areas of Special Biological Significance (ASBS) - means all those areas of this state listed as ASBS, listed specifically within the California Ocean Plan or so designated by the State Board which, among other areas, includes the area from Mugu Lagoon to Latigo Point: Oceanwater within a line originating from Laguna Point at 34° 5' 40" north, 119° 6'30" west, thence southeasterly following the mean high tideline to a point at Latigo Point defined by the intersection of the mean high tide line and a line extending due south of Benchmark 24; thence due south to a distance of 1000 feet offshore or to the 100 foot isobath, whichever distance is greater; thence northwesterly following the 100 foot isobath or maintaining a 1,000-foot distance from shore, whichever maintains the greater distance from shore, to a point lying due south of Laguna Point, thence due north to Laguna Point.

Authorized Discharge - means any discharge that is authorized pursuant to an NPDES permit, waste discharge requirement, conditional waiver from waste discharge requirements, or meets the conditions set forth in this Order.

Automotive Repair Shop - means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.

Automotive Service Facilities - means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5541, 5511, provided that these facilities have no outside activities or materials that may be exposed to storm water.

SIC Code	Corresponding NAICS Code
5013	425120, 441310, 425110, & 423120
5014	425120, 425110, 423130, & 441320
5511	441110
5541	447110, & 447190
7532	811121
7533	811112
7534	326212, & 811198
7536	811122
7537	811113
7538	811111
7539	811198, & 811118

Bacteria Total Maximum Daily Load (TMDL) Dry Weather - defined in the Bacteria TMDLs as those days with less than 0.1 inch of rainfall and those days occurring more than 3 days after a rain.

Bacteria Total Maximum Daily Load (TMDL) Wet Weather - defined in the Bacteria TMDLs as a day with 0.1 inch or more of rain and 3 days following the rain event.

Basin Plan - means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

Beneficial Uses - means the existing or potential uses of receiving waters in the permit area as designated by the Regional Water Board in the Basin Plan.

Best Management Practices (BMPs) - means methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from point and nonpoint source discharges including storm water. BMPs include structural and nonstructural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.

California Environmental Quality Act (CEQA) - means a California statute that requires state and local agencies to identify significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible (Reference: California Public Resources Code § 21000 et seq.)

Channel - means an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two waterbodies.

Chronic Toxicity - means a measurement of a sublethal effect (e.g., reduced growth, reproduction) to experimental test organisms exposed to an effluent or ambient waters compared to that of the control organisms.

Commercial Area(s) - means any geographic area of the Permittees' jurisdiction that is not heavy industrial or residential. A commercial area includes, but is not limited to areas surrounding: commercial activity, hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

Commercial Development - means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

Construction - Construction activity includes any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in a land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain original line and grade, hydraulic capacity, or original purpose of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage is required if more than one acre is disturbed or the activities are part of a larger plan.

Construction Activities Storm Water General Permit (CASGP) - means the general NPDES permit adopted by the State Board, which authorizes the discharge of storm water from construction activities under certain conditions.

Control - means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

Critical Sources - means commercial facilities and businesses that have a potential to contribute pollutants to stormwater runoff if effective BMPs are not implemented. Attachment "D" specifies the commercial facilities and businesses that have been identified as Critical Sources.

Dechlorinated/ Debrominated Swimming Pool Discharge - means any swimming pool discharge with a residual chlorine or bromine level of 0.1mg/L or less; and does not contain any detergents, wastes, algaecides, or cyanuric acid in excess of 50 ppm, or any other chemicals including salts from pools commonly referred to as "salt water pools". The term does not include swimming pool filter backwash or swimming pool water containing bacteria.

Development - means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and any other non-residential projects, including public agency projects; or mass grading for future construction.

Directly Adjacent - means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

Directly Discharging - means outflow from a drainage conveyance system that is composed entirely or predominately of flows from the subject, property, development, subdivision, or industrial facility and not commingled with the flows from adjacent lands.

Discharge - means when used without qualification the "discharge of a pollutant."

Discharging Directly - means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

Discharge of a Pollutant - means any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or, any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft, which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

Disturbed Area - means any area that is altered as a result of land disturbance. Examples include but are not limited to: clearing, grading, grubbing, stockpiling and/ or excavation, etc...

Dry Day - means a non-wet day for Malibu Creek and Lagoon Bacteria TMDL WLA. A wet day is defined as a day with a 0.1 inch or more of rain and 3 days following the rain event.

Effect Concentration (EC) - means a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g., death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g., Probit Model). EC_{25} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms.

Effective Impervious Surface - means that portion of the surface area that is hydrologically connected via sheet flow over a hardened conveyance or impervious surface without any intervening medium to mitigate flow volume.

Effluent limitation - means any restriction imposed by the Permitting Authority (PA) on quantities, discharge rates, concentrations, and/ or mass loadings of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean.

Emergency - means a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. "Emergency" includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage. (Reference: California Public Resources Code § 21060.3. Emergency).

End-of-Pipe - means the end of the major outfall as defined in 40 CFR122.26 (b)(5) and 40 CFR122.26 (b)(6).

Endpoint - means a biological measurement used to quantify the results obtained from analytical methods such as whole effluent toxicity testing [e.g., lethal concentration (LC_{50}); inhibition concentration (IC_{25}); and no observed effect concentration (NOEC)]. Such endpoints are quantitative measurements of the responses of test organisms (e.g., survival, growth, mobility, reproduction, and weight gain or loss) in response to exposure to a serial dilution of effluent.

Environment - means the physical conditions, which exist within the area and which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project. The "environment" includes both natural and man-made conditions.

Environmentally Sensitive Area (ESA) - means an area "in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments" (Reference: California Public Resources Code § 30107.5). ESAs will include Clean Water Act 303d Listed Water Bodies in all reaches that are unimproved, all California Coastal Commission's Environmentally Sensitive Habitat Areas as delineated on maps in Local Coastal Plans and Regional Water Quality Control Board's Basin Plan Rare, Threatened or Endangered Species (RARE) and Preservation of Biological Habitats (BIOL) designated waterbodies. The California Department of Fish and Game's Significant Natural Areas map will be considered for inclusion as the department field verifies the designated locations. Watershed restoration projects will be considered for inclusion as the department field verifies the designated locations.

Erosivity Factor - The Erosivity Factor is a criterion that to assess the risk of erosion on disturbed land. It is described in "Predicting soil erosion by water: A guide to conservation planning with the Revised Universal Soil Loss Equation (RUSLE), Agricultural Handbook 703, USDA-ARS, U.S. Government Printing Office, Washington, D.C., 1997 by Renard, K.C., G.R. Foster, G.A. Weesies, D.K. McCool, and D.C. Yoder.

Federal Clean Water Act (CWA) - means (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92—500, as amended by Public Law 95—217, Public Law 95—576, Public Law 96—483 and Public Law 77—117, codified at 33 U.S.C. 1251 et seq.

First Storm Event - means the first storm event of the wet season that produces at least 0.25 inches of rain.

Forest Land - means land at least 10 percent stocked with live trees, or land that had this minimum tree stocking in the past and is not currently developed for nonforest use. The minimum area recognized is 1 acre.

Groundwater Dewatering - means the active practice of removing standing water from soil excavations using a pump(s) or other means.

Hillside - means property located in an area with known erosive soil conditions, where the development will result in grading on any slope that is 20% or greater or an area designated by the Municipality under a General Plan or ordinance as a "hillside area".

Horse Stables - means a property where at least one horse is stabled at least part of the year.

Hydromodification - means the alteration away from a natural state of stream flows or the beds or banks of rivers, streams, or creeks, including ephemeral washes, which results in hydrogeomorphic changes.

Illegal Discharge - means any discharge to the municipal separate storm sewer (storm drain system) that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illegal discharge includes all non-storm water discharges not composed entirely of storm water except discharges pursuant to an NPDES permit, discharges that are identified in part 1, “Discharge Prohibitions” of this order, or discharges authorized by the Regional Water Board Executive Officer.

Illicit Connection - means any engineered conveyance that is connected to the storm drain system without a permit or municipal authorization. It also means any engineered conveyance through which discharges of pollutants to the separate storm drainage systems, which are not composed entirely of storm water or are not authorized by an NPDES permit, may occur.

Illicit Discharge - means any discharge to a municipal separate storm sewer (storm drain system) that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illicit discharge includes all non-storm water discharges not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges that are identified in part 1, “Discharge Prohibitions” of this order, or authorized by the Regional Water Board Executive Officer.

Illicit Disposal - means any disposal, either intentionally or unintentionally, of material(s) or waste(s) that can pollute storm water.

Industrial/ Commercial Facility - means any facility involved and/ or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/ or commodities, and any facility involved and/ or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

Industrial Activities Storm Water General Permit (IASGP) - means the general NPDES permit adopted by the State Board, which authorizes the discharge of storm water from certain industrial activities under certain conditions.

Industrial Park - means a land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

Inhibition Concentration (IC) - means a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal biological measurement (e.g., reproduction or growth), calculated from a continuous model (i.e., Interpolation Method). IC25 is a point estimate of the toxic concentration that would cause a 25-percent reduction in a non-lethal biological measurement.

Inspection - means entry and the conduct of an on-site review of a facility and its operations, at reasonable times, to determine compliance with specific municipal or other legal requirements. The steps involved in performing an inspection, include, but are not limited to:
1. Pre-inspection documentation research
2. Request for entry
3. Interview of facility personnel
4. Facility walk-through
5. Visual observation of the condition of facility premises
6. Examination and copying of records as required
7. Sample collection (if necessary or required)
8. Exit conference (to discuss preliminary evaluation)
9. Report preparation, and if appropriate, recommendations for coming into compliance

Integrated Pest Management (IPM) - means a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health, and environmental risks.

Large Municipal Separate Storm Sewer System (MS4) - means all MS4s that serve a population greater than 250,000 (1990 Census) as defined in 40 CFR122.26 (b)(4). The Regional Water Board designated Ventura County as a large MS4 in 1990, based on: (i) the U.S. Census Bureau 1990 population count of 669,016 thousand, and (ii) the interconnectivity of the MS4s in the incorporated and unincorporated areas within the County.

Local SWPPP - means the Local Storm Water Pollution Prevention Plan (LSWPPP) required by the local agency for a project that disturbs one or more acres of land. Shall mean a plan identifying potential pollutant sources from a construction site and describing proposed design, placement and implementation of BMPs, to effectively prevent non-storm water discharges and reduce pollutants in storm water discharges to the storm drain system, during construction activities. Also referred as a Storm Water Pollution Control Plan (SWPCP).

Low Impact Development (LID) – means a design strategy with the goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and ground water recharge, as well as the volume and frequency of discharges are maintained through the use of integrated and distributed micro-scale storm water retention and detention areas, reduction of impervious surfaces, and the lengthening of runoff flow paths and flow time. Other strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, valuable (mature) trees, flood plains, woodlands, and highly permeable soils.

Major Municipal Separate Storm Sewer Outfall ("or major outfall") - means a major municipal separate storm sewer outfall that discharges from a single pipe with an inside diameter of 36 inches or more or its equivalent (discharge from a single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres); or for municipal separate storm sewers that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 inches or more or from its equivalent (discharge from other than a circular pipe associated with a drainage area of 2 acres or more), as defined in 40 CFR122.26 (b)(5).

Major Outfall - means a major municipal separate storm sewer outfall, as defined in 40 CFR122.26 (b)(6).

Maximum Extent Practicable (MEP) – The technology-based permit requirement established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. Technology-based requirements, including MEP, establish a level of pollutant control that is derived from available technology or other controls. MEP requires municipal dischargers to perform at maximum level that is practicable. Compliance with MEP may be achieved by emphasizing pollution prevention and source control BMPs in combination with structural and treatment methods where appropriate. The MEP approach is an ever evolving and advancing concept, which considers technical and economic feasibility.

Method Detection Limit (MDL) - means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR136, Appendix "G" of this Order.

Minimum Level (ML) - means the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed. The ML value represents the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences. Assuming that all method-specific analytical steps are followed, the ML value will also represent, after the appropriate application of method-specific factors, the lowest standard in the calibration curve for that specific analytical technique.

Minimum Significant Difference (MSD) - means a measure of test sensitivity that establishes the minimum difference required between a control and a test treatment in order for that difference to be considered statistically significant.

Municipal Separate Storm Sewer System (MS4) - means a conveyance or system of conveyances (including roads w/ drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains), as defined in 40 CFR122.26(b)(8):

1. Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under § 208 of the Federal Clean Water Act (CWA) that discharges into waters of the United States
2. Designed or used for collecting or conveying storm water
3. Which is not a combined sewer
4. Which is not part of a Publicly Owned Treatment Works (POTW), as defined in 40 CFR122.2

NAICS - means North American Industry Classification System.

National Pollutant Discharge Elimination System (NPDES) - means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA § 307, 402, 318, and 405.

Natural Drainage Systems - means unlined or unimproved (not engineered) creeks, streams, rivers or similar waterways.

New Development - means land disturbing activities; structural development, including construction or installation of a building or structure, creation and replacement of impervious surfaces; and land subdivision.

Non-Storm Water Discharge - means any discharge to a storm drain that is not composed entirely of storm water.

No Observed Effect Concentration (NOEC) - means the highest tested concentration of an effluent or toxicant that causes no observable adverse effect on the test organisms (i.e., the highest concentration of toxicant at which the values for the observed responses are not statistically different from the controls).

Nuisance - means anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; (3) occurs during, or as a result of, the treatment or disposal of wastes.

Nursery - means NAICS classification to describe nursery operations and determine the type of operations covered under this Order and those covered under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Conditional Waiver).

1. There are 3 broad NAICS sectors available to classify nurseries:
   - (1) 111xxx - Crop Production - Agriculture
   - (a) 424xxx - Merchant Wholesalers, Nondurable Goods
   - (b) 44xxxx - Retail Trade
     - (1) **Nursery (Agricultural Facilities - Crop Production) -** means Nursery and Floriculture Production under NAICS Code 11142x. These operations are subject to the **Conditional Waiver**. This industry comprises establishments primarily engaged in (1) growing nursery and floriculture products (e.g., nursery stock, shrubbery, cut flowers, flower seeds, foliage plants, sod) under cover or in open fields and/ or (2) growing short rotation woody trees with a growing and harvesting cycle of 10 years or less for pulp or tree stock (e.g., cut Christmas trees, cottonwoods).
     - (2) **Nursery (Commercial Facilities - Merchant Wholesalers, Nondurable Goods, and Retail Trade) -** means industries Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers under NAICS Code 424930; and Nursery, Garden Center, and Farm Supply Stores under NAICS Code 444220. This Order <u>covers</u> these types of operations. The industry in NAICS Code 424930 comprises establishments primarily engaged in the merchant wholesale distribution of flowers, florists' supplies, and/ or nursery stock (except plant seeds and plant bulbs). The industry in NAICS Code 444220 comprises establishments primarily engaged in retailing nursery and garden products, such as trees, shrubs, plants, seeds, bulbs, floriculture products and sod, which are predominantly grown elsewhere. These establishments may sell a limited amount of a product they grow themselves.

Open Channel - means a storm drainage channel that is not a natural water course.

Parking Lot - means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use.

Percent Minimum Significant Difference (PMSD) - means the minimum significant difference divided by the control mean, expressed as a percent (see minimum significant difference).

Permit - means an authorization, license, or equivalent control document issued by U.S. EPA or an "approved State" to implement the requirements of 40 CFR Parts 122, 123, and 124. "Permit" includes an NPDES "general permit" (§ 122.28). Permit does not include any permit, which has not yet been the subject of final agency action, such as a "draft permit" or a "proposed permit."

Permittee(s) - means co-permittee(s) and any agency named in this Order as being responsible for permit conditions within its jurisdiction, as defined by Federal Regulation. Permittees to this Order include the Ventura Water Protection District, Ventura County, and the cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buenaventura, Santa Paula, Simi Valley and Thousand Oaks.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture.

Point Zero - means in the context of the TMDLs, the point at which water from the storm drain or creek initially mixes with water.

Pollutants - means those "pollutants" defined in CWA § 502(6) (33.U.S.C.§ 1362(6)), and incorporated by reference into California Water Code § 13373.

Pollutants of Concern - means constituents that have exceeded Basin Plan Objectives, and CTR- Chronic or Acute Objectives during monitoring at Mass Emission, Receiving Water, and Land Use stations.

Potable Water Sources - means the potable water system for the treatment, distribution, and provision of water for residential, commercial, industrial, or institutional use that meets all California safe drinking water regulatory standards for human consumption.

Pre-Developed Condition - means native vegetation and soils that existed at a site prior to first development. The pre-developed condition may be assumed to be an area with the typical vegetation, soil, and storm water runoff characteristics of open space areas in coastal Southern California unless reasonable historic information is provided that the area was atypical.

Priority Pollutants - means those constituents referred to in 40 CFR401.15 and listed in the U.S. EPA NPDES Application Form 2C, pp. V-3 through V-9.

Project - means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Reference: California Public Resources Code § 21065).

Qualified SWPPP Developer or Qualified SWPPP Practitioner – refer to State of California General Construction Stormwater Permit for definition.

Rare, Threatened, or Endangered Species (RARE) - means a beneficial use for waterbodies in the Los Angeles Region, as designated in the Basin Plan (Tables 2-1, 2-3, and 2-4), that supports habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

Redevelopment - means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Regional Administrator - means the Regional Administrator of the Regional Office of the U.S. EPA or the authorized representative of the Regional Administrator.

Report of Waste Discharge (ROWD) - means an application for renewal of the NPDES Permit for Waste Discharge Requirements for Municipal Separate Storm Sewer Discharges Within the Ventura County Watershed Protection District, County of Ventura and the Incorporated Cities Therein.

Restaurant - means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

Restoration - means the reestablishment of predisturbance aquatic functions and related physical, chemical and biological characteristics (Reference: National Research Council. 1992. Restoration of Aquatic Ecosystems: Science, Technology and Public Policy. National Academy Press, Washington, D.C.).

Retail Gasoline Outlet (RGO) - means any facility engaged in selling gasoline and lubricating oils- SIC 5541 and NAICS 447110 & 447190.

1. RGOs: 447190 Other Gasoline Stations:
   This industry comprises establishments known as gasoline stations (except those with convenience stores) primarily engaged in one of the following: (1) retailing automotive fuels (e.g., diesel fuel, gasohol, gasoline) or (2) retailing these fuels in combination with activities,

such as providing repair services; selling automotive oils, replacement parts, and accessories; and/ or providing food services.
2. RGOs: 447110 Gasoline Stations with Convenience Stores:
   Retailing automotive fuels in combination with a convenience store or food mart.

Routine Maintenance – Routine maintenance projects include, but are not limited to projects conducted to:
1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.
2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.
4. Update existing lines* and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
5. Repair leaks

Routine maintenance does not include construction of new** lines or facilities resulting from compliance with applicable codes, standards and regulations.
* Update existing lines includes replacing existing lines with new materials or pipes.
** New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

Screening - means using proactive methods to identify illicit connections through a continuously narrowing process. The methods may include: performing baseline monitoring of open channels, conducting special investigations using a prioritization approach, analyzing maintenance records for catch basin and storm drain cleaning and operation, and verifying all permitted connections into the storm drains. Special investigation techniques may include: dye testing, visual inspection, smoke testing, flow monitoring, infrared, aerial and thermal photography, and remote control camera operation.

Sidewalk Rinsing - means only sidewalk rinsing using high pressure and low volume of water with no additives and at an average usage of 0.006 gallons per square foot of surface area to be rinsed. Any waste generated from the activity must be collected and properly and legally disposed of. It does not mean hosing of any sidewalk or street with a garden hose with a pressure nozzle.

Site - means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

Small Construction - means any soil disturbing activities less than 5 acres.
Smart Growth - development in or near cities intended to lessen or reverse suburban sprawl, decrease the use of automobiles, and shorten daily travel. It uses compact building design to cluster together residential, shopping, and work areas and encourages walking and public transportation. Smart Growth is considered a stormwater BMP in the 2005 publication *Using Smart Growth Techniques as Stormwater Best Management Practices*, EPA 231-B-05-002.

Source Control BMP - means any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

Southern California Stormwater Monitoring Coalition (SMC) - means the Stormwater Monitoring Coalition, which is a collaborative research/ monitoring partnership of the Southern California Water Boards, Municipal Storm Water Agencies, and municipalities to develop the methodologies and assessment tools to more effectively understand urban storm water and non-storm water (anthropogenic) impacts to receiving waters and to conduct research/ monitoring through Subsequent Research Implementation Agreements. The first original cooperative agreement was entered into on February 8, 2001.

Stream - means a body of flowing water; natural water course containing water at least part of the year. In hydrology, it is generally applied to the water flowing in a natural channel as distinct from a canal (Reference: US Geological Survey).

Strip Mall - means a commercial development that is a shopping center where the stores are arranged in a row, with a sidewalk in front. Strip malls are typically developed as a unit and have large parking lots in front. They face major traffic arterials and tend to be self-contained with few pedestrian connections to surrounding neighborhoods. It is also called a plaza.

Storm Event Monitoring - means a rainfall event that produces more than 0.25 inch of precipitation and is separated from the previous storm event by at least 1 week of dry weather, for the purpose of monitoring.

Storm Water - means storm water runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR122.26(b)(13).

Storm Water Discharge Associated with Industrial Activity - means industrial discharge, as defined in 40 CFR122.26(b)(14).

Storm Water Quality Management Program - means the Ventura Countywide Storm Water Quality Management Plan, which includes descriptions of programs, collectively developed by the Permittees in accordance with provisions of the NPDES Permit, to comply with applicable federal and state law, as the same is amended from time to time.

Structural BMP - means any structural facility designed and constructed to mitigate the adverse impacts of storm water runoff pollution (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.
Summer Dry Weather - means dry weather days occurring from April 1 through October 31 of each year.

t-Test (formally Student's t-test) - means a statistical analysis comparing two sets of replicate observations, in the case of WET, only two test concentrations (e.g., a control and 100% effluent). The purpose of this test is to determine if the means of the two sets of observations are

different [e.g., if the 100% effluent concentration differs from the control (i.e., the test pass or fails)].

Targeted Employees - means management and staff who perform or direct activities that directly or indirectly have an effect of storm water quality. The employees generally are employed in the following areas: department of public works, engineering, sanitation, storm water maintenance, drainage and flood control, transportation, streets and roads, parks and recreation, public landscaping and corporation yards, planning or community development, code enforcement, building and safety, harbor or port departments, airports, or general services and fleet services.

Total Maximum Daily Load (TMDL) - means the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources and natural background.

Toxicity Identification Evaluation (TIE) - means a set of procedures to identify the specific chemical(s) responsible for toxicity through a process of chemical/ physical manipulations of samples followed by toxicity tests. These procedures are performed in 3 phases (Phase I- Toxicity Characterization Procedure, Phase II- Toxicity Identification Procedure, and Phase III- Toxicity Confirmation Procedure) using aquatic organism toxicity tests.

Toxicity Reduction Evaluation (TRE) - means a study conducted in a step-wise process to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity.

Toxicity Test - means a procedure using living organisms to determine whether a chemical or an effluent is toxic. A toxicity test measures the degree of the effect of a specific chemical or effluent on exposed test organisms.

Toxic Unit (TU) - means a measure of toxicity in an effluent as determined by the acute toxicity units (TUa) or chronic toxicity units (TUc) measured. The larger the TU, the greater the toxicity.

Toxic Unit - Chronic (TUc) - means 100 times the reciprocal of the effluent concentration that causes no observable effect on the test organisms in a chronic toxicity test (TUc = 100/NOEC or 100/EC25*)* (see NOEC).

Treatment - means the application of engineered systems that use physical, chemical, or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media absorption, biodegradation, biological uptake, chemical oxidation and UV radiation.
Treatment Control BMP - means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

Urbanization - means the process of changing of land use and land patterns from rural characteristics to urban (city-like) characteristics. These changes include (i) the replacement of

pervious surfaces with impervious surfaces such as rooftops and buildings, and impervious materials such as asphalt and concrete; and (ii) the conversion of rural land to house new residents, support new businesses, and facilitate vehicular traffic flow.

U.S. EPA Phase I Facilities - means facilities in specified industrial categories that are required to obtain an NPDES permit for storm water discharges, as required by 40 CFR122.26(c). These categories include:

1. Facilities subject to storm water effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR N)
2. Manufacturing facilities
3. Oil and gas/ mining facilities
4. Hazardous waste treatment, storage, or disposal facilities
5. Landfills, land application sites, and open dumps
6. Recycling facilities
7. Steam electric power generating facilities
8. Transportation facilities
9. Sewage of wastewater treatment works
10. Light manufacturing facilities

Vehicle Maintenance/ Material Storage Facilities/ Corporation Yards - means any Permittee owned or operated facility or portion thereof that:

1. Conducts industrial activity, operates or stores equipment or materials, and provides services similar to Federal Phase I facilities;
2. Performs fleet vehicle service/ maintenance including repair, maintenance, washing, or fueling;
3. Performs maintenance and/ or repair of machinery/ equipment; or
4. Stores chemicals, raw materials, or waste materials.

Waste Load Allocations (WLAs) - means a portion of a receiving water's Total Maximum Daily Pollutant Load (TMDL) that is allocated to one of its existing or future point sources of pollution (Reference: 40 CFR130.2(h)).

Water Quality Objectives - means water quality criteria contained in the Basin Plan, the California Ocean Plan, the National Toxics Rule, the California Toxics Rule, and other state or federally approved surface water quality plans. Such plans are used by the Regional Water Board to regulate all discharges, including storm water discharges.

Water Quality Standards - means the State Water Quality Standards, which are comprised of beneficial uses, water quality objectives and the State's Antidegradation Policy.
Waters of the State - means any surface water or groundwater, including saline waters, within boundaries of the state (Reference: California Water Code § 13050).

Waters of the United States or Waters of the US - means:

1. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the

ebb and flow of the tide;
2. All interstate waters, including interstate "wetlands";
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds where the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
   a. Which are or could be used by interstate or foreign travelers for recreational or other purposes
   b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
   c. Which are used or could be used for industrial purposes by industries in interstate commerce
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in the preceding paragraph (1) through (4) of this definition;
6. The territorial sea; and
7. "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in the preceding paragraph (1) through (6) of this definition. (Reference: 33 CFR328)

Watercourse - means any natural or artificial channel for passage of water, including the VCFCD jurisdictional channels included in the List of Channels within the Comprehensive Plan of the VCFCD, as approved by the Board of Supervisors of the VCFCD on October 4, 1993, and any amendments thereto.

Watershed Management - means approach for water resources protection. It is a strategy for integrating and managing resources, both human and fiscal that focuses on regulation of point sources, to a more regional approach that acknowledges environmental impacts from other activities.

Watershed Management Areas (WMA) - means the geographically-defined watershed areas where the Regional Water Board will implement the watershed approach. These generally involve a single large watershed within which exists smaller subwatersheds but in some cases may be an area that does not meet the strict hydrologic definition of a watershed e.g., several small Ventura coastal waterbodies in the region are grouped together into one WMA.

Wet Season - means the calendar period beginning October 1 through April 15.

Winter Dry Weather - means dry weather days occurring from November 1 - March 31 of each year.

Whole Effluent Toxicity - means the aggregate toxic effect of an effluent measured directly by a toxicity test.

PART 7 - STANDARD PROVISIONS

A. General Requirements

1. The Permittee shall comply with all provisions and requirements of this Order.

2. Should the Permittee discover that it failed to submit any relevant facts or that it submitted incorrect information in a report it shall promptly submit the missing or correct information.

3. The Permittee shall report all instances of non-compliance not otherwise reported at the time monitoring reports are submitted.

4. This Order includes Attachment "H", the Reporting Program, which is a part of this Order and must be complied with.

B. Regional Water Board Review

1. The Regional Water Board may review any formal determinate or approval made by the Regional Water Board Executive Officer pursuant to the provisions of this Order.
   (a) Permittee(s) or a member of the public may request such review upon petition within 30 day of the effective date of the notification of such decision to the Permittee(s) and interested parties on file at the Regional Water Board.

C. Public Review

1. All documents submitted to the Regional Water Board in compliance with the terms and conditions of this Order shall be made available to members of the public pursuant to the Freedom of Information Act (5 U.S.C. § 552), as amended, and the Public Records Act (California Government Code § 6250 et seq.).

2. All documents submitted to the Regional Water Board Executive Officer for approval shall be made available to the public for a 30-day period to allow for public comment.

D. Duty to Comply [40 CFR122.41(a)]

1. Each Permittee must comply with all of the terms, requirements, and conditions of this Order. Any violation of this order constitutes a violation of the Clean Water Act, its regulations and the California Water Code, and is grounds for enforcement action, Order termination, Order revocation and reissuance, denial of an application for reissuance, or a combination thereof [40 CFR122.41(a), CAL. WATER CODE § 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350].

2. A copy of these waste discharge specifications shall be maintained by each Permittee so as to be available during normal business hours to Permittee employees and members of the public.

3. Any discharge of wastes at any point(s) other than specifically described in this Order is prohibited, and constitutes a violation of the Order.

E. Duty to Mitigate [40 CFR122.41 (d)]

1. Each Permittee shall take all reasonable steps to minimize or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Inspection and Entry; Investigations; Responsibilities [40 CFR122.41(i), Cal. Water Code § 13225 and § 13267]

1. The Regional Water Board, U.S. EPA, and other authorized representatives shall be allowed:
   (a) Entry upon premises where a regulated facility is located or conducted, or where records are kept under conditions of this Order;
   (b) Access to copy any records, at reasonable times that are kept under the conditions of this Order;
   (c) To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order;
   (d) To photograph, sample, and monitor at reasonable times for the purpose of assuring compliance with this Order, or as otherwise authorized by the CWA and the CAL. WATER CODE;
   (e) To review any water quality control plan or waste discharge requirements, or in connection with any action relating to any plan or requirement to investigate the quality of any waters of the state within its region; and,
   (f) To require as necessary any state or local agency to investigate and report on any technical factors involved in water quality control or to obtain and submit analyses of water.

G. Proper Operation and Maintenance [40 CFR122.41 (e), Cal. Water Code § 13263(f)]

1. The Permittees shall at all times properly operate and maintain all facilities and systems of treatment (and related appurtenances) that are installed or used by the Permittees to achieve compliance with this Order. Proper operation and maintenance includes:
   (a) adequate laboratory controls; and
   (b) appropriate quality assurance procedures.

2. This provision requires the operation of backup or auxiliary facilities or similar system that are installed by a Permittee only when necessary to achieve compliance with the conditions of this Order.

H. Signatory Requirements [40 CFR122.41(k) & 122.22]

1. Except as otherwise provided in this Order, all applications, reports, or information submitted to the Regional Water Board shall be signed by the City Manager or Mayor, or authorized designee and certified as set forth in 40 CFR122.22.

I. Reopener and Modification [40 CFR122.41(f) & 122.62]

1. This Order may only be modified, revoked, or reissued, prior to the expiration date, by the Regional Water Board, in accordance with the procedural requirements of the CAL. WATER CODE and CCR Title 23 for the issuance of waste discharge requirements, 40 CFR122.62, and upon prior notice and hearing, to:
   (a) Address changed conditions identified in the required reports or other sources deemed significant by the Regional Water Board;
   (b) Incorporate applicable requirements or statewide water quality control plans adopted by the State Board or amendments to the Basin Plan, including TMDLs;
   (c) Comply with any applicable requirements, guidelines, and/ or regulations issued or approved pursuant to CWA § 402(p); and/ or,
   (d) Consider any other federal, or state laws or regulations that became effective after adoption of this Order.

2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
   (a) Violation of any term or condition contained in this Order;
   (b) Obtaining this Order by misrepresentation, or failure to disclose all relevant facts; <u>or</u>,
   (c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

3. The filing of a request by the Principal Permittee or Permittees for a modification, revocation and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

4. This Order may be modified to make corrections or allowances for changes in the permitted activity listed in this section, following the procedures at 40 CFR122.63, if processed as a minor modification. Minor modifications may only:
   (a) Correct typographical errors; or
   (b) Require more frequent monitoring or reporting by the Permittee.

J. Severability

1. The provisions of this Order are severable; and if any provision of this Order or the application of any provision of this Order to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected.

K. Duty to Provide Information [40 CFR122.41(h)]

1. The Permittees shall furnish, within a reasonable time, any information the Regional Water Board or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order.

2. The Permittees shall also furnish to the Regional Water Board, upon request, copies of records required to be kept by this Order.

L. Twenty-Four Hour Reporting [40 CFR122.41(l)(6)][1]

1. The Permittees shall report to the Regional Water Board any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time any Permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

2. The Regional Water Board may waive the required written report on a case-by-case basis.

M. Bypass [40 CFR122.41(m)][2]

1. Bypass (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Regional Water Board may take enforcement action against Permittees for bypass unless:
   (a) Bypass was unavoidable to prevent loss of life, personal injury or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);
   (b) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering

[1] This provision applies to incidents where effluent limitations (numerical or narrative) as provided in this Order or in the Ventura County SMP are exceeded, and which endanger public health or the environment.
[2] This provision applies to the operation and maintenance of storm water controls and BMPs as provided in this Order or in the Ventura County SMP.

judgment to prevent a bypass that could occur during normal periods of equipment downtime or preventive maintenance;

(c) The Permittee submitted a notice at least ten days in advance of the need for a bypass to the Regional Water Board; or,

(d) Permittees may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation. In such a case, the above bypass conditions are not applicable. The Permittee shall submit notice of an unanticipated bypass as required.

N. Upset [40 CFR122.41(n)][1]

1. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. A Permittee that wishes to establish the affirmative defense of an upset in an action brought for non compliance shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
   (a) An upset occurred and that the Permittee can identify the cause(s) of the upset;
   (b) The permitted facility was being properly operated by the time of the upset;
   (c) The Permittee submitted notice of the upset as required; and,
   (d) The Permittee complied with any remedial measures required.
3. No determination made before an action for noncompliance, such as during administrative review of claims that non-compliance was caused by an upset, is final administrative action subject to judicial review.
4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

O. Property Rights [40 CFR122.41(g)]

1. This Order does not convey any property rights of any sort, or any exclusive privilege.

[1] This provision applies to incidents where effluent limitations (numerical or narrative) as provided in this Order or in the Ventura County SMP are exceeded, and which endanger public health or the environment.

P. Enforcement

1. Violation of any of the provisions of the NPDES permit or any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalties may be applied for each kind of violation. The CWA provides the following:
   (a) Criminal Penalties for:
      (1) Negligent Violations [CWA 309 (c)(1)(B)]:
      The CWA provides that any person who negligently violates permit conditions implementing CWA § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than $2,500 nor more than $25,000 per day for each violation, or by imprisonment for not more than 1 year, or both.
      (2) Knowing Violations [CWA 309 (c)(2)(B)]:
      The CWA provides that any person who knowingly violates permit conditions implementing CWA § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.
      (3) Knowing Endangerment [CWA 309 (c)(3)(A)]:
      The CWA provides that any person who knowingly violates permit conditions implementing CWA § 301, 302, 307, 308, 318, or 405 and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years, or both.
      (4) False Statement [CWA 309 (c)(4)]:
      The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or by both.
   (b) Civil Penalties [[CWA 309 (d)]
   The CWA provides that any person who violates a permit condition implementing CWA § 301, 302, 306, 307, 308, 318, or 405 is subject to a civil penalty not to exceed $27,500 per day for each violation.

2. Violation of any of the provisions of the NPDES permit or any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalties may be applied for each kind of violation. The Cal Water Code §13885 provides the following:
   (a) Any person who violates any of the following shall be liable civilly in accordance with this section:
      (1) Section 13375 or 13376.
      (2) Any waste discharge requirements or dredged or fillmaterial permit issued pursuant to this chapter or any water quality certification issued pursuant to Section 13160.
      (3) Any requirements established pursuant to Section 13383.
      (4) Any order or prohibition issued pursuant to Section 13243 or Article 1 (commencing with Section 13300) of Chapter 5, if the activity subject to the order or prohibition is subject to regulation under this chapter.
      (5) Any requirements of Section 301, 302, 306, 307, 308, 318, 401, or 405 of the Clean Water Act, as amended.
      (6) Any requirement imposed in a pretreatment program approved pursuant to waste discharge requirements issued under Section 13377 or approved pursuant to a permit issued by the administrator.

Q. Need to Halt or Reduce Activity not a Defense [40 CFR122.41(c)]

1. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.

R. Termination of Board Order

1. Regional Water Board Order No. 00-108 is hereby terminated.

S. Board Order Expiration Date

1. This Order expires on May 7, 2014. The Permittees must submit a Report of Waste Discharge (ROWD) and a proposed Storm Water Quality Management Program in accordance with CCR Title 23 as application for reissuance of waste discharge requirements no later than 180 days in advance of such date.

T. MS4 Annual Reporting Program [40 CFR122.42(c)]

1. The Annual Program Reporting shall include the following information:
   (a) *Municipal separate storm sewer systems.*
   The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the Director under 40 CFR122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include:
   (1) The status of implementing the components of the storm water management program that are established as permit conditions;
   (2) Proposed changes to the storm water management programs that are established as permit condition. Such proposed changes shall be consistent with 40 CFR122.26(d)(2)(iii) of this part;
   (3) Revisions; if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under 40 CFR122.26(d)(2)(iv) and (d)(2)(v) of this part;
   (4) A summary of data, including monitoring data that is accumulated throughout the reporting year;
   (5) Annual expenditures and budget for year following each annual report;
   (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
   (7) Identification of water quality improvements or degradation.

I, Tracy J. Egoscue, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on May 7, 2009.

Tracy J. Egoscue
Executive Officer

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DRAFT

Appendix K

RWQCB 2007 Watershed Management Initiative

Report Excerpt

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California
Regional Water Quality Control Board
Los Angeles Region

Watershed Management Initiative Chapter
December 2007

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No policy or regulation is either expressed or intended.

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EXECUTIVE SUMMARY

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD
WATERSHED MANAGEMENT INITIATIVE CHAPTER
December 2007

OVERVIEW

Water resource protection efforts of the State Water Resources Control Board and the Regional Water Quality Control Boards are guided by a five-year Strategic Plan. A key component of the Strategic Plan is utilization of a watershed management approach for water resources protection.

To protect water resources within a watershed context, a mix of point and nonpoint source discharges, ground and surface water interactions, and water quality/water quantity relationships must be considered. These complex relationships present considerable challenges to water resource protection programs. The State and Regional Boards respond to these challenges within the context of our organization's Watershed Management Initiative (WMI). The WMI is designed to integrate various surface and ground water regulatory programs while promoting cooperative, collaborative efforts within a watershed. It is also designed to focus limited resources on key issues and use sound science.

Previously, State and Regional Board programs tended to be directed at site-specific problems. This approach was reasonably effective for controlling pollution from point sources. However, with diffuse nonpoint sources of pollutants, a new regulatory strategy was needed. The WMI uses a strategy to draw solutions from all interested parties within a watershed, and to more effectively coordinate and implement measures to control both point and nonpoint sources.

For the initial implementation of the WMI, during the late 1990s, each Regional Board identified the watersheds in their Region, prioritized water quality issues, and developed watershed management strategies. These strategies and the State Board's overall coordinating approach to WMI are contained in the *Integrated Plan for Implementation of the WMI* which is updated on an as-needed basis. In following years, the Regional Boards have continued to build upon their early efforts to utilize this approach. The full version of our WMI Chapter outlines our ongoing efforts to continue implementation of the WMI.

The Los Angeles Regional Board and Watershed Management

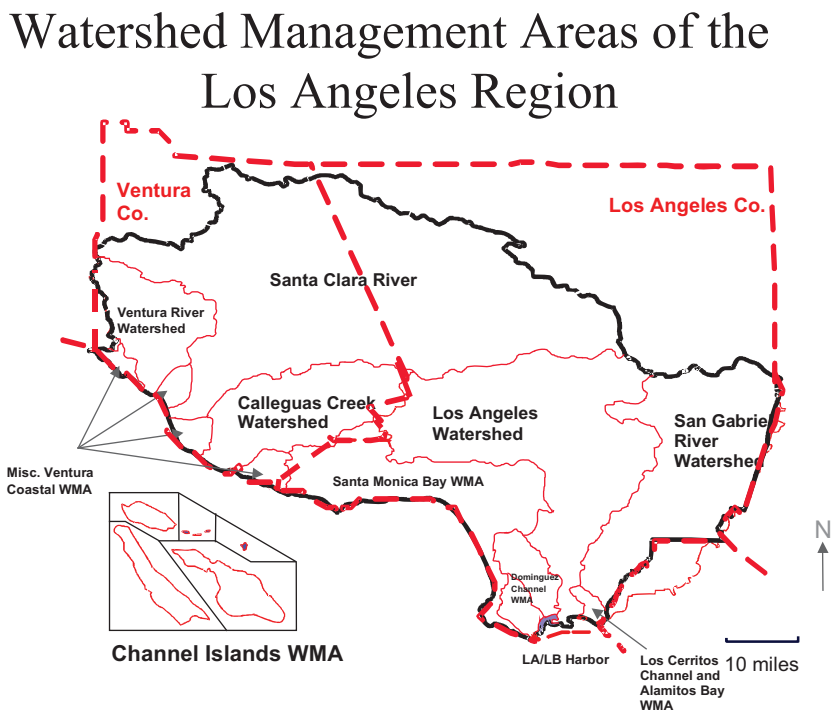
The Los Angeles Region has jurisdiction over all coastal drainages flowing to the Pacific Ocean between Rincon Point (on the coast in western Ventura County) and the eastern Los Angeles County line, as well as the drainages of five coastal islands (Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente). The Regional Board's jurisdiction also includes all coastal waters within three miles of the continental and island coastlines.

The Los Angeles Region is the State's most densely populated and industrialized region. Over 1,000 discharges of wastewater from point sources in this Region are regulated by the Los Angeles Regional Board. Over 700 of these point source discharges are discharged to surface waters, and are regulated under the National Pollutant Discharge Elimination System (NPDES). In addition, the Regional Board prescribes Waste Discharge Requirements (WDRs) for the remaining discharges, which are primarily to ground waters and landfills. However, the quality of many waters continue to be degraded from pollutants discharged from diffuse and diverse nonpoint sources. Future success in reducing pollutants from nonpoint sources and achieving additional reductions in pollutants from point sources requires a shift to a more geographically-targeted approach.

Our watershed management approach integrates activities across the Regional Board's many diverse programs, to the extent feasible, particularly permitting, planning, and other surface-water oriented programs which have tended to operate somewhat independent of each other. This approach enables us to better assess cumulative impacts of

pollutants from all (point and nonpoint) sources, and more efficiently develop watershed-specific solutions that balance the environmental and economic impacts of our actions.

We have designated ten watershed management areas in the Los Angeles Region as shown in the figure below.



Initially, implementation of watershed management in the Los Angeles Region occurred in phases over a seven-year cycle for our pilot watersheds Ventura River and Calleguas Creek. We now utilize a five-year cycle to be in line with the standard permit life (of an NPDES permit). This shift in our watershed cycle is illustrated in the table below.

It should be pointed out that the involvement of stakeholders is critical to the success of watershed management; however, the process to involve stakeholders demands more of regulators in terms of public outreach, education, and consensus building.

Watershed Management Initiative Timeline

Dominguez Channel-LA/LB Harbor	FY 2007/08
Santa Monica Bay	FY 2008/09
Los Angeles River	FY 2009/10
San Gabriel River Los Cerritos Channel Channel Islands	FY 2010/11
Ventura River Misc. Ventura Coastal Santa Clara River Calleguas Creek	FY 2011/12

The Watershed Management Initiative Chapter

This document is the eighth iteration of what we call our "Chapter" which is part of the integrated WMI document for the whole state. The participants in implementation of the WMI in California (the nine Regional Boards, State Board, and USEPA) were asked in 1996 to begin preparation of a document which identified priorities and resource needs, across programs, in a watershed context. The Chapter is currently used both as an outreach and as a planning tool to identify the Region's priorities, as well as, where we need additional resources. The Chapter is organized into sections including the Introduction, Watershed Sections, and Region-wide Section. Included in each Watershed Section is an overview of that watershed, a description of its water quality concerns and issues, past significant Regional Board activities in the watershed, current (funded) activities, near-term (usually unfunded) activities that would benefit the watershed, and activities which may happen on a longer time-scale (usually unfunded). The Region-wide Section includes a description of activities not easily associated with particular watersheds.

Programs and Funding Under WMI

Programs covered under WMI include core regulatory, monitoring and assessment, basin planning and water quality standards, watershed management, wetlands, TMDLs, 401 certifications, groundwater, and nonpoint source management activities, as appropriate. Many of these programs also have region-wide components. It turns out most of our highest priority needs fall into areas that have little to no funding. Areas with particular shortages include nonpoint source management, CEQA review, basin planning, 401 certifications, stormwater, and more than minimal work on NPDES pretreatment, enforcement, compliance, and monitoring report review. This watershed effort is intended to result in resource flexibility and augmentation to address these deficiencies.

Integration of Multiple Mandates Under WMI

While the Watershed Management Initiative strives to integrate and coordinate the various Regional and State Board programs and address the highest priority funding needs for those programs, there is also need to respond to and accommodate priorities established by the individual Regional and State Boards' members, priorities established prior to the WMI which run on their own timelines, legal or legislative mandates, or other new mandates which may affect the way the WMI is implemented in a Region. It is important to re-state here that the WMI is not a program but rather an approach to integrating existing and newly evolving programs and mandates.

For example, a high priority statewide mandate is development of TMDLs. High priority Regional Board activities include implementation of an effective enforcement strategy, development of a septic tank policy initiative, development and implementation of a strategy to assess nonpoint source loadings, TMDLs, and better communication and coordination of Board programs and policies through improved outreach. More information is included in the Introduction of the full chapter. It is clear many of the Regional Board high priority activities are of primary importance in fulfilling not only the WMI but also Board mandates.

However, some mandates present challenges to fully implementing watershed management. These include USEPA, State Board, and legislative requirements for reducing permit backlog, conflicts with the timing of scheduled TMDLs, lengthy delays incurred by public processes (e.g., hearings, workshops), and insufficient funding or staff.

SUMMARY OF SIGNIFICANT WATERSHED ISSUES

The Region encompasses ten Watershed Management Areas (WMAs) which are the geographically-defined watershed areas where the Regional Board implements the watershed approach. These generally involve a single large watershed, within which exist smaller subwatersheds. However, in some cases they may be an area that does not meet the strict hydrologic definition of a watershed (e.g., several small Ventura coastal waterbodies in the region are grouped together into one WMA). Watersheds in the strictest sense are geographic areas draining into a river system, ocean or other body of water through a single outlet and include the receiving waters. They are usually bordered, and separated from other watersheds, by mountain ridges or other naturally elevated areas.

Many of the watersheds in this Region range over large areas that are highly diverse. A Designated Wilderness Area may occur in one part of a watershed while extensive development dominates another part and possibly agriculture exists in yet a different area of the watershed. This results in a great diversity of issues of concern to this agency in any particular watershed with the concomitant need to balance priorities among existing stakeholders. The following summarizes significant watershed issues in our watershed management areas. More detail may be found by consulting the full version of the WMI Chapter

Watershed Management Areas
Significant Watershed Issues

1) Dominguez Channel/LA-LB Harbor WMA

- Eight major NPDES discharges: one POTW, two generating stations, five refineries (five Channel discharges, three Harbor discharges)
- 38 minor individual permits (15 Channel, 23 Harbor)
- 56 discharges covered by general NPDES permits (32 Channel, 24 Harbor)
- Industrial storm water – 448 discharges
- Construction storm water – 214 discharges
- Historical deposits of DDT and PCBs in sediment
- Discharges from POTW & refineries
- Spills from ships and industrial facilities
- Leaching of contaminated groundwater
- Stormwater runoff
- 96 impairments including: metals, PCBs, PAHs, historic pesticides, coliform, trash, nitrogen
- Completed TMDL: LA Harbor bacteria (2005)
- Currently scheduled TMDLs: Machado Lake trash, harbor metals and toxics

2) Santa Monica Bay WMA

- Key recreational resource (beaches)
- Seven major NPDES discharges: three POTWs, one refinery, and three generating stations
- Eleven minor discharges
- 176 discharges covered by general NPDES permits
- Industrial storm water – 100 discharges
- Construction storm water – 401 discharges
- 224 impairments including: mercury, selenium, other metals, historical pesticides, PAHs, PCBs, nitrogen, coliform, trash, habitat alteration, exotic vegetation, salts

Coastline

- Acute health risk associated with swimming in runoff-contaminated surfzone waters
- Chronic risk associated with consumption of seafood in areas impacted by DDT and PCB contamination
- Reduction of loadings from the two major POTWs in light of projected population increases
- Other impacts from urban runoff/storm water
- Historic deposits of DDT and PCBs in sediment
- Loadings of pollutants from other sources: sediment resuspension, atmospheric deposition
- The need to have a better understanding of the Bay's resources
- Completed TMDLs: Santa Monica Bay beaches dry weather coliform (2003), Santa Monica Bay beaches wet weather coliform (2003)

Malibu Creek Watershed

- Excessive freshwater, nutrients, and coliform in lagoon; contributions from POTW and other sources
- Urban runoff from upper watershed
- Impacts to swimmers/surfers from lagoon water
- Septic tanks in lower watershed
- Appropriate restoration and management of lagoon
- Access to creek and lagoon by endangered fish
- Completed TMDL: Malibu Creek coliform (2006)
- Currently scheduled TMDLs: Malibu Creek nutrients

Ballona Creek Watershed

- Trash loading from creek
- Wetlands restoration
- Sediment contamination by heavy metals from creek to Marina del Rey Harbor and offshore)
- Sediment contamination by heavy metals and trace organics within Ballona Creek Entrance Channel
- Toxicity of both dry weather and storm runoff in creek
- High bacterial indicators at mouth of creek
- Completed TMDLs: Marina del Rey back basins coliform (2004); Ballona Creek trash (2005); Ballona Creek metals (2006); Ballona Creek Estuary toxics (2006); Marina del Rey toxics (2006); Ballona Creek coliform (2006)

3) Los Angeles River Watershed

- Six major NPDES discharges (four POTWs)
- 15 minor individual permits
- 114 discharges covered by general NPDES permits
- Industrial storm water – 1,365 discharges
- Construction storm water - 759 discharges
- Nitrogen and coliform contributions from septic systems
- Other nonpoint sources (horse stables, golf courses)
- Cross-contamination between surface and groundwater
- Protection and enhancement of fish and wildlife habitat and recreational areas
- Removal of exotic vegetation
- Balancing removal of vegetation for flood control with the need for urban habitat
- Attaining a balance between water reclamation and minimum flows to support habitat
- leakage of MTBE from underground storage tanks
- Contaminated sediments within the LA River estuary
- 111 impairments including: nitrogen, trash, selenium, other metals, coliform, PCBs, historic pesticides, chlorpyrifos
- Completed TMDLs: LA River nutrients (2004); LA River metals (2005)

4) San Gabriel River Watershed

- Six major NPDES discharges (four POTWs)
- Eleven minor individual NPDES permits
- 58 discharges covered under general NPDES permits
- 570 discharges covered by the industrial storm water permit
- 446 discharges covered by the construction storm water permit
- Sluicing and disposal of sediments from reservoirs
- Protection of groundwater recharge areas
- Ambient toxicity
- Excessive trash in recreational areas of upper watershed
- Mining/stream modifications
- Extensive stream modification for mining and water reclamation
- Urban and storm water runoff quality
- Nonpoint source loadings from nurseries and horse stables
- Lack of understanding of estuary dynamics (e.g. salinity profile)
- Septic systems
- 39 impairments including: nitrogen and effects, trash, metals, historic pesticides, coliform, chlorides, PCBs
- Completed TMDL: East Fork trash (2000)
- Currently scheduled TMDLs: Legg Lake trash

5) Los Cerritos Channel/Alamitos Bay WMA

- Two minor NPDES discharges
- Twelve discharges covered under general NPDES permits
- 37 discharges covered by the industrial storm water permit
- 31 discharges covered by the general construction storm water permit
- Loss of wetlands habitat in Los Cerritos area
- Impacts from antifouling paint in marinas
- Urban and storm water runoff impacts on isolated water bodies
- Loss of tidal exchange
- 19 impairments including: ammonia, metals, historic pesticides and effects, PCBs, PAHs

6) The Channel Islands WMA

- Five islands
- One major NPDES discharge, four minor discharges
- One discharge covered by general NPDES permit
- Four discharges covered by the industrial storm water permit
- One discharge covered by the construction storm water permit
- Areas offshore of islands designated as Areas of Special Biological Significance
- High quality marine and rocky intertidal habitat
- Heavy use by marine mammals and endangered species
- Impairment: coliform (Avalon Beach)
- Lack of information on water quality

7) Ventura River Watershed

- Eutrophication, especially in estuary
- TDS concerns in some subwatersheds
- One major NPDES discharge (POTW)
- Eight discharges covered under general NPDES permits
- Industrial storm water – 36 discharges
- Construction storm water – 33 discharges
- Impediments (dams, diversions) to steelhead trout migration
- 15 impairments including: DDT, algae, coliform, low DO, diversions, selenium, other metals, trash
- Currently scheduled TMDLs:: Ventura River Estuary trash

8) Miscellaneous Ventura Coastal WMA

- Three major NPDES discharges (one POTW), six minor NPDES discharges, and eight discharges covered by general NPDES permits
- Industrial storm water – 67 discharges
- Construction storm water – 91 discharges
- 21 impairments

The harbors

- Accumulation of metals, PCBs, and historic pesticides in sediment and tissue
- Considerable marine life subject to impacts
- Impairments: DDT, PCBs, PAHs, metals, TBT, coliform
- Currently scheduled TMDLs: pesticides FY08/09 and coliform FY08/09

The wetlands and coast

- Historic pesticide contamination
- Loss of quality habitat
- Impacts from oil spills and agriculture
- Use by endangered species
- Impairments: historic pesticides and effects, coliform
- Currently scheduled TMDLs: Ventura beaches coliform

9) Santa Clara River Watershed

- High quality natural resource
- Four major NPDES discharges (POTWs)
- Eight minor NPDES discharges
- 48 discharges covered under general NPDES permits
- Industrial storm water – 125 dischargers
- Construction storm water – 367 dischargers
- Impacts from exotic vegetation
- Impacts from agriculture
- Increasing urbanization, flows, and channelization in upper watershed; impacts on middle and lower watershed
- 43 impairments including: nitrogen and effects, salts, coliform, trash, historic pesticides
- Completed TMDLs: Upper Santa Clara chloride (2005); nutrients (2004)
- Currently scheduled TMDLs: Lake Elizabeth, Munz Lake, Lake Hughes trash

10) Calleguas Creek Watershed

- Five major NPDES discharges (POTWs)
- Three minor NPDES discharges
- Thirteen discharges covered under general permits
- Industrial storm water – 90 dischargers
- Construction storm water – 292 dischargers
- Highly modified watershed
- Impacts from agriculture and naval facility
- Sediment inputs to Mugu Lagoon, one of the largest wetlands in southern California
- Competing urban uses; development pressures, particularly in upper watershed
- Severe lack of benthic and riparian habitat in watershed
- 159 impairments including: nitrogen and effects, water-soluble pesticides and effects, salts, historic pesticides, PCBs, siltation, selenium, mercury, other metals, trash
- Completed TMDLs: nitrogen (2003); toxicity (2006); organochlorine pesticides, PCBs, and siltation (2006); metals and selenium (2006)
- Currently scheduled TMDLs: trash; salts

SUMMARY OF REGIONWIDE ACTIVITIES

There are many activities conducted at the Region which do not apply to a specific watershed; instead they represent ongoing regionwide strategies and policies, or programs which are not directly linked to the rotating watershed cycle. Also, statutory, regulatory, or funding requirements may dictate completion of some activities at odd intervals throughout the five-year watershed cycle (such as increased emphasis on pretreatment inspections). The table below gives examples of watershed versus non-watershed related activities.

Watershed Tasks	*Non-Watershed Tasks*
Renew permits	Issue new permits
	Develop new general permits, reduce backlog, pretreatment
Integrate municipal storm water program	Issue individual industrial and storm water permits
Conduct inspections for watershed permits	Conduct inspections on new permits
Enforcement (in-cycle compliance)	Enforcement (spills, out of cycle compliance)
Implement NPS controls	Develop regional strategies to address NPS problems
TMDL/WLAs	
Develop, coordinate and implement watershed monitoring	Coordinate monitoring on a regional scale
Water Quality Assessments (State of the Watershed Reports, partial updates to 305(b) by watershed)	Biennial 305(b) Reports to USEPA
Develop watershed policies	Develop regional policies
Watershed-specific Basin Plan Updates	Regional Basin Plan Updates, Triennial Reviews
Data management (input and use by watershed)	Regional Database management
GIS (input of watershed-specific layers and information)	GIS (development and input of regional layers and Maintenance of system)
Watershed-specific outreach/education	General outreach education
Incorporation of CEQA and 401 Decisions into watershed planning (as groups are formed, and as timing permits)	Timely review of CEQA documents, 401 certifications per statutory deadlines

While the Watershed Management Initiative strives to integrate and coordinate the various Regional and State Board programs and address the highest priority funding needs for those programs, there is also need to respond to and accommodate priorities established by the individual Regional and State Boards' members, priorities established prior to the WMI which run on their own timelines, or other new mandates which may affect the way the WMI is implemented in a Region. The following briefly describes our overall approach to implementing a subset of programs (some statewide mandates) and other Board priorities on a regionwide scale.

Core Regulatory – General Permits

There are many dischargers in this Region covered by general permits for discharges to surface water through a letter issued by the Executive Officer. This activity occurs independent of the watershed cycle as the need arises. Many of these are for short-term projects such as dewatering. 40 CFR §122.28 provides for issuance of general permits to regulate a category of point sources if the sources: a) involve the same or substantially similar types of operations, b) discharge the same type of waste, c) require the same type of effluent limitations or operating conditions, d) require similar monitoring, and e) are more appropriately regulated under a general permit rather than individual permits.

Core Regulatory – Storm Water Permits

Storm water activities include those involving the three municipal permits (and Standard Urban Storm Water Mitigation Plans associated with the two urban ones) in the Region, the 2842 facilities regulated under the State's general industrial permit, and the approximately 2678 construction sites regulated under the State's general construction permit.

Wetlands Protection and Management – Water Quality Certification

A key wetlands regulatory tool for the Regional Board is the CWA Section 401 Water Quality Certification Program which regulates discharges of dredge and fill materials to waters. The 401 certification program is one of the most effective tools the state has for regulating hydrologic modification projects, especially those which directly impact the region's diminishing acres of wetlands and riparian habitat.

Key program activities should include CEQA documents review/response, pre-construction meetings with applicants, site visits, application processing, follow-up monitoring and inspections, and enforcement. Unfortunately, the program is currently severely underfunded with only application processing being undertaken. Approximately 150-200 applications are processed each year

Management of Nonpoint Source Pollution

Management of NPS pollution is based upon the requirements of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The Porter-Cologne Act, Division 7 of the California Water Code, establishes a comprehensive program for the protection of water quality and beneficial uses of the State's waters and makes explicitly clear the law applies to nonpoint as well as point source discharges. The Porter-Cologne Act also establishes the administrative permitting authority—in the form of Waste Discharge Requirements (WDRs), waivers of WDRs or basin plan prohibitions—to be used to control NPS discharges. Additional legislative requirements state that all waivers must be conditional, they are to be re-evaluated and subsequently reissued every five years, and the RWQCBs must require compliance with waiver conditions.

California's Nonpoint Source (NPS) Pollution Control Program has been in effect since 1988 and was updated in January, 2000. In August 2004 the Office of Administrative Law approved the NPS Policy. The policy supersedes certain elements of the NPS Program Plan and formally eliminates the "three-tiered approach" in informal use.

Our long-term goal for the NPS program is to improve water quality by implementing the management measures identified in *the California Management Measures for Polluted Runoff Report (CAMMPR)* by 2013.

Major current nonpoint source program priorities are: 1) oversight of workplans for grant-funded projects, 2) establishment of regional strategies to address agriculture, marinas, and septic tanks (the latter will be focused on densely populated communities and areas where ground water is a source of drinking water), 3) investigation of loading contributions from agriculture, nurseries, golf course, and horse stables (in aid of TMDL work), and 4) expansion of our public education and outreach.

Enforcement Strategy

The statewide Water Quality Enforcement Policy adopted by State Board in 1996 and revised in 2002 is intended to make all enforcement consistent, predictable, and fair throughout the state. The Regional Board adopted a resolution in 1997 which confirmed the Regional Board's desire to carry out enforcement in a manner consistent with State Board's enforcement policy and that Regional Board staff prepare a regional enforcement strategy consistent with State Board's enforcement policy.

The enforcement policy states that the Regional Board staff must bring to the attention of their Regional Board for possible enforcement action, at a minimum, an array of permit violations for a variety of dischargers as well as failure to submit reports or deficient reports, and spills. Our increased efforts have resulted in an improved enforcement record for the region and has contributed to increased compliance in some programs (e.g. industrial stormwater). The quarterly violations report is available to the public as part of the Executive Officer's Report; and is also available on the Board's web page.

Beaches/Coastal Watersheds Activities

Due to the great resource and economic value associated with the beaches and coastal watersheds of this Region, a number of activities occur that are specific to the coastal areas. Among these are a number of monitoring programs as well as a program to manage contaminated sediments. Monitoring programs include: several regional surveys of the Southern California Bight which evaluated a number of constituents to determine the spatial extent and magnitude of ecological disturbances and the Surface Water Ambient Monitoring Program (SWAMP).

Additionally, a Contaminated Sediments Task Force developed a long-term strategy to manage contaminated sediments found in the ports and marinas of Los Angeles County. This five-year effort was funded by the Karnette bill (SB 671) beginning in FY97/98.

FOR ADDITIONAL INFORMATION

Contact the Regional Board's Watershed Coordinator, Shirley Birosik, at (213) 576-6679 or sbirosik@waterboards.swrcb.ca.gov for additional information or consult the Regional Board's website at http://www.waterboards.ca.gov/losangeles/html/programs/regional_programs.html#Watershed .

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Section 1 . INTRODUCTION

THE REGIONAL WATER QUALITY CONTROL BOARD - WHY THE WATERSHED MANAGEMENT APPROACH?

The nine Regional Water Quality Control Boards (Regional Boards) are each semi-autonomous and comprised of up to nine part-time Board Members appointed by the Governor. Regional Board boundaries are primarily based on watersheds. Each Regional Board makes water quality decisions for its region. These decisions include setting water quality standards, issuing waste discharge permits, adopting policies, and taking enforcement actions.

The Los Angeles Region has jurisdiction over all coastal drainages flowing to the Pacific Ocean between Rincon Point (on the coast in western Ventura County) and the eastern Los Angeles County line, as well as the drainages of five coastal islands (Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente). The Regional Board's jurisdiction also includes all coastal waters within three miles of the continental and adjacent island coastlines. The topography of the Region is quite variable as seen in the figure below.

The Region is the State's most densely populated and industrialized area. Over 1,000 discharges of wastewater from point sources in this Region are regulated by the Los Angeles Regional Board. Over 700 of these point source discharges are discharged to surface waters, and are regulated under the National Pollutant Discharge Elimination System. Permits issued under this program are referred to as NPDES permits. In addition, the Regional Board prescribes Waste Discharge Requirements (WDRs) for the remaining discharges which are primarily to ground waters and landfills. Despite the large number of discharges and highly industrialized nature of some watersheds, overall, land use within the Region is quite diverse (see Watershed Sections for detailed maps).

In recent years, watershed issues have become much more complex and this has resulted in the need to respond with more coordinated solutions for water quality problems. The increased emphasis on TMDL development has resulted in the need for more cumulative assessments of pollutant loadings to waterbodies and impacts to beneficial uses. This requires acknowledgment of the growing importance of nonpoint sources to watershed pollutant loadings. And, recognizing the value of stakeholder group involvement in solving watershed problems.

Managing water quality by watershed, as much as possible within program funding and scheduling constraints, allows the Los Angeles Regional Board to address these varied demands in a more coordinated and effective manner. The control of point source pollutants through NPDES permits and WDRs is central to the Los Angeles Regional Board's strategy to protect water quality; participation in watershed stakeholder groups, and active solicitation of their involvement in TMDL, permit, and nonpoint source activities, and awarding of grant monies, allow for additional coordination.

THE WATERSHED MANAGEMENT INITIATIVE

Watershed management is not program; it is a strategy for integrating and managing resources, both human and fiscal. The goal of the state's Watershed Management Initiative (WMI) is to integrate or coordinate water quality monitoring, assessment, planning, standards, permit writing, nonpoint source management, ground water protection, and other programs at the State and Regional Boards as much as practicable to promote a more efficient use of personnel and fiscal resources while ensuring maximum water quality protection benefits. The State's watershed work integrates and supports, to the extent possible, local community watershed protection efforts to implement cost-effective strategies for natural resource protection. As characteristics and resources vary widely from watershed to watershed, this approach customizes efforts to manage resources and address problems unique to each watershed while offering stakeholders the opportunity to implement the most cost-effective solutions to problems within their watersheds.

Watershed management represents a shift from a traditional approach that focuses on regulation of point sources, to a more regional approach that acknowledges environmental impacts from other activities. Over the last thirty years, permitting programs have significantly reduced pollutants that are discharged to California's waters from point sources. However, the quality of many waters continues to be degraded from pollutants discharged from diffuse sources, referred to as nonpoint sources, and from the cumulative impacts of multiple point sources. Future success in reducing pollutants from nonpoint sources and achieving additional cost-effective reductions in pollutants from point sources requires a shift to a more geographically-targeted approach. Activities particularly amenable to a rotating cycle include monitoring, reporting, and water quality assessments.

THE WATERSHED MANAGEMENT INITIATIVE CHAPTER

This document is the eighth iteration of the Chapter. The participants in implementation of the WMI in California (the nine Regional Boards, State Board, and USEPA) were asked in 1996 to begin preparation of a document which identified priorities and resource needs, across programs, in a watershed context. The Chapter is primarily used as an information and outreach tool to describe the Regional Board's watersheds and their major water quality issues, as well as, describe the Board's program responsibilities in aid of program workplan development and grant applicants needs. This also allows for highlighting where priorities are poorly funded in this Region and can be in support of requests for additional resources through Budget Change Proposals. It turns out many of our highest priority needs fall into areas that have little to no funding. This effort will hopefully result in flexibility and augmentation to address this deficiency.

The Chapter itself is not a commitment to complete work but provides a framework to identify priorities and resource needs which should form the basis for formal commitments which are made in fund-source and program-specific workplans on an annual basis. Determinations of which activities will be funded by specific workplans may be negotiated on the basis of the information in the Chapters. Annual program workplans and grant applications will still be prepared by program managers to identify which activities are going to be funded in a particular year based on the fiscal decisions made.

And, although the Chapter identifies specific projects or types of projects we would like to see funded through grant programs, these are not complete or exclusive lists. At the heart of any request for funding from a grant program should be a proposal to solve (or get to the solution of) water quality problems identified in this Chapter as high priorities; doing so in the context of watershed management is both desirable and, increasingly, a requirement of many grant programs; the Integrated Regional Water Management Plan grant program initiated through Proposition 50 is one example.

The Chapter is organized into sections including the Introduction, Watershed Sections, and Region-wide Section. Included in each Watershed Section is an overview of that watershed, a description of its water quality concerns and issues, maps showing locations of permitted discharges, past significant Regional Board activities in the watershed, current (funded) activities, near-term (usually unfunded) activities that would benefit the watershed, and activities which may happen on a longer time-scale (also usually unfunded). The Region-wide Section includes a description of activities not easily associated with particular watersheds as well as more detailed information on implementation of certain programs (such as nonpoint source) in the Region. Lists of permits organized by watershed are available as separate documents on the Regional Board website.

WMI DEFINITIONS

The following represent commonly used terms and definitions utilized throughout the document:

A **watershed** is the geographic area draining into a river system, ocean or other body of water through a single outlet and includes the receiving waters. Watersheds are usually bordered, and separated from other watersheds, by mountain ridges or other naturally elevated areas.

The **watershed management approach** is the specific method by which the Regional Board implements watershed management. Features include the targeting of priority problems, stakeholder involvement, developing integrated solutions, and evaluating measures of success. The entire watershed, including the land mass draining into the receiving water, is considered.

Watershed Management Areas (WMAs) are the geographically-defined watershed areas where the Regional Board will implement the watershed approach. These generally involve a single large watershed within which exists smaller subwatersheds but in some cases may be an area that does not meet the strict hydrologic definition of a watershed e.g. several small Ventura coastal waterbodies in the region are grouped together into one WMA.

State of the Watershed Reports are reference documents produced by Regional Board staff that describe the existing water quality conditions, data gaps, and sources of pollutants within a WMA. Strategies to resolve the water quality concerns, either in progress or proposed, are described. Preliminary versions of these reports are produced by the Regional Board in order to stimulate discussion and input on issues from other stakeholders. These documents will be updated as needed. First edition reports have been prepared for Calleguas Creek, Santa Monica Bay, Los Angeles River, San Gabriel River, Ventura River, and Santa Clara River Watersheds.

A **Watershed Management Plan** is a planning document often produced by watershed stakeholder groups which addresses water quality, land use, economic, habitat, recreation, and other concerns and recommends specific management strategies to resolve identified problems in a cooperative and coordinated manner. Few of these existed prior to 2000. Grants recently awarded under Proposition 13 to develop watershed management plans are beginning to fill in the gaps.

Nonpoint sources of pollution are those with no single point of origin. Pollutants may often be carried off the land by stormwater or be part of urban runoff. Common nonpoint sources are agricultural, urban (runoff from residential areas, parking lots, streets, etc.), and construction activities. **Point sources**, on the other hand, by definition originate from a discrete source such as a pipe or outfall through which a facility may discharge while regulated by a NPDES permit.

Beneficial uses are those uses of water identified in state and regional water quality control plans that must be achieved and maintained. Uses include contact water recreation, municipal water supply, navigation, agricultural supply, wildlife habitat, and groundwater recharge, among others. **Designated** beneficial uses, together with water quality objectives, form water quality standards as mandated under the California Water Code and Federal Clean Water Act.

The California Water Code defines **water quality objectives** as "the allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or prevention of nuisance within a specific area." These objectives are both narrative

(descriptive) and numerical and appear in each Regional Board's water quality control plan (**Basin Plan**) which also describes implementation programs to protect all waters in the Region.

Best Management Practices (BMPs) are intended to reduce the amount of pollutants and prevent pollutants from leaving a facility and reaching a waterbody. BMPs include good facility housekeeping methods and such things as scheduling certain types of work around periods of rainfall or high winds, controlling runoff from a facility and modifying practices to reduce the possibility of pollutants leaving a facility. These are often used in regulating stormwater and other nonpoint sources.

The **Total Maximum Daily Load (TMDL)** is a number that represents the assimilative capacity of a receiving water to absorb a pollutant. The TMDL is the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources plus an allotment for natural background loading, and a margin of safety. TMDLs can be expressed in terms of mass per time (the traditional approach) or in other ways such as toxicity or a percentage reduction or other appropriate measure relating to a state water quality objective. A TMDL is implemented by reallocating the total allowable pollution among the different pollutant sources(through the permitting process or other regulatory means) to ensure that the water quality objectives are achieved.

- **TMDLs** establish the loading capacity of a watershed, identify needed reductions, identify sources, and recommend allocations for point and nonpoint sources.

- The **Margin of Safety** is a required component of the TMDL that accounts for the uncertainty about the relationship between the pollutant loads and the quality of the receiving waterbody.

- **Grouping TMDLs** is a reasonable and logical way to collapse the total number of individual TMDLs to make the most effective use of resources we currently have and any which we may obtain in the future. This is largely due to the fact that some of the "pollutants" for which a water may be listed are actually "effects" of pollutants. The TMDL chart in each watershed section of this report reflects this collapsed approach. For example, many reaches of the Los Angeles River are listed for ammonia. Some of the same reaches are listed for pH problems while other reaches are listed for algae, scum, and odors. It is very likely the presence of these "pollutants" are interrelated. Excessive nitrogen (reflected here as high levels of ammonia) may lead to a condition of eutrophication (excessive nutrient loading) which can influence pH levels as well as promote increased algal growth. Scum may be evident due to floating algal material and odors may result when excessive algae starts to die off. Thus, it makes sense to group these TMDLs and approach the problem by determining the sources of nitrogen loading into the watershed and the appropriate allocations in order to reduce loadings.

OVERVIEW OF ONGOING REGIONAL BOARD PROGRAMS AND ACTIVITIES

The Regional Board implements a wide variety of programs with different mandates, requirements, etc. Many of these (primarily surface water programs) are already fully or partially integrated into the watershed approach; others (primarily ground water) may be incorporated later and a few will likely remain separate from the WMI process. The following gives a brief description of these major program areas, current priority activities for each, and whether they are considered Category One or Two activities. **Category One** activities are those of high priority which are required by federal or state statute or regulation that need to be completed at least once during the 5-year planning cycle. **Category Two** activities are considered very important but are not required by statute or regulation. Additionally, more specific program objectives and implementation activities are included in the watershed or region-wide sections as appropriate. Updated information on Regional Board activities and programs may be also found on the Board's webpage at http://www.waterboards.ca.gov/losangeles.

SURFACE WATER

Core Regulatory (Category One)

Core regulatory activities include NPDES (individual permits - updates and revisions, issuance of general permits, stormwater permits/program, enforcement actions, response to complaints, compliance and pretreatment inspections, pretreatment audits, and review of monitoring reports), groundwater protection activities (issuance of Waste Discharge Requirements), issuance of Water Reclamation Requirements, and land disposal under Chapter 15 California Code of Regulations.

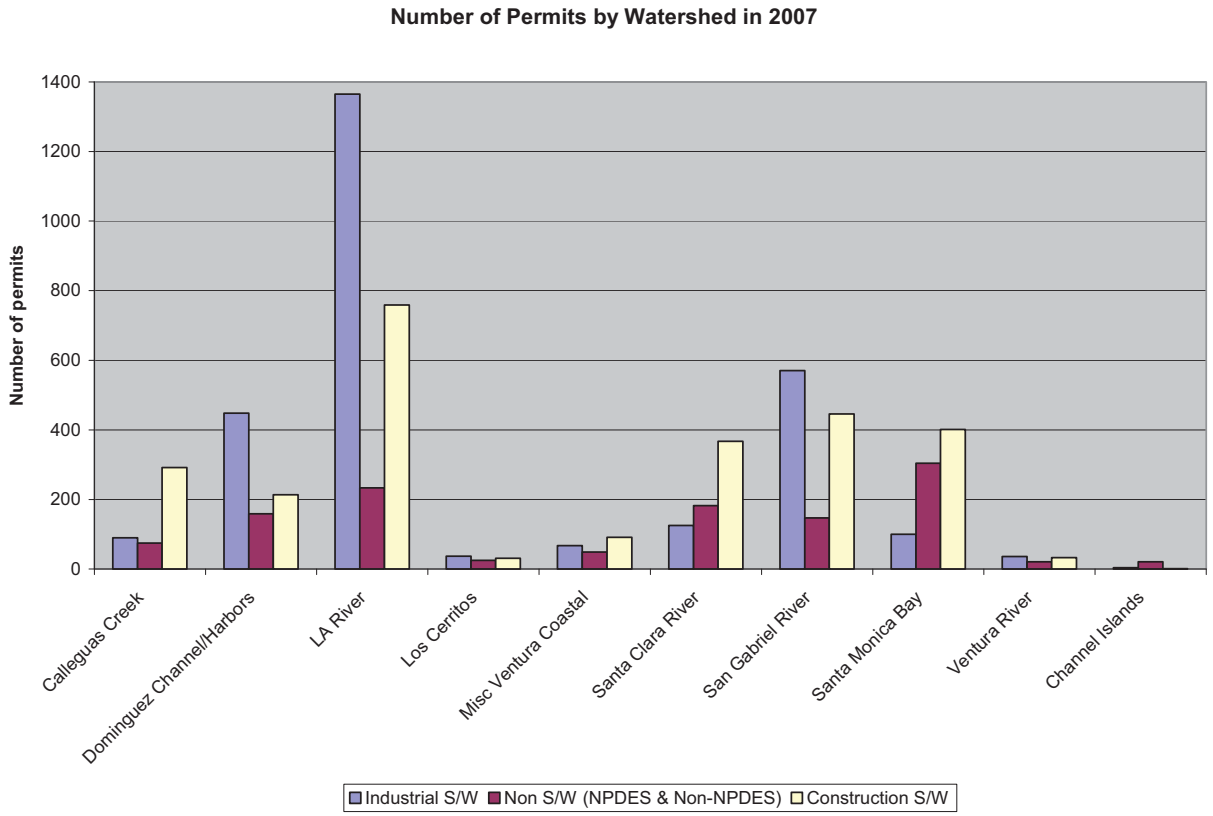
Issuance of new permits continues to be a high priority. Reduction of backlog and increased efforts in compliance and enforcement are also very high priorities. Currently, POTW permits are being renewed in a timely manner but there are shortages in staff resources for renewals of industrial general permits which are experiencing backlogs. The goal is to inspect major NPDES dischargers at least once annually and inspect minor NPDES dischargers at least once in each permit reissuance cycle (20% of the total per year). However, since 19 staff are needed to fully implement the inspections on that schedule as well as review discharger self-monitoring reports, conduct enforcement, and enter data into CIWQS, our data management system, while only four are available, inspections have been prioritized to focus on the 25 major and 35 minor NPDES dischargers considered problem facilities. Investigation and followup on spills are also severely limited due to need for the additional identified PYs.

Our watershed efforts will focus on coordinating receiving water monitoring and implementing bioassessment. This involves integrating receiving water monitoring with the Surface Water Ambient Monitoring Program to the extent practicable through periodic reallocation of discharger receiving water monitoring resources to accomplish watershed-wide monitoring.

Core regulatory must also implement waste load allocations established by TMDLs during renewal of existing permits or issuance of new permits.

The number of permits by watershed are shown in the following figure. Currently, there are a total of 1,216 non-stormwater permits being managed in the Region. In addition, 2,842 facilities are covered by the general industrial stormwater permit, and 2,678 facilities are covered by the general construction stormwater permit (the number of facilities covered by the construction stormwater permit will change

frequently as construction is completed and new projects are started). Most permitting activity, including stormwater permits related to construction, continues to be focused in the urban areas of the Region.



Monitoring and Assessment *(Categories One and Two)*

Category One activities include preparation of the biennial Water Quality Assessment 305(b) Report and implementation of the Surface Water Ambient Monitoring Program (SWAMP). Category Two activities include Los Angeles Basin Contaminated Sediment Task Force work (a former Category One activity), involvement with special studies (e.g., Bight-wide regional surveys), and assistance with volunteer monitoring.

Monitoring and/or assessment efforts are occurring on both regional and watershed scales. Implementation of SWAMP is the major regional monitoring activity with direct coordination provided by Regional Board staff (SWAMP and the Contaminated Sediment Task Force are both described in more detail in the Region-wide Section of this document while activities specific to each watershed are described in the appropriate watershed sections). Also, every two years an update of the 305(b) report is required; emphasis will be put on updating targeted watersheds at those times but all data received will be evaluated. The next update is scheduled for 2008 and is currently underway.

Monitoring can have a number of goals. It may be used to assess trends over time and obtain general assessment information on a regional scale. It may be used to pinpoint "hot spots" and track sources on a watershed scale. It may also be used to assess loadings for TMDLs. An increasing use will be to better

judge impairments of beneficial uses on a watershed scale and to assess effectiveness of nonpoint source BMPs and other water quality improvement strategies.

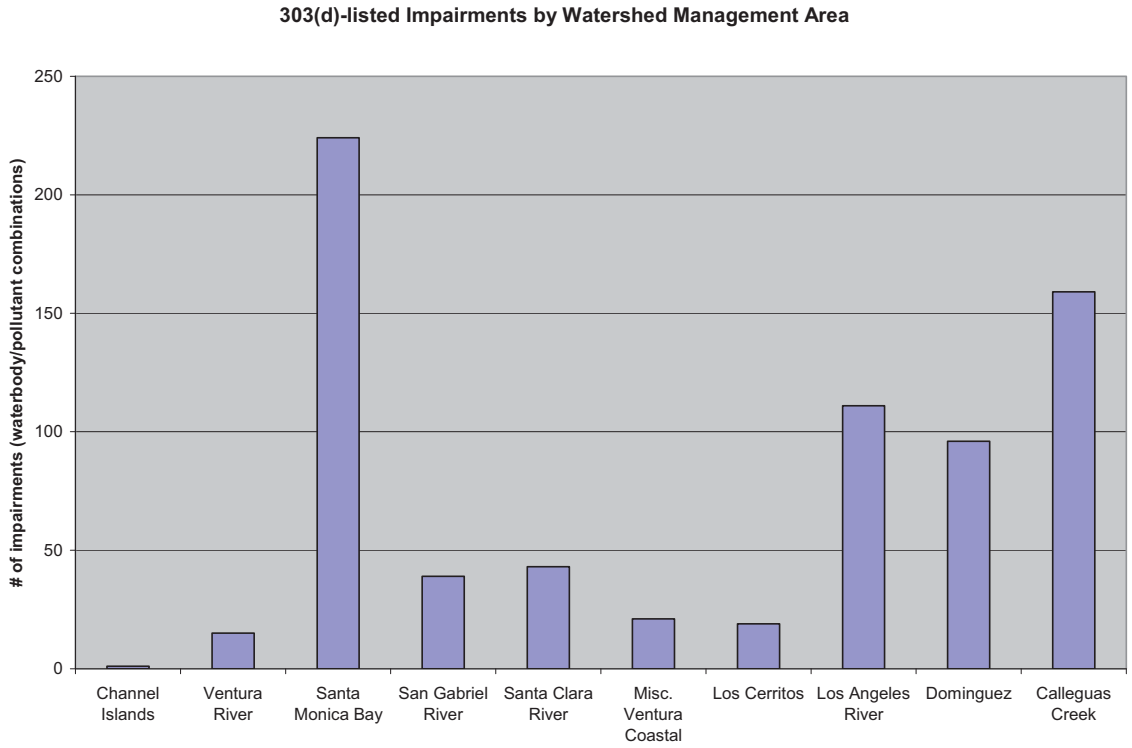
A major long-term monitoring and assessment goal is to increase utilization of biological assessments including incorporating them in monitoring requirements for dischargers.

Basin Planning and TMDLs *(Categories One and Two)*

Category One basin planning activities include conducting triennial reviews of planning priorities, development of water quality standards and implementation plans and policies, development of TMDLs, and preparation of Basin Plan amendments (some of which follow from development of TMDLs).

A triennial review is a fundamental planning function at Regional Boards. This activity provides the Board with the opportunity to review the status of water quality, identify issues and problems, and solicit direction and comment from concerned parties as well as the public in general. The triennial review process sets the stage for possible changes (i.e. amendments) to the Basin Plan, which may be needed to more effectively protect water quality. Amendments to the Basin Plan also ensure that the Regional Board's approach to protecting water quality is legally sound. The current triennial review is from 2005-2007; the next triennial review will begin shortly.

There are 728 total reach/constituent impairments; TMDLs will be completed on the approximately 95 grouped impairments. About eleven percent of the impairments are based on excessive indicator bacteria while historic DDT and PCBs contribute to somewhat lesser numbers of impairments (9% and 7.5%, respectively). The number of current impairments (2006 303(d) list) by watershed is reflected in the figure below:



Another important planning function is interaction with the public and other agencies that are planning projects that may impact the environment. Under the California Environmental Quality Act, the Regional Board has an opportunity and responsibility to work with the public to ensure projects that may affect water quality are properly designed to reasonably mitigate adverse impacts. This responsibility to participate in the planning processes at other agencies extends to the development of regulations (such as the California Toxics Rule and State Implementation Policy) and guidelines (such as irrigation practices). Review of environmental documents is a Category Two activity.

Wetlands Protection and Management *(Categories One and Two)*

Wetlands acres in the Region have diminished greatly over the past several decades as coastal development, in particular, has increased. Wetlands provide habitat, serve to slow down water flow, decrease total volume through infiltration, and filter out a number of pollutants through active uptake by plants as well as deposition in sediments. Wetlands such as coastal estuaries are a buffer zone between ocean and inland water resources and are heavily utilized by aquatic organisms. Continuous stretches of riparian habitat function as wildlife corridors to allow animal movement between increasingly isolated populations. They also serve as popular recreational destinations for residents and visitors. Unfortunately, many of our Region's wetlands are impacted by varying kinds and amounts of pollutants and alterations.

The Regional Board participates in the Southern California Wetlands Recovery Project (WRP), which for the first phase effort, conducted an inventory of coastal wetlands from Santa Barbara to the U.S.-Mexico border. This inventory included information on twelve wetlands in seven watersheds for our region. When compared to estimated historical acreages, Los Angeles County has lost 93% of its wetlands while Ventura County has lost 58% of its wetlands. A regional wetland plan and strategy for prioritizing and restoring sites has been developed. Currently, the WRP funds wetlands projects which involve planning, restoration, or acquisition. More information about the Project may be found on its webpage at http://www.scwrp.org. This is a Category Two activity.

Our wetlands regulatory tools include:

1. **Wetlands beneficial use designation**: The Region's Basin Plan includes a beneficial use category for Wetland Habitat.

2. **Water Quality Objective**: The Region's Basin Plan has a narrative objective for wetlands protection which addresses the protection of hydrologic conditions and physical habitats to sustain the functional values of regional wetlands.

3. **Water Quality Certification (401) Program**: A key Category One activity associated with wetlands protection and management is CWA Section 401 certification which regulates discharges of dredge and fill materials to waters. The 401 certification program is one of the most effective tools the state has for regulating hydrologic modification projects, especially those which directly impact the region's diminishing acres of wetlands and riparian habitat.

Additionally, in Spring 2007, the State Water Resources Control Board began public scoping meetings on a proposed Wetland and Riparian Area Protection Policy that would apply throughout the state. An information document released for the scoping meetings outlined four alternative approaches to wetlands

protection. The website http://www.waterboards.ca.gov/cwa401/ contains information on both the 401 program and proposed Wetlands Policy. There is also a statewide effort underway to develop a wetlands monitoring program (estuarine wetlands to begin with) and develop regional databases to support tracking of wetlands mitigation and restoration – the Integrated Wetlands Regional Assessment Program (IWRAP).

Nonpoint Source Program *(Categories One and Two)*

Nonpoint source Category One activities include coordination of 319(h) grant project activities; and implementing the Plan for California Nonpoint Source Pollution Control Program, TMDLs, and Coastal Zone Act Reauthorization Amendments provisions. Participation in stakeholder/watershed groups meetings and activities and public/agency outreach are Category Two activities.

Management of NPS pollution is based upon the requirements of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The Porter-Cologne Act, Division 7 of the California Water Code, establishes a comprehensive program for the protection of water quality and beneficial uses of the State's waters and makes explicitly clear the law applies to nonpoint as well as point source discharges. The Porter-Cologne Act also establishes the administrative permitting authority—in the form of Waste Discharge Requirements (WDRs), waivers of WDRs or basin plan prohibitions—to be used to control NPS discharges. Additional legislative requirements state that all waivers must be conditional, they are to be re-evaluated and subsequently reissued every five years, and the RWQCBs must require compliance with waiver conditions.

California's Nonpoint Source (NPS) Pollution Control Program has been in effect since 1988 and was updated in January, 2000. In August 2004 the Office of Administrative Law approved the NPS Policy. The policy supersedes certain elements of the NPS Program Plan and formally eliminates the "three-tiered approach" in informal use.

The NPS Program has also been upgraded to conform with the Clean Water Act Section 319 (CWA 319) and Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA). The lead State agencies for the NPS Program are the SWRCB, the nine RWQCBs, and the California Coastal Commission.

The Plan for California's Nonpoint Source Pollution Control Program includes requirements for Critical Coastal Area (CCA) designation. The intent of CCA designation is to direct needed attention to coastal areas of special biological, social, and environmental significance and to provide an impetus for these areas to receive special support and resources. These areas include Environmentally Sensitive Habitat Areas (ESHAs) currently designated in California's Coastal Zone Management (CZM) program, as well as areas adjacent to Areas of Special Biological Significance (ASBS), California's National Estuarine Research Reserves (NERRs), National Estuary Program (NEP), and National Marine Sanctuaries. The 2002 CCA Draft Strategic Plan identifies 101 CCAs statewide of which 13 are in the Los Angeles Region. These will be described further in later sections of this document.

Our long-term goal for the NPS program is to improve water quality by implementing the management measures identified in the California Management Measures for Polluted Runoff Report (CAMMPR) by 2013. The short-term plan to achieve this goal is to identify, educate, and promote stakeholder involvement.

Current nonpoint source program priorities are: 1) oversight of workplans for 319(h) and bond fund projects, and 2) establishment of regional strategies addressing agriculture and marinas.

GROUND WATER

The following programs under our Groundwater Division are currently not managed under our watershed schedule but some aspects are integrated to some degree with other watershed activities, particularly with regard to coordination of monitoring and assessment activities and GIS. Steps taken to date include the mapping of drinking water wells and underground storage tank and Well Investigation Program (WIP) sites in a Geographic Information System (GIS).

Underground Storage Tanks Regulation and Remediation (Category One)

Responsibilities include oversight of investigations into groundwater pollution and any corrective actions which may be needed which result from leaking underground storage tanks. Cases are roughly organized along watershed boundaries.

SLIC Program (Category One)

Response to reports of unauthorized discharges, such as spills and leaks from above-ground storage tanks which may impact any of the region's waterbodies, are investigated through the Spills, Leaks, Investigation and Cleanup (SLIC) Program and remediation actions are implemented.

DOD and DOE Sites Cleanup Program (Category Two)

The Regional Board works with a number of other agencies involved with remedial investigation and cleanups at U.S. Department of Defense (DOD) and U.S. Department of Energy (DOE) sites. Agreements with the DOD and DOE provide for accelerated cleanups at military bases and other Defense sites schedule for closure.

Well Investigation Program (Category One).

Followup investigation of volatile organic compounds in public water supply wells is conducted through the Well Investigation Program (WIP). Investigations focus on identification and elimination of sources of pollutants in public water supply wells, the identification of responsible parties, and oversight of soil and ground water remediation. This program is somewhat watershed-based as it focuses on two areas – the San Gabriel and San Fernando Valleys – that fall within two watersheds, the Los Angeles River (upper) and Gabriel River Watersheds.

FUNDING

Many high priority (in terms of Regional Board as well as statutory priorities) activities are unfunded or underfunded. For example, monitoring and assessment, basin planning, and nonpoint source activities are grossly underfunded. Some resources must be utilized for required activities such as triennial Basin Plan reviews and Water Quality Assessments. The latter activity tells us where our impaired waters are and there are federal requirements to conduct TMDLs on 303(d)-listed waters although more money is needed to do TMDL work on the problem waters. If a TMDL is completed and a remediation strategy developed

despite this, there is then little money for followup work, particularly with regards to dealing with nonpoint source contributions. This means that our involvement in nonpoint sources must be very time-conservative. While it may take years of work to cooperatively fix a nonpoint source problem, direct enforcement could take a lot less time and be an immediate action. However, the latter is contrary to the cooperative spirit of watershed management. Each watershed will require difference site-specific approaches depending on a variety of factors. Additionally, enforcement is another underfunded activity, particularly when dealing with nonpoint source discharges. On the other hand, priorities may shift due to the influx of "new" money to fund a previously underfunded, and often times, lower priority activity. Use of the new money may be specific to certain activities such as increased pretreatment inspections in the core regulatory program. See the table below for the funding status and priority of Regional Board activities and programs in greater detail.

Funding Status of Major Regional Board Activities and Programs

Program/Activity (and Subcategories)	Import-ance (High, Med, Low)	Man-dated?	Current Funding	What We Can Do With Existing Funds	What Could Be Done with More Funds
Basin Planning					
Triennial reviews	H	Y	*Under-funded*	*Delayed and/or limited Triennial Reviews*	*Conduct more regular comprehensive reviews of the Basin Plan and associated issues; act on an increased number of triennial review-listed items*
Evaluation of beneficial uses	H	Y	*Under- to unfunded*	*Field observations in conjunction with other activities, limited studies*	*Comprehensive beneficial use surveys on a more frequent basis(necessary to set and refine use designations)*
Development of WQ objectives	H	Y	*Under- to unfunded*	*Utilize existing objectives.*	*Develop new and/or site-specific objectives; participate on State/Federal Task Forces; develop regional policies for implementation of water quality standards*
Development of watershed/ regional priorities	H	N	*Under-funded*	*Solve the easiest problems*	*Development of complex watershed solutions*
Watershed Coordination and Plan Development					
Development of watershed plans	M	N	*Under to unfunded*	*Rely on stakeholders to do most of the work*	*Provide staffing better support to watershed groups to guide and prepare integrated plans for water quality along with flood protection, habitat protection, etc.*
Coordination	H	N	*Under-funded*	*Limited outreach*	*Provide staff to participate in all watershed groups*
TMDL Development	H	Y	*Under-funded*	*TMDLs with only the required elements in order to meet deadlines*	*More time spent developing TMDLs with site-specific information*

Program/Activity (and Subcategories)	Import-ance (High, Med, Low)	Man-dated?	Current Funding	What We Can Do With Existing Funds	What Could Be Done with More Funds
Water Quality Assessment					
Monitoring — Ambient watershed	H	Y (SWAMP)	*Under-funded*	*Do the basics required by the SWAMP; minimal staff sampling; rely on stakeholder sampling with minimal oversight; develop collaborative discharger watershed monitoring programs*	*Collect better data to assess impacts, assess for more constituents with more robust sampling; develop priorities, and evaluate successes; actively solicit and coordinate stakeholder monitoring; move beyond "snapshot" monitoring; advance special programs like biomonitoring/biocriteria*
Lab support	H	N/A	*Under-funded*	*Evaluate small subset of waters; analyze inexpensive constituents; often inadequate for decision-making*	*Collect and analyze for more constituents; have better datasets for decision-making*
Biomonitoring (training /field wk.)	H	N	*Under-funded*	*Use effluent chronic toxicity testing as surrogate*	*Real assessment of impacts to Beneficial Uses through field surveys, multiple assessment techniques*
Assessment	H	Y (WQA)	*Unfunded*	*Compile and assess as time permits ("back-burner")*	*Utilization as a critical element in watershed decision-making*
Computer data storage	H	Y	*Under-funded*	*Data stored in many locations*	*More efficient and comprehensive analyses*
Analyze data (for regional trends or for SWAMP)	H	Y (SWAMP)	*Under-funded*	*Simple statistics*	*More rigorous analyses*
Prepare state of watershed reports	M	N	*Under-funded*	*Summarize available info*	*Info sharing/priority setting/better data collection and augmentation*
Prepare biennial 305b report	M	Y	*Under-funded*	*Limited to targeted watersheds (minimal info)*	*Regular and more comprehensive updates/ better data for quality decisions*
Reporting	H	Y (SWAMP)	*Under-funded*	*Utilize established report card format; encourage other groups to develop indicators that would be useful for our Region*	*Research and develop additional indicators; prepare water quality "report cards"*

Program/Activity (and Subcategories)	Import-ance (High, Med, Low)	Man-dated?	Current Funding	What We Can Do With Existing Funds	What Could Be Done with More Funds
CEQA Review	M-H	Y	*Unfunded*	*Limited to highest priority projects with the greatest potential impacts*	*Provide early, meaningful comments; pre-401 coord.; early notification; be aware of piecemealing of projects*
401 Review	M-H	Y	*Under-funded*	*Review and process applications*	*Follow-up work (monitoring and enforcement), pre-construction meetings, site visits, review of draft CEQA documents, development of regional policies*
Nonpoint Source/CZARA					
Outreach	H	N	*Under-funded*	*Minimal effort - usually associated with group meetings*	*More active cooperation and outreach with individuals and groups in the watershed*
Contract/Project Management	H	N	*Under-funded*	*Minimum needed to get project through funding process*	*Receive better products and leverage from successful projects, hands on involvement and advertisement of successful projects*
Development of NPS Solutions	H	Y	*Under-funded*	*Little to none on our own: some involvement with others' work, and initiation of regulatory mechanisms (Tiers II and III)*	*Work with watershed communities to develop and implement nonpoint pollution control strategies, evaluate success of best management practices and management measures*
Permitting - Point Source (NPDES and WDRs)					
Permit development	H	Y	*Under-funded*	*Reduce backlog; process major and minor permits on watershed schedule/transfer minor permits to general permits as time allows*	*Have resources to solicit more stakeholder involvement; use higher level tools (modeling) to develop limits;have more resources for increasingly complex permits*
Inspections	H	Y	*Under-funded*	*Minimum required*	*More field presence/outreach/may reduce need for enforcement*
Enforcement	H	Y	*Under-funded*	*Only high profile major spills/violations*	*More enforcement actions taken on spills/violations that are not high profile*
Spill/complaint follow-up	H	Y/N	*Under-funded*	*Only major spills*	*Better customer service, follow-up on complaints, successful cleanups*

OUR REGION'S APPROACH TO WATERSHED MANAGEMENT

We have designated ten watershed management areas in the Los Angeles Region seen in the figure below. "State of the Watershed Reports" will be prepared or updated for the major watersheds. These reports have become very useful tools for local watershed groups for general educational value and in setting priorities.

Timeline for Watershed Management Initiative

Dominguez Channel-LA/LB Harbor	FY 2007/08
Santa Monica Bay	FY 2008/09
Los Angeles River	FY 2009/10
San Gabriel River Los Cerritos Channel Channel Islands	FY 2010/11
Ventura River Misc. Ventura Coastal Santa Clara River Calleguas Creek	FY 2011/12

The formation of a balanced group of stakeholders for each watershed is critical to the success of watershed management, especially for resolving issues arising from nonpoint source pollutants. The major watersheds and many of the larger subwatersheds now have active stakeholder groups and, in many cases, watershed management plans have been developed. Working in partnership with stakeholders, we expect that we can achieve the following goals within each of our watershed management areas or have at least partially done so already.

- **Work with stakeholder group** or an infrastructure of stakeholder contacts which represents a range of key interest groups in the watershed but with involvement is not a barrier to timely resolution of a water quality problem.
- **Compilation of reasonably available water quality data** and related information in the form of a 'State of the Watershed Report.'
- **Assessment of data gaps** and a plan to fill the gaps.
- **Development of a** coordinated, cost-effective **watershed-wide monitoring program.**
- **Identification of high priority issues** and consensus among stakeholders as to how to proceed to resolve them.
- **Implementation of watershed-based solutions**.
- **Evaluate** success.

Some tasks may have less emphasis than others depending on the watershed, its problems, and the relative influence of point versus nonpoint source contributors.

What is important is the basic tenets of watershed management are being implemented:

- *The effort has a geographic focus,*
- *The highest priority issues are being identified and addressed,*
- *Stakeholder involvement is occurring, and*
- *A scientific basis for water quality management decisions is being created.*

This is an idealized model; many factors often change what can be done for each step such as regulatory or statutory mandates, consent decrees, legislation, and changes in Board priorities or funding.

OUR HIGH PRIORITY ISSUES

This Regional Board establishes priorities on an annual basis. While some of these priorities fall outside of the watershed management arena (it is acknowledged that some activities will likely always remain outside of the WMI), the bulk of these priorities are clearly of primary importance in fulfilling not only the WMI but also development of TMDLs and other mandates. In addition to Regional Board-directed priorities, priorities are mandated by legislation, statute, regulation, State Board, Cal-EPA, USEPA, and from sheer need to protect, restore, or enhance water quality. A list of the highest of these collective priorities follows.

TMDLs

- Development, adoption, and implementation of **TMDLs** – about 20 TMDLs (with implementation plans) have been approved by USEPA and about 10 are awaiting approval; about 10 more are scheduled for development over the short-term
- Addressing **beach closures** – a number of beach bacteria TMDLs have been adopted including the Santa Monica Bay wet weather and dry weather TMDLs. Upcoming will be the potential adjustment of implementation schedules based on development of integrated water resources approaches and a re-evaluation of the reference system approach for setting allowable exceedance days.
- Implementation of **agricultural waiver** – good success in Ventura County (80% enrollment and WQ monitoring instituted) thus far; now need increased enrollment in LA County and overall strategic implementation of BMPs

Non Point Sources

- Need for strategies to address **agriculture** and **septic systems** - implementation of the agricultural waiver to further TMDL compliance is also helping fulfill NPS program goals; new septic systems located in areas without sufficient separation from groundwater and nearby surface waters must install advanced treatment; the next challenge for septic systems will be to address cumulative effects which occur with infilling new systems in areas already dense with existing systems.

Basin Planning and Standards

- Full implementation of our **water quality standards** program is a necessity – site-specific objectives were adopted for ammonia in the Santa Clara, San Gabriel, and Los Angeles Rivers Watersheds while a water effects ratio was adopted for copper in the Calleguas Creek Watershed.
- Work is ongoing to target a **design storm** for implementation of wet weather BMPs
- **Tiered Aquatic Life Uses**, in relation to biocriteria, are in development

NPDES Permits

- Controlling compounds from point sources which continue to cause instream toxicity and/or accumulate in sediments or biota – pthalates and other **emerging chemicals**, including pharmaceuticals are becoming major issues.
- **Power plants** – the nine facilities in the Region are conducting plankton studies and investigating possible alternatives to once-through cooling water discharges
- Municipal stormwater/urban runoff – the LA County **MS4 permit** was reopened twice to incorporate the summer dry weather provisions of two bacteria TMDLs; renewals of permits are in progress.
- **New/re-development** – proactively addressing water quality issues through CEQA, 401 certifications, or stormwater permits; ensuring wet weather compliance with construction permits.

Water Reclamation Requirements/Water Conservation

- Reduce, reuse, and **recycle water** – maximize water conservation in Region.

- Addressing the **regional salt management**/salt imbalance issue which is becoming increasingly critical in the region, and balancing this issue with the need to promote the use of reclaimed water.

Habitat Protection

- Preservation of high quality habitats – ensure maintenance of beneficial uses at these sites through support of **low-impact development** coupled with minimized/avoided hydromodification
- **Habitat loss/restoration** – even with strides in improving instream water quality, unless habitat is restored (riparian/wetlands, in particular), in many cases beneficial uses can not be fully restored.

Monitoring

- Coordination of existing resources and participation in the Surface Water Ambient Monitoring Program is of great importance as is more use of **bioassessment** as a tool.
- **Coordinated watershed-wide monitoring** programs exist in the San Gabriel River, Calleguas Creek, and Malibu Creek Watersheds while programs are being developed in the Los Angeles River and Santa Clara River Watersheds.

Contaminated Sediments/Waste Discharge Requirements

- Many of the impairments in the Region, particularly in harbors, are related to **contaminated sediments**. While source reduction will decrease pollutant levels over time, remediation of these sediments will also be needed which will be a long-term project. Cleanup of contaminated sediments in Consolidated Slip in Los Angeles Harbor will be a long-term project.
- Accurately characterizing the threat from contaminated sediments throughout the Region will be aided with adoption of **sediment quality objectives** in the near future by State Board.

These Board priorities are further highlighted in the watershed and region-wide sections as appropriate. In addition, the State and Regional Board's Strategic Plan is in the process of being reviewed and updated. Stakeholder input so far has indicated basin planning, impaired water bodies, water rights, enforcement effectiveness, groundwater, and water conservation/reuse/recycling as programmatic priority areas.

Section 2. Activities Organized on a Watershed Basis

This section describes activities organized on a watershed basis. An **overview** of each watershed or WMA is provided, its **water quality problems and issues** are described, **past significant activities** (as appropriate), **current activities** (funded activities), **near-term activities** (planned or projected high priority activities that may need funding), and **potential long-term activities** (long-term goals, beyond two years).

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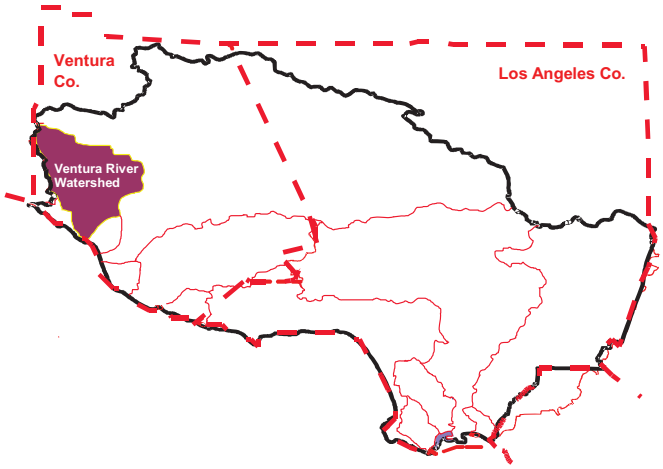
2.7 VENTURA RIVER WATERSHED

This watershed will be targeted in FY2011/2012.

Overview of Watershed



The Ventura River and its tributaries drain a coastal watershed in western Ventura County. The watershed covers a fan-shaped area of 235 square miles, which is situated within the western Transverse Ranges (the only major east-west mountain ranges in the continental U.S.). From the upper slopes of the Transverse Ranges, the surface water system in the Ventura River watershed generally flows in a southerly direction to an estuary, located at the mouth of the Ventura River. Groundwater basins composed of alluvial aquifers deposited along the surface water system, are highly interconnected with the surface water system and are quickly recharged or depleted, according to surface flow conditions. Topography in the watershed is rugged and as a result, the surface waters that drain the watershed have very steep gradients, ranging from 40 feet per mile at the mouth to 150 feet per mile at the headwaters.

Precipitation varies widely in the watershed. Most occurs as rainfall during just a few storms, between November and March. Summer and fall months are typically dry. Although snow occurs at higher elevations, melting snowpack does not sustain significant runoff in warmer months. The erratic weather pattern, coupled with the steep gradients throughout most of the watershed, result in high flow velocities with most runoff reaching the ocean.

Beneficial Uses in Watershed:

Estuary	*Above Estuary*
Navigation	Municipal supply
Commercial & sportfishing	Industrial service supply
Estuarine habitat	Industrial process supply
Marine habitat	Agricultural supply
Contact & noncontact water recreation	Contact & noncontact water recreation
Warmwater habitat	Warmwater habitat
Wildlife habitat	Wildlife habitat
Preservation of rare & endangered species	Preservation of rare & endangered species
Migratory & spawning habitat	Migratory & spawning habitat
Wetlands habitat	Wetlands habitat
Shellfish harvesting	Coldwater habitat
	Groundwater recharge
	Freshwater replenishment

Water Quality Problems and Issues

The majority of water quality problems involve eutrophication (excessive nutrients and effects), especially in the estuary/lagoon. A large storm drain enters the river near the estuary and homeless persons live in and frequent the river bed. Sediment in the estuary, however, appears relatively uncontaminated and in laboratory tests conducted through the Bay Protection and Toxic Cleanup Program, little sediment toxicity was found. In some subwatersheds, high TDS concentrations impair the use of water for agriculture. The watershed's water quality problems are, for the most part, nonpoint source-related. There have also been incidents of releases of toxic materials into storm drains entering the lower river.

The Ventura River Watershed

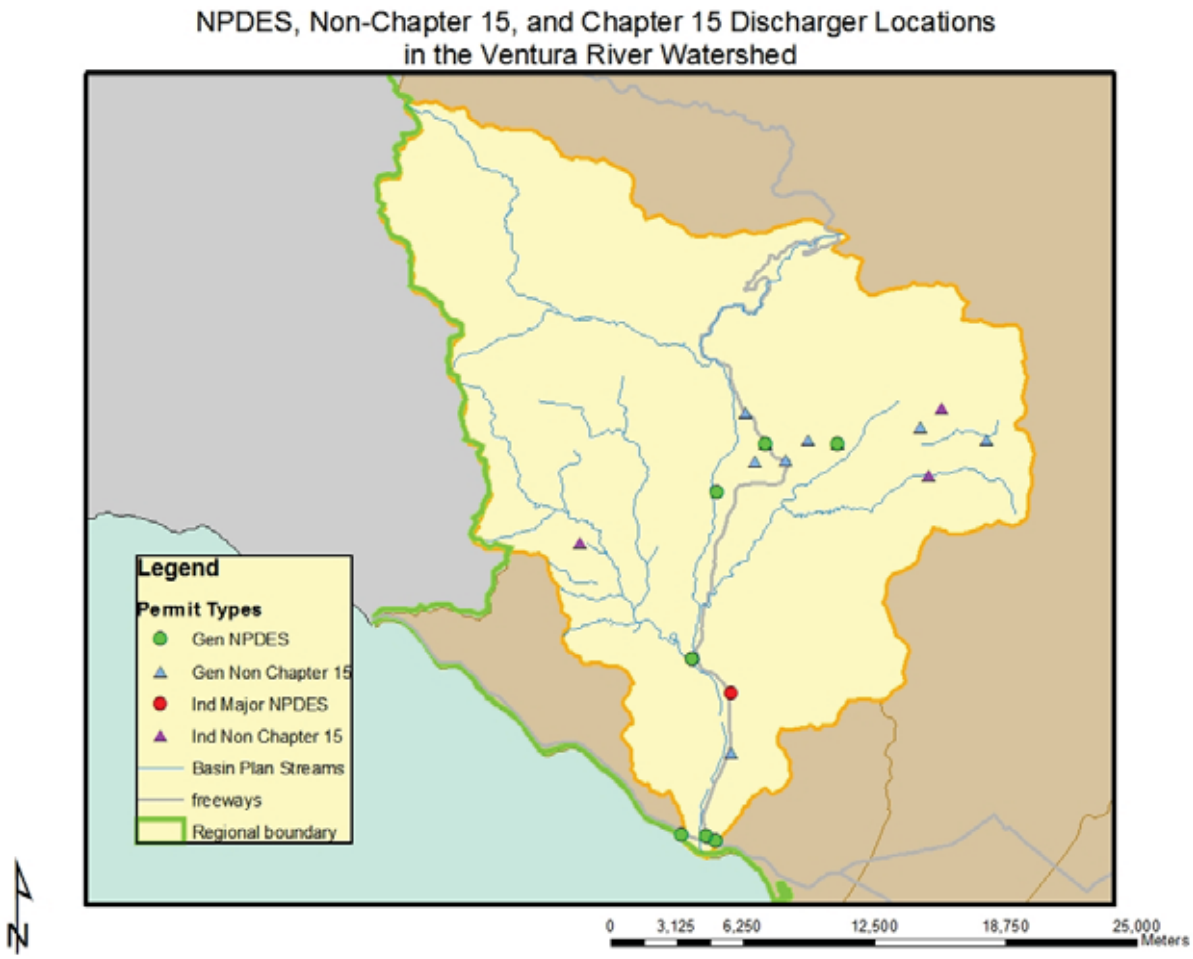
- Eutrophication concerns, especially in lagoon
- Some bioaccumulation of DDT and metals
- TDS concerns in some subwatersheds
- Impediments to steelhead trout migration (but much high quality habitat)
- More nonpoint source rather than

There is only one major discharger, a small POTW (3.0 MGD) in the middle reach of the Ventura River. For much of the year, the facility's effluent can make up two-thirds of the total river flow.

The locations of facilities with discharges to surface water or to the ground (other than those covered by general industrial or construction stormwater permits) are shown in the following figure. Major NPDES discharges are from either POTWs with a yearly average flow of over 0.5 MGD, from an industrial source with a yearly average flow of over 0.1 MGD, or are those discharges with lesser flows but with potential acute or adverse environmental impacts to surface waters. Minor NPDES discharges are all other discharges to surface waters that are not categorized as a Major. Minor discharges may be covered by general NPDES permits, which are issued administratively, for those that meet the conditions specified by the particular general permit. Non-Chapter 15 discharges are those to land or groundwater such as commercial septic systems or percolation ponds that are covered by Waste Discharge Requirements, a State permitting activity. Chapter 15 discharges generally relate to land disposal (landfills) under Chapter 15 of the California Code of Regulations, again an exclusively State permitting activity.

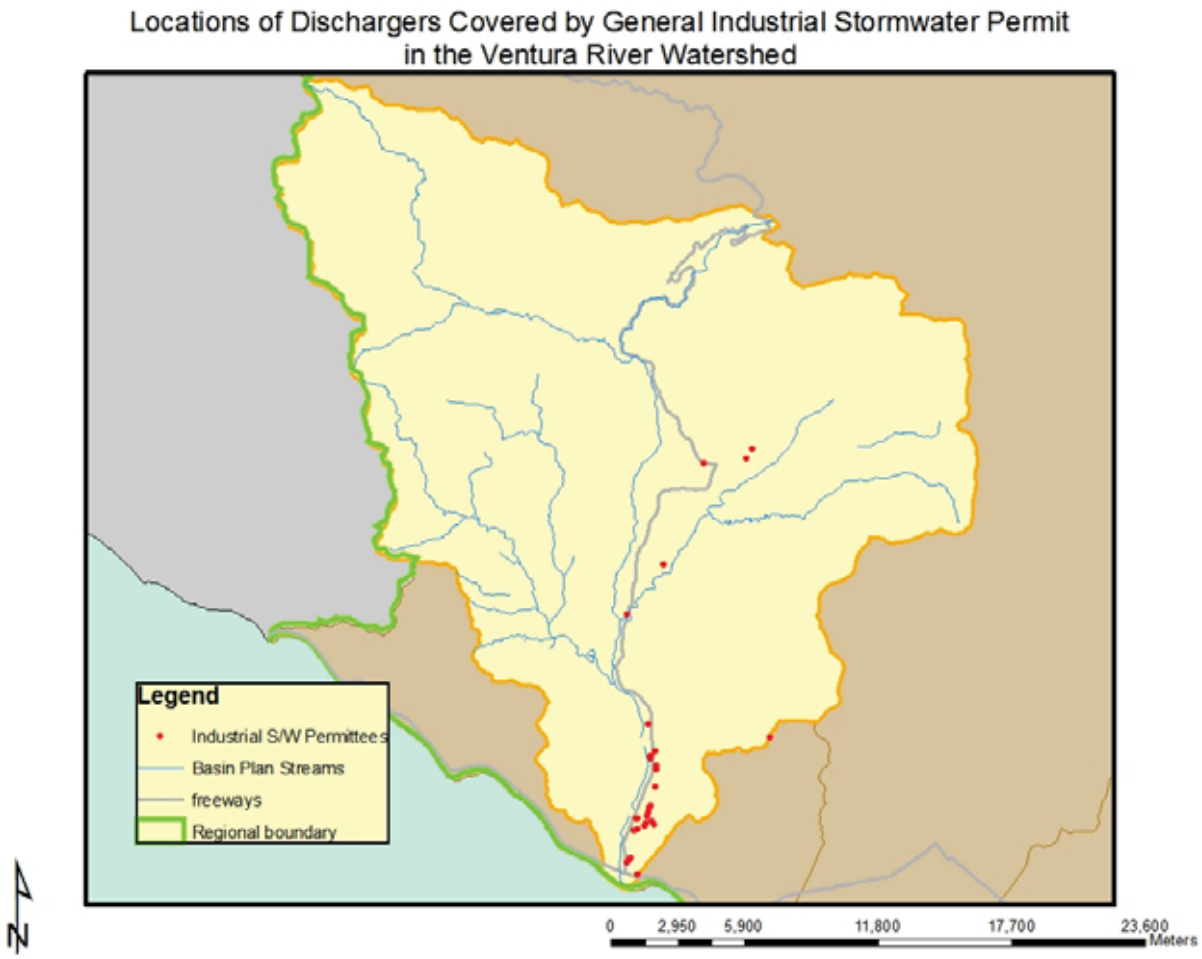
Permitted discharges:

- 9 NPDES discharges: one major (POTW) and eight discharges covered by general permits
- 37 dischargers covered under the industrial storm water permit
- 33 dischargers covered under the construction storm water permit



Most of the nine NPDES permittees in the watershed discharge to the main river.

Of the 36 dischargers enrolled under the general industrial storm water permit in the watershed, the majority are in the city of Ventura. Wholesale trade-durable goods, trucking and warehousing, and food and kindred products (including wineries) are most prominently represented based on their Standard Industrial Classification (SIC) codes. Most of the facilities are under ten acres in size. The locations of facilities with discharges covered by the general industrial stormwater permit are shown in the following figure.

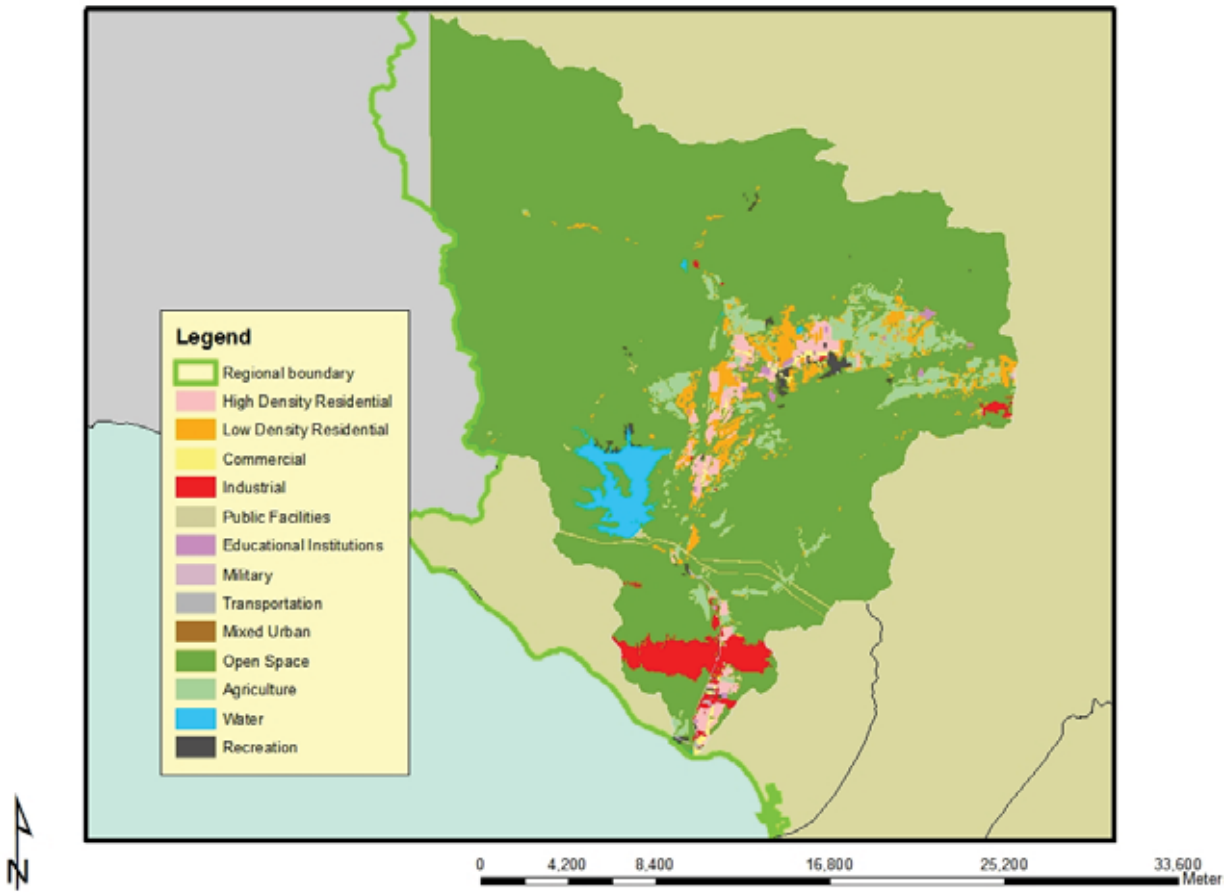


About one-half of the 33 dischargers under the general construction storm water permit are on residential sites; most of the sites are 5 acres or greater in size and range up to 100 acres.

Water diversions, dams, and groundwater pumping also are thought to limit surface water resources needed to support a high quality fishery. Reduced water supplies affect water quality and thus beneficial uses, particularly with regards to the endangered steelhead trout (steelhead trout are known to utilize the River and some of its tributaries historically supported annual steelhead runs of 5000 – 6000 adults). Removal of the Matilija Dam in the upper watershed is a high priority.

Land use is the watershed is predominantly open space with a mix of residential, agriculture and industrial along the mainstem of the river as shown in the following figure.

Land Use in the Ventura River Watershed



The table below shows the water quality impairments from the 2006 303(d) list:

Water Quality Limited Segment Name	Pollutant
Canada Larga (Ventura River Watershed)	Fecal Coliform Low Dissolved Oxygen
Matilija Creek Reach 1 (Jct. With N. Fork to Reservoir)	Fish Barriers (Fish Passage)
Matilija Creek Reach 2 (Above Reservoir)	Fish Barriers (Fish Passage)
Matilija Reservoir	Fish Barriers (Fish Passage)
San Antonio Creek (Tributary to Ventura River Reach 4)	Nitrogen
Ventura River Estuary	Algae Eutrophic Total Coliform Trash
Ventura River Reach 1 and 2 (Estuary to Weldon Canyon)	Algae
Ventura River Reach 3 (Weldon Canyon to Confl. w/ Coyote Cr)	Pumping Water Diversion

Ventura River Reach 4 (Coyote Creek to Camino Cielo Rd)	Pumping Water Diversion

Stakeholder Groups

Ventura River Watershed Council The group originally was formed to aid the Trust for Public Land in development of a lower river parkway. It has become a formal part of the Integrated Regional Water Management Plan (IRWMP) process as one of three watershed groups in the Ventura County water management area.

Ventura River Steelhead Restoration and Recovery Plan Group A Plan was developed in response to the listing of steelhead trout as an endangered species by the National Marine Fisheries Service (NMFS) in August 1997. The plan was developed 1) to identify measures to mitigate impacts of ongoing operations and maintenance activities, 2) to identify future projects and, 3) identify and evaluate opportunities to promote recovery and restoration of the steelhead trout in the watershed. One staff person will continue to remain involved with the group, as needed.

Ventura River Habitat Conservation Plan (HCP) Group: The group, mostly comprised of resource agencies, cities, and water districts, began meeting in 2000. The cities and water districts involved all operate and maintain facilities that may affect sensitive resources or their habitats in the river. In order to comply with the Endangered Species Act they are engaging in consultation with the National marine Fisheries Service and US Fish and Wildlife Service and are in the process of developing a HCP that, with monitoring program and implementation agreements, would serve as the basis for an Incidental Take Permit.

Matilija Dam Steering and Executive Committees: The USACE, Ventura County Flood Control District, US Bureau of Reclamation, and other agencies and entities began convening in 2000 to begin discussions on the possible removal of Matilija Dam as part of an ecosystem restoration. An USACE and VCFCD sponsored ecosystem restoration feasibility study was completed in summer 2004 and a favored alternative will be further pursued. More information may be found at http://www.matilijadam.org/.

Matilija Coalition: The Coalition is a local group committed to removal of Matilija Dam and subsequent ecosystem restoration. More information about the group may be found at http://www.matilija-coalition.org/ .

Significant Past Activities

In August 1997, the National Marine Fisheries Service (NMFS) listed the steelhead trout in Southern California as endangered under the Federal Endangered Species Act (ESA). The listing means that any project or action that may affect steelhead trout or their habitats will require consultation with NMFS to obtain an incidental take permit. In order to prepare for the listing and deal with possible regulatory requirements as a result of the listing, the Casitas Municipal Water District, City of Ventura, Ventura County Flood Control District, and seven other local public and private agencies collaborated and developed the **Ventura River Steelhead Restoration and Recovery Plan** in December 1997 (see above). The plan also contains large amount of background information on the watershed such as hydrology, biology, steelhead habitat conditions, and the operations and maintenance of water wastewater, solid waste, transportation and flood control facilities of the sponsoring agencies. The

regulatory activities by the Regional Water Quality Control Board in the watershed were briefly reviewed in the plan.

Regional Board staff produced a *State of the Watershed Report* for the Ventura River in 2002. This document is available on the Regional Board's website.

No SWAMP monitoring of the Ventura River Watershed occurred as existing monitoring efforts adequately characterized conditions.

The Wetlands Recovery Project funded two planning projects in the watershed, the Matilija Dam Evaluation Project and the Matilija Dam Removal Feasibility Study..

Current Activities

The following is a summary of current regional board activities and strategies for dealing with point and nonpoint source pollution as well as other issues of concern in the Ventura River Watershed.

CORE REGULATORY

Continuing core regulatory activities include compliance inspections, reviewing of monitoring reports, response to complaints, and enforcement actions as needed. Key regulatory staff will continue to remain involved in the Ventura River Watershed Team for purposes of coordinating watershed activities in-house and working on any needed State of the Watershed Report updates.

Additionally, most urban areas in Ventura County, including this watershed, are implementing Best Management Practices (BMPs) under the Municipal Storm Water Permit (revised in 2000). The "Discharger" consists of the co-permittees Ventura County Flood Control District, the County of Ventura, and the Cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buenaventura, Santa Paula, Simi Valley, and Thousand Oaks. The Discharger is required to implement the Ventura Countywide Stormwater Quality Urban Impact Mitigation Plan (SQUIMP), which requires the implementation of BMPs to reduce the discharge of pollutants in storm water from new development and significant redevelopment. Other requirements of the Municipal Storm Water Permit include a public education program, an educational site inspection program for industrial and commercial facilities, program for construction sites, public agency activities, and a storm water monitoring program.

The storm water monitoring program has consisted of land-use based monitoring, receiving water and mass emission station monitoring, and bioassessment. The Discharger also participates in regional monitoring activities, such as the Storm Water Monitoring Coalition, organized by the Southern California Coastal Water Research Project. Furthermore, the Discharger participates in the development and implementation of volunteer monitoring programs in the Ventura Coastal watersheds.

The Ventura River receives municipal storm drain discharges from the City of Ojai, City of San Buenaventura (part), and unincorporated Ventura County (part).

Currently under consideration are agreements with sister agencies in regulatory-based encouragement of Best Management Practices. Most notably is the use of a GIS layer for pesticides application available from the Department of Pesticide Regulation (DPR). Reduction of pesticides identified as contaminants of concern for a watershed might be addressed through a Management Agency Agreement (MAA) with

the DPR, or through waiving adoption of waste discharge requirements on an individual basis using information gathered in databases provided by the Ventura County Agricultural Commission office.

MONITORING AND ASSESSMENT

A receiving water monitoring program is implemented by the Ojai Valley Sanitary District, supplemented by ambient or special monitoring conducted by Regional Board staff. The monitoring supports compliance evaluation, nonpoint source identification, and potential TMDL development. In conjunction with the receiving water monitoring, land-use based monitoring is done as part of the Ventura County Municipal Storm Water Program as well as bioassessment. The County's work is integrated and coordinated with citizen monitoring being conducted by the Ventura River Stream Team.

The Ventura County Environmental Health Department conducts weekly coastline bacteriological monitoring for total and fecal coliform and enterococcus at a number of stations along the Ventura County coast. There are two stations in the immediate vicinity of the Ventura River, one upcoast and one downcoast. Monitoring results are at posted at http://www.ventura.org/env_hlth/ocean.htm.

WETLANDS PROTECTION AND MANAGEMENT

The Wetlands Recovery Project has listed the Matilija Dam Removal Engineering and Design project and acquisitions for the Ventura River Parkway as high priority projects on the current workplan. The Ventura River Arundo Removal Project is also listed on the workplan. Being listed on the workplan is not a guarantee of funding however. More information about the workplan may be found at http://www.scwrp.org.

NONPOINT SOURCE PROGRAM

A priority issue is continued work to determine the scope of water quality impacts from agricultural runoff in the Region. Some agricultural activities occur in the Ventura River Watershed. Development of solutions to any impacts is also a high priority and will be a major concern of the nonpoint source program and, by extension, watershed groups which will be addressing this as well as other problems.

BASIN PLANNING

Several high priority issues were identified in the 2005 - 2007 Triennial Review which affect this watershed management area and will require Basin Planning resources. As in all watersheds, adopting TMDLs as Basin Plan amendments is required under the Consent Decree with an estimated resource need of 0.5 PY/TMDL. This is considered a currently funded activity. The ongoing Tiered Aquatic Life Uses Pilot Project may affect many watersheds in the Region. The purpose of tiered aquatic life uses (TALUs) is to have more appropriate goals for protecting aquatic life that account for these inherent physical limitations. The purpose of this pilot project is to develop more tailored water quality standards (through beneficial use designations and associated biocriteria) to protect the biological communities of semi-arid urban coastal streams and, If deemed appropriate, recommend appropriate tiered aquatic life uses for these semi-arid urban coastal streams. Other high priority issues identified by the Triennial Review common to multiple watersheds may be found in the Region-wide Section.

Review and comment on EIRs for the highest priority projects within the watershed will continue; however, there is currently no funding for this program.

WATERSHED MANAGEMENT

The Ventura County Watershed Protection District received a Proposition 50 IRWMP implementation grant of $25 million which includes as one project development of a watershed protection plan and formation of a stakeholder group.

Near-term Activities

Specific resource needs are described in the Region-wide Section of this document.

Near-term **Basin Planning** issues include addressing impacts from hydromodification and pumping, particularly in steelhead trout restoration and dam removal efforts, and developing nutrient standards for the lagoon.

Potential Long-term Activities

Grant funding to help support this largely natural watershed's natural resources will be an important component of any long-term restoration and preservation process.

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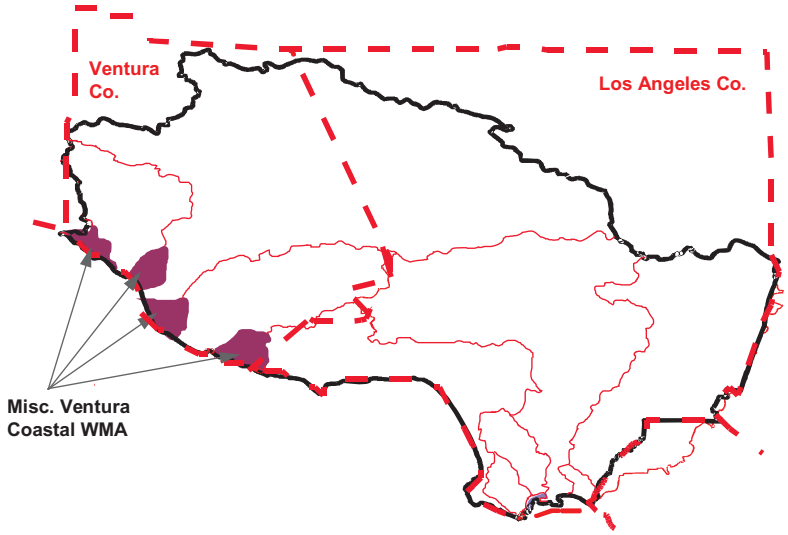
2.8 MISCELLANEOUS VENTURA COASTAL WMA

This Watershed Management Area will be targeted in FY2011/2012.

Overview of WMA

The WMA is composed of four separate coastal drainage areas located between the Regional boundary, the Ventura River, Santa Clara River, and Calleguas Creek Watersheds, as well as, the Santa Monica Bay WMA. The drainage areas are typified by either small coastal streams, wetlands, or marinas/urban centers.

Channel Islands Harbor: Channels Islands Harbor is located south of the Santa Clara River and is in the immediate vicinity of considerable residential development and some agricultural land. The Southern California Edison inlet canal to the Ormond Beach Generating Station is located at the north end of the harbor. The harbor is home to many recreational boats and two boatyards.



Port Hueneme Harbor: Port Hueneme is a medium-sized deepwater harbor located in Ventura County, north of Mugu Lagoon. Part of it was operated by a U.S. Navy Construction Battalion until very recently while the rest of the harbor serves as a commercial port operated by the Oxnard Harbor District. The construction of a majority of the harbor was completed in 1975. The commercial side generally serves ocean-going cargo vessels and oil supply boats; the latter serve the oil platforms in the Santa Barbara Channel. Two endangered bird species may use the harbor, the California Brown Pelican and the California Least Tern.

Ventura Marina: Ventura Marina is a small craft harbor located between the mouths of the Ventura and Santa Clara Rivers. It is home to numerous small boats and two boatyards. The "Ventura Keys" area of the marina is a residential area situated along three canals. The marina is surrounded by agricultural land and a large unlined ditch drains into the Keys area. Since the marina is between the mouths of two rivers which discharge large sediment loads from their relatively undeveloped watersheds, the marina has a constant problem with keeping the entrance channel open.

McGrath Lake: McGrath Lake is a small brackish waterbody located just south of the Santa Clara River. The lake is located partially on State Parks land and partially on privately-owned oilfields in current production. A number of agricultural ditches drain into the lake. A state beach is located off the coastal side of the lake. The habitat around the lake is considered to be quite unique and it is utilized by a large number of overwintering migratory birds.

Beneficial Uses in WMA

Channel Islands Harbor
Industrial service supply
Contact & noncontact water recreation
Navigation
Commercial & sportfishing
Marine habitat
Wildlife habitat

Port Hueneme Harbor
Process water supply
Contact & noncontact water recreation
Navigation
Commercial & sportfishing
Marine Habitat
Wildlife habitat

Ventura Marina
Industrial service supply
Contact & noncontact water recreation
Navigation
Commercial & sportfishing
Marine habitat
Wildlife habitat
Shellfish harvesting

Ormond Beach
Industrial water supply
Contact & noncontact water recreation
Wildlife habitat
Wetlands habitat
Protection of rare & endangered species
Navigation
Power generation
Commercial & sportfishing
Marine habitat
Shellfish harvesting

Ormond Beach Wetlands and McGrath Lake
Estuarine habitat
Contact & noncontact water recreation
Wildlife habitat
Wetlands habitat
Protection of rare & endangered species

Open Coastline: A major feature of the coastline north of Mugu Lagoon is Ormond Beach and Ormond Beach Wetlands. There are a number of scenarios under consideration for restoration of this degraded yet valuable wetlands.

Water Quality Problems and Issues

Channel Islands Harbor: The harbor is on the 2006 303(d) list for lead and zinc. During the early to mid-1980s, the State Mussel Watch Program (SMWP) found low to intermediate levels of metals and organics except for one especially high accumulation of DDT. Sediment sampling for metals conducted by Regional Board staff in 1988 revealed slightly to moderately elevated levels. Copper at one site was nearly 50 ppm and zinc was as high as 76 ppm. Arsenic was slightly elevated (4 ppm) at a sampling site located next to a drain possibly connected to a nearby agricultural field. Under the Bay Protection and Toxic Cleanup Program (BPTCP), the harbor is listed as site of concern due to DDT and silver sediment concentrations and sediment toxicity; further monitoring is needed here.

Port Hueneme Harbor: The harbor is on the 2006 303(d) list for DDT and PCBs. The SMWP found elevated levels of these parameters. An Army Corps DEIR released in 1985 covering extension of one channel stated that water quality was good. The document also briefly discussed the port's biota which CDFG found to be "fairly healthy" and typical of southern California harbors. Sediment core samples were collected in 1985 and 1996 as part of a proposed dredge project. Relatively low levels of metals were found and no pesticides were detected. It may well be that flushing is good in the harbor and only locating a station directly next to a source will result in bioaccumulation. The BPTCP found fairly minimal levels of sediment toxicity but the harbor is considered a site of concern under the program due to accumulation of DDT, PCBs, TBT, PAHs, and zinc in mussel tissue. However, more recent monitoring conducted as part of dredging projects have found much lower concentrations of many pollutants, at least in sediment.

The harbors
- One deepwater harbor and two small-craft marinas
- Accumulation of metals, PCBs, and historic pesticides in sediment and tissue
- Support considerable marine life

The wetlands and coast
- Historic pesticide contamination
- Loss of quality habitat
- Impacts from oil spills
- Use by endangered species

Ventura Marina: The marina (the Keys area) is on the 2006 303(d) list for coliform problems. The City of Ventura monitors six stations within the Keys and the nearby Arundell Barranca (open drain carrying mostly agricultural runoff) for coliform on a regular basis. There are currently ongoing discussions concerning the possibility of re-rerouting the barranca away from the marina. The SMWP has found moderately elevated levels of metals, DDT, and chlordane in the marina from sampling conducted in the late 1980s; however, it is not listed as a site of concern under the BPTCP.

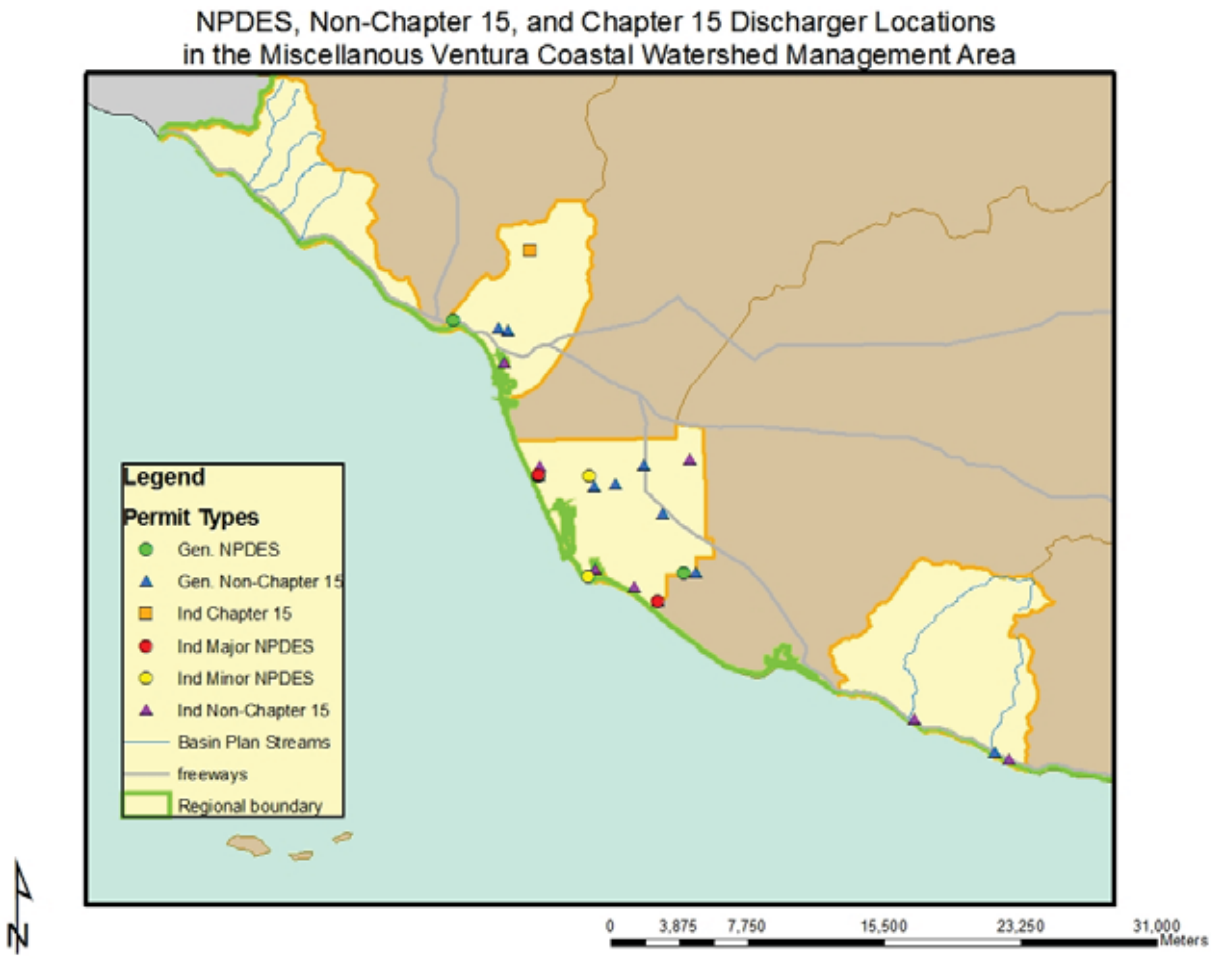
McGrath Lake: The lake is on the 2006 303(d) list for several legacy pesticides. The BPTCP found varying amounts of sediment toxicity and sediment levels of many pesticides were very high; the lake is listed as a toxic hot spot due to sediment concentrations of DDT, chlordane, dieldrin, toxaphene and endosulfan above sediment quality guidelines. A major crude oil spill into the lake occurred in late 1993 and runoff from nearby agricultural fields is ongoing. A characterization study revealed the large extent to which the sediment is contaminated; however, since the likelihood of cleanup is currently low, planning for habitat restoration is proceeding on its own track.

Permitted discharges:

- 17 NPDES discharges including three major discharges (one POTW and one generating stations), 6 minor discharges, and 8 covered by general NPDES permits
- 82 dischargers covered under the industrial storm water permit
- 91 dischargers covered under the construction storm water permit

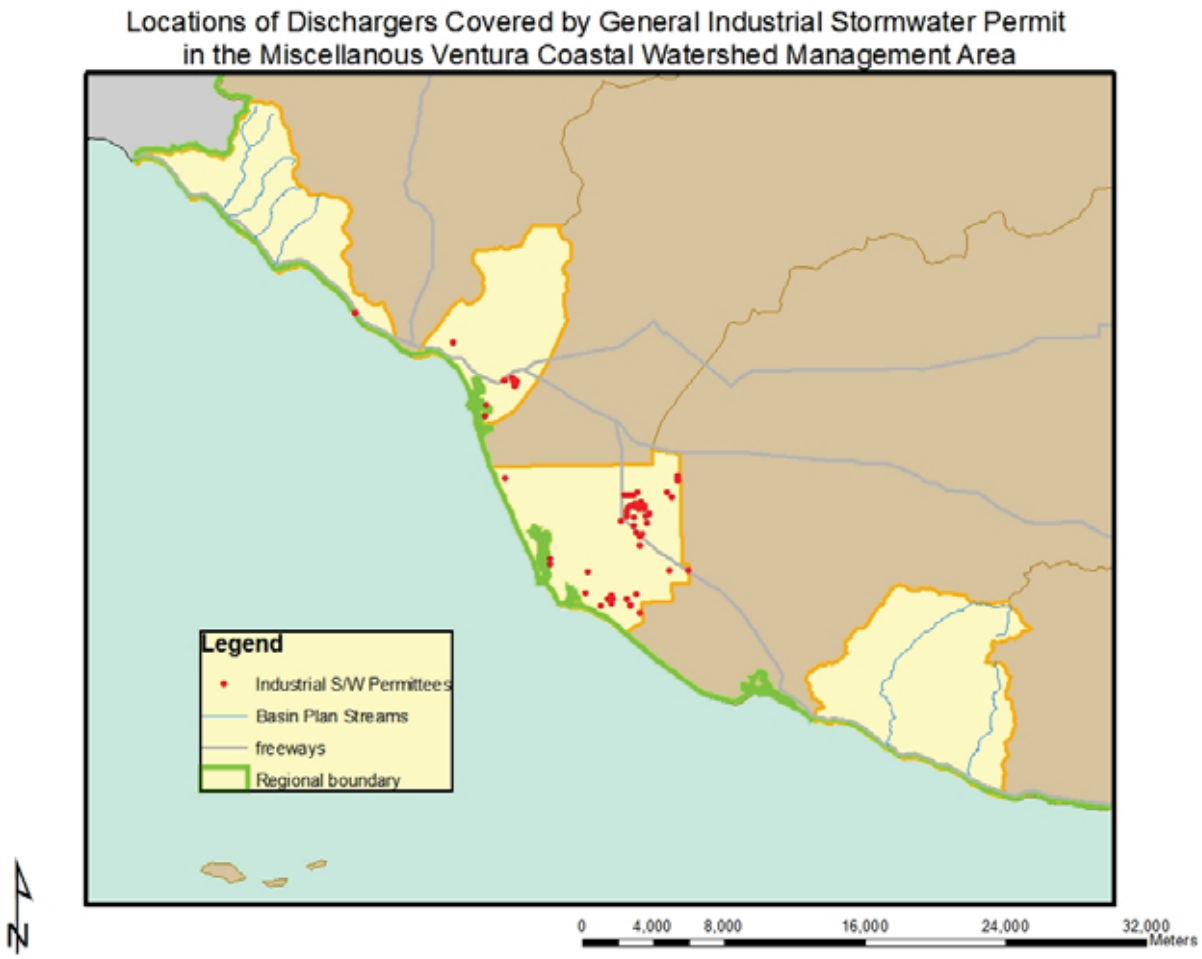
Open Coastline: Little is known of water quality in the Ormond Beach area. The Oxnard Treatment Plant discharges secondary effluent to the ocean off of Oxnard. The facility is currently investigating approaches to remove upstream brine dischargers in order to move toward water reclamation. Part of the reclaimed water is proposed for use in a seawater intrusion barrier project to protect the Oxnard Plain ground water basin. The ocean immediately off of the coast was part of Bight ’03, Bight ’98 and the 1994 Southern California Bight Pilot Project. The Ormond Beach Wetlands is being characterized as part of a wetlands restoration planning process being led by the Coastal Conservancy. New samples of water and soil have been collected and data from previous sampling efforts (mostly in relation to a scrap metal facility nearby, Halaco) are being assessed for data gaps.

The locations of facilities with discharges to surface water or to the ground (other than those covered by general industrial or construction stormwater permits) are shown in the following figure. Major NPDES discharges are from either POTWs with a yearly average flow of over 0.5 MGD, from an industrial source with a yearly average flow of over 0.1 MGD, or are those discharges with lesser flows but with potential acute or adverse environmental impacts to surface waters. Minor NPDES discharges are all other discharges to surface waters that are not categorized as a Major. Minor discharges may be covered by general NPDES permits, which are issued administratively, for those that meet the conditions specified by the particular general permit. Non-Chapter 15 discharges are those to land or groundwater such as commercial septic systems or percolation ponds that are covered by Waste Discharge Requirements, a State permitting activity. Chapter 15 discharges generally relate to land disposal (landfills) under Chapter 15 of the California Code of Regulations, again an exclusively State permitting activity.



Most of the 17 NPDES permittees in the watershed management area discharge to coastal streams; there two major NPDES discharges, a POTW and a generating station, to the ocean.

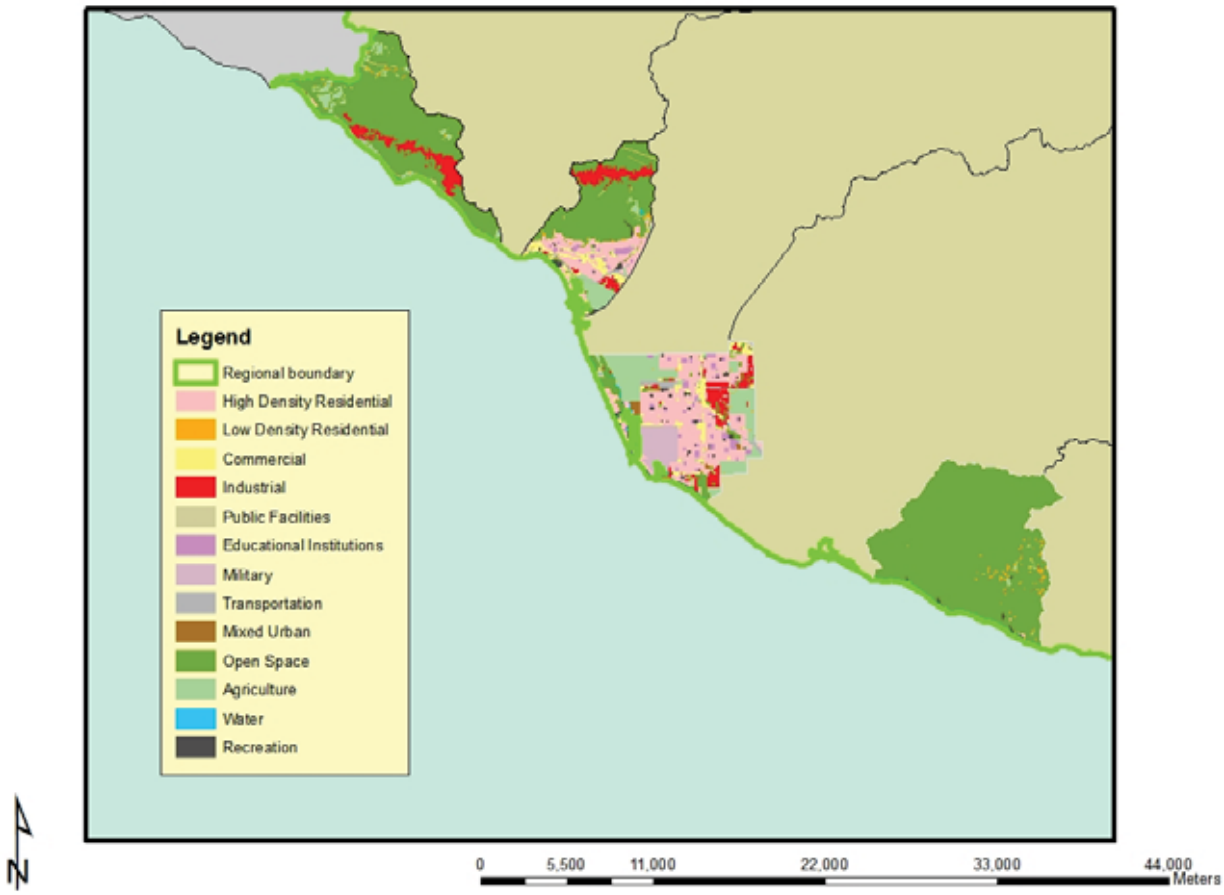
Of the 67 dischargers enrolled under the general industrial storm water permit in the watershed, the majority occur in the city of Oxnard. Many of these businesses are involved with trucking and warehousing, local and interurban passenger transit, food and kindred products, and oil and gas extraction according to their Standard Industrial Classification (SIC) codes. The locations of facilities with discharges covered by the general industrial stormwater permit are shown in the following figure.



There are 91 construction sites enrolled under the general construction storm water permit on a mix of residential, industrial, and commercial sites primarily in the Oxnard area. About one-half of the sites are five acres or larger in size on up to about 100 acres.

Land use in the four parts of this WMA trends heavily to either open space or urban uses as shown in the figure below.

Land Use in the Miscellaneous Ventura Coastal Watershed Management Area



The table below lists the 2006 303(d) list of water quality impairments:.

Water Quality Limited Segment Name	Pollutant
Channel Islands Harbor	Lead (sediment) Zinc (sediment)
Channel Islands Harbor Beach	Indicator bacteria
Hobie Beach (Channel Islands Harbor)	Indicator bacteria
McGrath Beach	Coliform Bacteria
McGrath Lake	Chlordane (sediment) DDT (sediment) Dieldrin (sediment) Fecal Coliform PCBs Sediment Toxicity
Ormond Beach (3 segments: J St; Oxnard Drain; Arnold Rd)	Indicator bacteria
Peninsula Beach (Area affected is beach area north of South Jetty)	Indicator bacteria

Port Hueneme Harbor (Back Basins)	DDT (tissue) PCBs
Port Hueneme Pier	PCBs
Rincon Beach (Area affected is 50 and 150 yards south of mouth of Rincon Creek, and at the end of the footpath)	Indicator bacteria
San Buenaventura Beach (4 segments/drains: Kalorama; San Jon Rd; Dover Ln; Weymouth)	Indicator bacteria
Ventura Harbor: Ventura Keys	Coliform Bacteria
Ventura Marina Jetties	DDT PCBs

CURRENTLY SCHEDULED TMDLS

- pesticides (Ventura Marina)-FY08/09
- coliform (Ventura Marina)-FY08/09

Stakeholder Group

Ormond Beach Task Force Ormond Beach is part of the Miscellaneous Ventura Coastal WMA; the area includes a somewhat degraded wetlands a large part of which has recently been acquired by the State for protection and restoration planning which has begun. The Task Force was formed in 1993 and currently meets monthly to address issues and projects which may affect the beach and wetlands.

Past Significant Activities

NONPOINT SOURCE

A recently concluded project funded by CWA Section 319(h) funds involved demonstrated advanced treatment processes of nutrients and pathogens utilizing septic systems.

MONITORING AND ASSESSMENT

SWAMP: SWAMP monitoring of the Miscellaneous Ventura Coastal Watershed Management Area occurred during FY 2005/2006. Monitoring sites included 4 sampling stations in Port Hueneme, 4 sampling stations in Ventura Marina/Ventura Keys and 5 sampling stations in Channel Islands Harbor/Mandalay Bay (benthic infaunal community, sediment chemistry, sediment toxicity), as well as a total of 17 sampling stations within coastal streams (bioassessment, water column toxicity, water column chemistry). No SWAMP monitoring of the coastal waters of the watershed management area occurred as this area has been sampled by the Bight-wide comprehensive monitoring projects conducted in 1994, 1998 and 2003.

McGrath Lake: A Consent Decree established a settlement with the responsible party in a 1993 crude oil spill. The settlement created a Trustee Council (California Department of Fish and Game, U.S. Fish and Wildlife Service, and California Department of Parks and Recreation) to determine how to spend $1.315 million targeted for natural resource restoration.

The Trustee Council formally requested assistance from the Regional Board to perform a study to characterize the water quality and sediments within the lake, as well as sources of contaminant inputs to the lake. The main objectives of the study were to determine whether it would be necessary or beneficial to dredge the lake to remove contaminated sediments, and whether it would be beneficial to spend funds on habitat improvement projects in and around the lake, given the ongoing potential contaminant inputs and uncontrolled water management activities. The Regional Board funded the characterization study (contributing $100,000) using some of the money the Board received from the oil spill settlement.

A preliminary study was conducted in August 1998 to aid in selection of sampling sites for the characterization study. The characterization study was conducted in October 1998 and included:

1) water quality measurements at several locations in the lake (temperature, dissolved oxygen, pH, and nutrient data)
2) surficial sediment samples at 10 stations in the lake will be analyzed for grain size, sediment chemistry (pesticides, petroleum hydrocarbons, metals) and sediment toxicity
3) deep sediment cores at 7 stations in the lake will be subsampled for sediment chemistry analyses
4) water column measurements at one station in an agricultural drain entering the lake (pesticides, metals, and nutrients)
5) sediment chemistry (pesticides and metals) at 2 stations in agricultural drains

WETLANDS PROTECTION AND MANAGEMENT

The Wetlands Recovery Project has funded an acquisition project in the WMA, the Ormond Beach Edison Acquisition.

Current Activities

CORE REGULATORY

Continuing core regulatory activities that will be integrated into the watershed management approach include (but are not limited to) necessary renewal/revision of NPDES permits. Compliance inspections, review of monitoring reports, response to complaints, and enforcement actions relative to the watershed's NPDES permits will continue.

Additionally, most urban areas in Ventura County, including this watershed, are implementing Best Management Practices (BMPs) under the Municipal Storm Water Permit (revised in 2000). The "Discharger" consists of the co-permittees Ventura County Flood Control District, the County of Ventura, and the Cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buenaventura, Santa Paula, Simi Valley, and Thousand Oaks. The Discharger is required to implement the Ventura Countywide Stormwater Quality Urban Impact Mitigation Plan (SQUIMP), which requires the implementation of BMPs to reduce the discharge of pollutants in storm water from new development and significant redevelopment. Other requirements of the Municipal Storm Water Permit include a public education program, an educational site inspection program for industrial and commercial facilities, program for construction sites, public agency activities, and a storm water monitoring program.

The storm water monitoring program has consisted of land-use based monitoring, receiving water and mass emission station monitoring, and bioassessment. The Discharger also participates in regional monitoring activities, such as the Storm Water Monitoring Coalition, organized by the Southern

California Coastal Water Research Project. Furthermore, the Discharger participates in the development and implementation of volunteer monitoring programs in the Ventura Coastal watersheds.

The Miscellaneous Ventura Coastal WMA receives municipal storm drain discharges from the City of Oxnard (part), City of Port Hueneme, and City of San Buenaventura (part).

MONITORING AND ASSESSMENT

The monitoring needs in this WMA include staff to evaluate coastal receiving water data, sediment data analysis and interpretation, resources to integrate surface and ground water data, and resources to evaluate other information (e.g., pesticide and fertilizer use databases as well as those for grower/crop and crop timing).

McGrath Lake: The characterization study previously conducted demonstrated widespread sediment contamination throughout most of the lake, including high concentrations of several trace metals and pesticides. Due to likely long delays in adequate funding for cleanup of contaminated sediments, the Trustee has decided to proceed with restoration planning and released a draft restoration plan in summer 2004.

Shoreline: Beginning in 1999, a new law (AB411) requires public health officials in coastal counties to conduct weekly testing, between April 1 and October 31, at beaches visited annually by more than 50,000 people and at adjacent storm drains (including natural creeks, streams, and rivers, that flow during the summer. Due to the popularity of Ventura County beaches for year-round activities, the Ventura County Board of Supervisors authorized the implementation of a program that expanded the monitoring program to all 12 months of the year. Ventura County Environmental Health Department conducts weekly surf zone sampling at 52 beach locations for total and fecal coliform and enterococcus. Data will be reviewed by the Regional Board and used to assess current conditions of Ventura County beaches for future 305(b) reports. Monitoring results are at posted at http://www.ventura.org/env_hlth/ocean.htm.

Open Coastline: Our source of data for the coastal areas comes chiefly from the one POTW and two generating stations which discharge offshore as well as regional data from Bight'98 and the 1994 SCBPP. These data support compliance evaluation.

WETLANDS PROTECTION AND MANAGEMENT

The Wetlands Recovery Project has listed additional acquisitions in the Ormond Beach Wetlands area and preparation of a restoration plan as priority projects for funding on the current workplan. Development of the restoration plan is underway. Being listed on the workplan is not a guarantee of funding however. More information about the workplan may be found at http://www.scwrp.org.

BASIN PLANNING

Several high priority issues were identified in the 2005 - 2007 Triennial Review which affect this watershed management area and will require Basin Planning resources. As in all watersheds, adopting TMDLs as Basin Plan amendments is required under the Consent Decree with an estimated resource need of 0.5 PY/TMDL. This is considered a currently funded activity. The ongoing Tiered Aquatic Life Uses Pilot Project may affect many watersheds in the Region. The purpose of tiered aquatic life uses (TALUs) is to have more appropriate goals for protecting aquatic life that account for these inherent physical

limitations. The purpose of this pilot project is to develop more tailored water quality standards (through beneficial use designations and associated biocriteria) to protect the biological communities of semi-arid urban coastal streams and, If deemed appropriate, recommend appropriate tiered aquatic life uses for these semi-arid urban coastal streams. Other high priority issues identified by the Triennial Review common to multiple watersheds may be found in the Region-wide Section.

Review and comment on EIRs for the highest priority projects within the watershed will continue; however, there is currently no funding for this program.

NONPOINT SOURCE PROGRAM

We are encouraging application for Proposition 13 funding for use in preparation of a watershed management plan for this watershed management area.

Groundwater

The Oxnard Forebay is a prime groundwater recharge area that is impacted by nitrogen discharges, mainly from densely populated communities using septic systems, and agricultural areas. The Regional Board undertook a study of septic systems in the area during FY98/99; in August 1999 the Board adopted a Basin Plan amendment to prohibit septic systems in the Oxnard Forebay. The amendment immediately prohibits the installation of new septic systems or the expansion of existing septic systems on lot sizes of less than five acres. Discharges from septic systems on lot sizes of less than five acres must cease by January 1, 2008. This prohibition will affect up to 3,000 septic systems and ten to fifteen thousand people. The County of Ventura has applied for Small Community Grant funding to provide adequate sewage treatment on behalf of the Saticoy and El Rio communities.

Another **319(h)** project is underway which also involves septic tanks. This project involves the evaluation of several systems for nutrient removal.

A well head protection and demonstration project in the Fox Canyon Groundwater Management Area is being funded with **319(h)** monies. This project is destroying disused drinking water wells which may serve as a conduit for contamination to reach the deep water aquifer.

Currently under consideration are agreements with sister agencies in regulatory-based encouragement of Best Management Practices. Most notably is the use of a GIS layer for pesticides application available from the Department of Pesticide Regulation (DPR). Reduction of pesticides identified as contaminants of concern for a watershed might be addressed through a Management Agency Agreement (MAA) with the DPR, or through waiving adoption of waste discharge requirements on an individual basis using information gathered in databases provided by the Ventura County Agricultural Commission office.

Marinas

There are a number of marinas in this WMA, all with well-documented levels and types of pollution consistent with nonpoint sources. We have initiated enforcement actions on several commercial fishing operations to ensure compliance with state discharge requirements. We will be focusing our 319(h) priorities for the upcoming application period on a number of areas of concern in the Region including development of education and outreach programs and implementation of management measures which are intended to reduce pollution from these nonpoint sources in marinas. A particular area of concern in Port Hueneme has been management of squid wastes from fishing vessels.

Near-term Activities

Specific resource needs are described in the Region-wide Section of this document.

A preliminary review of resources for core regulatory activities against cost factors has determined that our region is seriously underfunded for our baseline program. We will be seeking more funding for our core program activities.

Most watershed programs look to the Regional Board as the information management agency for the collected data. To meet that need, we require additional resources related to data management and interpretation. Some of the expenditures under NPDES support the monitoring that will ultimately be used to identify and quantify nonpoint source inputs.

We will maintain involvement with stakeholder activities and pursue funding options, especially those involving implementation of nonpoint source measures as well as other outreach activities such as speeches, meetings, and participation in environmental events. With additional resources we propose conducting a number of education and outreach activities including holding regional workshops and conferences with other Regional Boards as well as experts in the field, contacting marina operators individually, and offering an incentives program.

Potential Long-term Activities

Arundell Barranca: The Regional Board staff have been approached by the City of San Buenaventura for input on a potential project to re-route the Arundell Barranca from Ventura Harbor to the Santa Clara River estuary. The proposal calls for a constructed wetlands near the estuary to treat the Barranca's water before entering the Santa Clara River. The project is proposed as a method of dealing with periodic coliform exceedances in areas of the Ventura Harbor/Ventura Keys.

Seawater Intrusion into the Oxnard Plain: The City of Oxnard is attempting to remove high TDS inputs to their treatment plant with the ultimate goal of reuse of the wastewater for a seawater intrusion barrier project in the Oxnard Plain.

Implementation of watershed-wide biological monitoring: This is a long-term goal for all of our watersheds.

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Section 3 . Regionwide Activities

There are many activities conducted at the Regional Board which do not apply to a specific watershed; instead they represent ongoing regionwide strategies and policies, or programs which are not directly linked to the rotating watershed cycle. Also, statutory, regulatory, or funding requirements may dictate completion of some activities at odd intervals throughout the five-year watershed cycle (such as increased emphasis on pretreatment inspections). We expect that some of these activities, which include triennial reviews, water quality assessment (305(b)) reports, updating lists of impaired waterbodies (e.g. the federal 303(d) list), can be negotiated into a watershed. See the table below for more examples of watershed versus non-watershed related activities.

Watershed Tasks	*Non-Watershed Tasks*
Renew permits	Issue new permits
	Develop new general permits
Integrate municipal storm water program	Issue individual industrial and storm water permits
Conduct inspections for watershed permits	Conduct inspections on new permits
Enforcement (in-cycle compliance)	Enforcement (spills, out of cycle compliance)
Implement NPS controls	Develop regional strategies to address NPS problems
TMDL/WLAs	
Develop, coordinate and implement watershed monitoring	Coordinate monitoring on a regional scale
Water Quality Assessments (State of the Watershed Reports, partial updates to 305(b) by watershed)	Biennial 305(b) Reports to USEPA
Develop watershed policies	Develop regional policies
Watershed-specific Basin Plan Updates	Regional Basin Plan Updates, Triennial Reviews
Data management (input and use by watershed)	Regional Database management
GIS (input of watershed-specific layers and information)	GIS (development and input of regional layers and Maintenance of system)
Watershed-specific outreach/education	General outreach education
Incorporation of CEQA and 401 Decisions into watershed planning (as groups are formed, and as timing permits)	Timely review of CEQA documents, 401 certifications per statutory deadlines

And, while the Watershed Management Initiative strives to integrate and coordinate the various Regional and State Board programs and address the highest priority funding needs for those programs, there is also need to respond to and accommodate priorities established by the individual Regional and State Boards' members, priorities established prior to the WMI which run on their own timelines, or other new mandates which may affect the way the WMI is implemented in a Region. It is important to re-state here that the WMI is not a new program but rather a way to describe our approach to integrating existing and newly evolving programs and mandates. The following describes our overall approach to implementing a number of programs (some statewide mandates) and other Board priorities.

Core Regulatory

One activity involves renewing individual permits in a timely fashion. General permits (see below) are also renewed to incorporate Basin Plan amendments and fine-tune other requirements. Other activities include inspections and audits. Major NPDES dischargers are inspected at least once per year while minor dischargers are inspected at least once during the life of the permit. There are twelve POTWs with pretreatment programs which are either inspected or audited once per year. The twelve programs are: Burbank, Camarillo SD, Las Virgenes MWD, Los Angeles CSD, City of Los Angeles, Ojai Valley SD, Oxnard, San Buenaventura, Simi Valley CSD, Thousand Oaks, Moorpark WTP, and Santa Paula. Major discharges are POTWs with a yearly average flow of over 0.5 MGD or an industrial source with a yearly average flow of over 0.1 MGD and those with lesser flows but with acute or potential adverse environmental impacts. Minor discharges are all other discharges that are not categorized as a Major. Minor discharges may be covered by a general permit, which are issued administratively, for those that meet the conditions specified by the particular general permit.

Another activity which has taken up considerable time, and contributes to backlogged permits, is responding to appeals and lawsuits. At issue for a number of permits is a lack of regional nutrient objectives which has translated into a lack of permit limitations and subsequent petitions and/or lawsuits. Ideally, TMDLs would be adopted in the year proceeding permit renewals for a particular watershed. Permit limitations could then be based on allocations from the TMDLs. Also ideally, we would have state-adopted water quality objectives (or an implementation plan for federal numbers) or ecologically-relevant regional objectives for parameters such as nitrogen and phosphorus to use for development of permit limitations. Nutrient objectives will likely be available in the near future but, in the meantime, we continue to experience challenges to their absence.

Core Regulatory – Region 4 General Permits

There are many dischargers in this Region covered by general permits for discharges to surface water through a letter issued by the Executive Officer. This activity occurs as often outside as within the watershed cycle. 40 CFR §122.28 provides for issuance of general permits to regulate a category of point sources if the sources:

a) Involve the same or substantially similar types of operations;

b) Discharge the same type of waste;

c) Require the same type of effluent limitations or operating conditions;

d) Require similar monitoring; and

e) Are more appropriately regulated under a general permit rather than individual permits.

General NPDES permits currently in effect include:

- NPDES Permit No. CAG914001 – for discharges of treated volatile organic compound contaminated groundwater to surface waters (threat/complexity rating 2B)

- NPDES Permit No. CAG994004 – for discharges of groundwater (treated or untreated) from construction and project dewatering to surface waters (threat/complexity rating to be determined)

- NPDES Permit No. CAG994005 – for discharges of groundwater from potable water supply wells to surface waters (threat/complexity rating to be determined)

- NPDES Permit No. CAG674001 – for discharges of low-threat hydrostatic test water to surface waters (threat/complexity rating 3C)

- NPDES Permit No. CAG834001 – for discharges of treated groundwater and other wastewaters from investigation and/or cleanup of petroleum fuel pollution to surface waters (threat/complexity rating 2B)

- NPDES Permit No. CAG994003 – for discharges of nonprocess wastewaters not requiring treatment systems to surface waters (threat/complexity rating 3C)

As a point of comparison, the highest threat/complexity rating is 1A and the lowest 3C.

General waste discharge requirements currently in effect include:

- Order No. R4-2007-0019 and Resolution No. R07-001 – groundwater remediation at petroleum hydrocarbon fuel, volatile organic compound and/or hexavalent chromium impacted sites

- Order No. R4-2004-0146 – waste discharge requirements for residential onsite wastewater treatment systems

- Order No. 01-031 – small commercial and multifamily residential subsurface sewage disposal systems

- Order No. 93-010 – specified discharges to groundwater in Santa Clara River and Los Angeles River Basins. Examples of the activities leading to a discharge of water that, because of its characteristics, results in little or no pollution when discharged to groundwater include: hydrostatic testing of tanks, pipes, and storage vessels; construction dewatering; dust control application; water irrigation storage systems, subterranean seepage dewatering; well development and test pumping; aquifer testing; and monitoring well construction.

- Order No. 91-94 – private subsurface sewage disposal systems in areas where groundwater is used or may be used for domestic purposes

- Order No. 91-93 – discharge of non-hazardous contaminated soils and other waste in Los Angeles and Santa Clara River Basins

Core Regulatory – State Board General Permit

In 2001, State Board adopted a general NPDES permit (NPDES Permit No. CAG990003) for discharges of aquatic pesticides. The permit covers the uses of properly registered and applied aquatic pesticides; it does not cover indirect or nonpoint source discharges from agricultural or other applications of pesticides to land that may be conveyed in storm water or irrigation runoff. It also does not cover applications of pesticides that are not registered for use on aquatic sites.

Although Notices of Intent (NOIs) to be covered under this general permit will be handled by State Board, the Regional Board is responsible for approving monitoring plans, reviewing monitoring reports, conducting compliance inspections, and conducting any appropriate enforcement actions.

Core Regulatory – Storm Water

Storm water activities include those involving the three municipal permits in the Region, facilities regulated under the State's general industrial permit, and construction sites regulated under the State's general construction permit.

Municipal permits

Municipal storm water regulations at 40CFR 122.26 require that pollutants in storm water discharges be reduced to the maximum extent practicable (MEP). The definition of MEP has generally been applied to mean implementation of controls to reduce the discharge of pollutants to the maximum extent practicable using appropriate management practices, control techniques and system, design and engineering methods. Municipalities are required to implement or require the implementation of the most effective combination of BMPs for storm water/urban runoff pollution control.

Municipal permits currently in effect include:

- NPDES Permit No. CAS004003 – adopted in 1999 this is the permit for municipal storm water and urban runoff discharges within the city of Long Beach

- NPDES Permit No. CAS004002 – adopted in 2000 this is the permit for municipal storm water and urban runoff discharges within the Ventura County Flood Control District, county of Ventura, and cities of Ventura County

- NPDES Permit No. CAS004001 – revised in 2001 (and amended in 2006 and 2007) this is the permit for municipal storm water and urban runoff discharges within the county of Los Angeles

An important part of the municipal permits (Los Angeles County and City of Long Beach) are the Standard Urban Storm Water Mitigation Plans (SUSMPs) and numerical design standards for Best Management Practices (BMPs) which were adopted on March 8, 2000 and implemented by municipalities beginning in February 2001. The SUSMPs are designed to ensure that storm water pollution is addressed in one of the most effective ways possible, i.e., by incorporating BMPs in the design phase of new development and redevelopment. It provides for numerical design standards to ensure that storm water runoff is managed for water quality and quantity concerns. The purpose of the SUSMP requirements is to minimize, to the maximum extent practicable, the discharge of pollutants of concern from new development and redevelopment.

The numerical design standard is that post-construction treatment BMPs be designed to mitigate (infiltrate or treat) storm water runoff from the first ¾ inch of rainfall, prior to its discharge to a storm water conveyance system. Other standards also apply; additional information on the SUSMP may be found on the Regional Board Storm Water website at http://www.waterboards.ca.gov/losangeles/html/programs/stormwater/susmp/susmp_details.html.

The Ventura County Municipal Storm Water Permit co-permittees are required to implement similar requirements under the Ventura Countywide Stormwater Quality Urban Impact Mitigation Plan (SQUIMP). The SQUIMP similarly addresses conditions and requirements for new development and significant redevelopment.

Monitoring has indicated that mass emissions of pollutants to the ocean are significant from the urban watersheds such as the Los Angeles River, Ballona Creek, and Coyote Creek. Studies have found chemical concentrations of pollutants that exceed state and federal water quality criteria in storm drains

flowing to the ocean and that beach water quality standards for bacteria indicators (Assembly Bill 411) are often exceeded. The presence of these high levels of bacteria indicate the existence of other pathogenic microorganisms that pose a health risk to humans. A 1996 epidemiological study, conducted by USC under the direction of the Santa Monica Bay Restoration Project, confirmed that swimming in water with significant concentrations of bacteria indicators increases the potential for contracting illnesses, such as stomach flu, ear infection, upper respiratory infection or major skin rash.

Industrial permit

The 1987 amendments to the Clean Water Act established a framework for regulating municipal and industrial storm water discharges under the NPDES Program. In 1990, the USEPA published final regulations that established application requirements for storm water permits. The regulations require that storm water associated with industrial activity that discharges either directly to surface waters or indirectly through municipal storm drains must be regulated by an NPDES permit.

State Board adopted the Industrial Activities Storm Water General Permit in 1997 (Order 97-03-DWQ). The permit requires facility operators to (1) eliminate unauthorized nonstorm water discharges through implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT), (2) develop and implement a Storm Water Pollution Prevention Plan (SWPPP), and (3) perform monitoring of storm water discharges and authorized nonstorm water discharges. Facility operators may be able to participate in group monitoring program. Facilities that discharge storm water associated with industrial activity requiring a General Permit are listed by category in the Code of Federal Regulations. These categories include manufacturing, mining/oil, recycling, steam electric generating, and light industry, among others. There are approximately 2,800 facilities in this Region covered by the general industrial permit. Most of these sites are in the Los Angeles River Watershed with the San Gabriel River Watershed and the Dominguez Channel and LA/LB Harbor WMA also containing a considerable number. There has been a general increase in the number of facilities covered by the permit over time. More information about the permit may be found at http://www.waterboards.ca.gov/losangeles/html/programs/stormwater/sw_industrial.html.

Construction permit

In 1990, USEPA published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water to waters of the United States from construction projects that encompass five or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES permit.

State Board adopted a general permit for storm water discharges associated with construction activity in 1999 (State Board order No. 99-08-DWQ). It contains narrative effluent limitations and requirements to implement appropriate Best Management Practices (BMPs) which emphasize source controls. Dischargers from sites of one acre in size or larger are required to be covered by the construction stormwater permit.

Elimination or reduction of nonstorm water discharges is a major goal of the general permit. It prohibits the discharge of materials other than storm water and authorized nonstorm water discharges. It also requires development of a Storm Water Pollution Prevention Plan (SWPPP) and monitoring program.

There are approximately 2,680 sites covered under the construction storm water permit as of October 2007; this is almost twice the number covered at the time of the 2004 update of the WMI Chapter. The majority of sites are in the Los Angeles River Watershed (759), up from 456 sites three years ago. The San Gabriel River Watershed also has a large number of construction sites at 446 as well as the Santa Monica Bay Watershed Management Area (401), and Santa Clara River Watershed (367). About half of the sites in most watersheds are at least 5 acres or larger with some sites up to 1,000 acres in size.

The Construction General Permit was modified in 2001 by State Board Resolution No. 2001-046. The modifications require that a sampling and analysis strategy and sampling schedule for discharges from construction activity be developed and included in projects' Storm Water Pollution Prevention Plans. Additional information may be found on the Regional Board Storm Water website at http://www.waterboards.ca.gov/losangeles/html/programs/stormwater/sw_construction.html.

Monitoring and Assessment

Surface Water Ambient Monitoring Program: California Water Code Section 13192 required the SWRCB to assess and report on the State monitoring programs and to prepare a proposal for a comprehensive surface water quality monitoring program. It was envisioned that implementation of the Surface Water Ambient Monitoring Program (SWAMP) would utilize a scientifically-sound monitoring design with meaningful indicators of the environment and the results would be readily available to the public.

Ambient monitoring serves as a measure of the overall quality of water resources and the overall effectiveness of Regional Boards prevention, regulatory, and remedial actions, and the SWAMP is intended to meet four goals:

1) Identify specific problems preventing the SWRCB, RWQCBs, and the public from realizing beneficial uses in targeted watersheds.

2) Create an ambient monitoring program that addresses all hydrologic units of the State using consistent and objective monitoring, sampling and analysis methods; consistent data quality assurance protocols; and centralized data management.

3) Document ambient water quality conditions in potentially clean and polluted areas.

4) Provide the data to evaluate the effectiveness of water quality regulatory programs in protecting beneficial uses of waters of the State.

Each of the pre-existing SWRCB and RWQCBs existing monitoring programs (e.g., the State Mussel Watch Program, Toxic Substances Monitoring Program, Coastal Fish Contamination Program, and toxicity studies) have been incorporated into SWAMP to ensure a coordinated approach without duplication.

During the first five years of the SWAMP, we focused on monitoring each of our 10 watersheds. Due to funding constraints, we spent most of our funding allocation on monitoring of wadeable streams, relying upon a triad of indicators to assess whether the aquatic life beneficial use was being supported (benthic macroinvertebrate community, water column toxicity, water column chemistry [primarily conventional pollutants, such as nitrates and phosphates]). At a small subset of sampling stations (integrator or

confluence sites), trace metal and trace organic analyses, bioaccumulation sampling and sediment chemistry/sediment toxicity analyses were conducted.

The review of SWAMP conducted by the Scientific Planning and Review Committee (SPARC) in 2005 concluded that SWAMP had focused too much on regional issues during its first five years and that there was too much inconsistency between the regional monitoring designs to allow monitoring results to be integrated into a meaningful statewide assessment. Consequently, SWAMP is shifting its focus to ensure the development of robust statewide monitoring programs to assess three categories of beneficial uses (recreational use, fishing uses, aquatic life support) for each of the six major waterbody types present in the state (ocean waters, estuaries, lakes/reservoirs, large rivers, wadeable streams, wetlands). At the same time, SWAMP intends to continue to provide some funding to allow the Regional Boards to conduct local monitoring (but possibly at a reduced level compared to previous years).

It is impossible for SWAMP to develop 18 statewide monitoring programs all at once with the current level of funding. Therefore, SWAMP has decided to focus on two high priority issues: aquatic life protection in wadeable streams and fishing uses in lakes and reservoirs. Once statewide monitoring programs have been designed and implemented for these 2 areas, SWAMP will develop a plan to address the remaining monitoring needs.

The Nonpoint Source Program has been supporting a wadeable stream program based on a randomized design for the past five years (California Monitoring and Assessment Program, or CMAP), and most of the regional boards have been conducting bioassessment monitoring in wadeable streams (although most have employed targeted, rather than randomized, sampling designs), so SWAMP simply plans to expand the scope of CMAP into a more comprehensive statewide program (Perennial Streams Survey). Design of the statewide program still is underway, but plans call for approximately 500 random stations to be sampled statewide each year plus a smaller number of targeted integrator sites. Concurrently, the Stormwater Monitoring Coalition (SMC) is developing a monitoring plan for Southern California (Regions 4, 8 and 9), which also would be based on a random design of 510 stations within 17 watershed management areas to be sampled over a 5-year period, plus a small number of integrator sites. The Statewide Perennial Streams Survey and the SMC monitoring are scheduled to commence in 2008.

Under the old Toxic Substances Monitoring Program, many of the Regional Boards conducted bioaccumulation sampling of fish from lakes and reservoirs, but without a coordinated design. SWAMP's Bioaccumulation Oversight Group is nearing completion on a statewide monitoring program, based on a randomized design, which is scheduled to commence in spring 2007. Approximately 200 of the most popular fishing lakes where anglers consume their catch will be sampled in 2007 and 2008, targeting a predator species (preferably largemouth bass) and a bottom feeder (preferably catfish). During 2007, fifty of the lakes in the other category will be sampled randomly. The statewide program should provide a useful framework for implementing this type of sampling in the Los Angeles Region where we have identified 31 lakes and reservoirs that meet these criteria. We propose to sample these 31 lakes in our region so that we can assess this significant issue for all of our fishable lakes. The statewide design still is under development, but it appears that additionally several of our lakes would be sampled via the random station draw.

Bight monitoring of ocean waters conducted in 1994, 1998, 2003 has provided sufficient data to assess recreational use of coastal waters (1998 survey included a randomized sampling design to assess shoreline conditions) and aquatic life protection (all three surveys), and the study planned for 2008 probably will

include fishing uses as well. Therefore, we have not needed to expend SWAMP resources for this type of monitoring.

As SWAMP develops statewide monitoring programs for other waterbody/beneficial use combinations, we expect to contribute a portion of our regional allocation to expand the monitoring effort within the Los Angeles Region. SWAMP currently is assessing the need for a statewide monitoring program focused on recreational use in wadeable streams. Once the design for the bioaccumulation study in lakes and reservoirs has been completed, the SWAMP Bioaccumulation Oversight Group will consider the need for statewide programs to assess fishing uses in ocean waters, estuaries, large rivers, wadeable streams and wetlands.

The U.S. Environmental Protection Agency (USEPA) will be conducting a national lake study during 2007, which includes 21 lakes in California. SWAMP concluded that it would not be useful to augment that study with SWAMP funds (due to funding constraints and monitoring design issues). However, SWAMP is interested in developing a statewide monitoring program to assess recreational use and aquatic life protection in lakes and reservoirs. That effort probably will occur in 2008 or later, after we have reviewed the results of the EPA study.

The table below summarizes the monitoring programs underway or under development. Many gaps still exist, as evidenced by the blanks in the table. As SWAMP develops statewide monitoring programs for other waterbody/beneficial use combinations, we expect to contribute a portion of our regional allocation to expand the monitoring effort within the Los Angeles Region. SWAMP currently is assessing the need for a statewide monitoring program focused on recreational use in wadeable streams. Once the design for the bioaccumulation study in lakes and reservoirs has been completed, the SWAMP Bioaccumulation Oversight Group will consider the need for statewide programs to assess fishing uses in ocean waters, estuaries, large rivers, wadeable streams and wetlands.

Waterbody Type	Recreational Use (e.g., is it safe to swim)	Fishing Uses (e.g., is it safe to eat seafood)	Aquatic Life Protection
Ocean	Bight 94, Bight 98, Bight 03, AB 411 monitoring, shoreline monitoring network for Santa Monica Bay	Coastal Fish Contamination Program 1999-2001; Probably will be added to Bight 08	Bight 94, Bight 98, Bight 03, Bight 08
Estuaries		Coastal Fish Contamination Program 1999-2001; Probably will be added to Bight 08 for certain estuaries	Bight 94, Bight 98, Bight 03, Bight 08
Lakes/Reservoirs	SWAMP may develop statewide design in future	SWAMP statewide monitoring in 2007/2008	EPA Lake Study in 2007, SWAMP statewide design expected in near future
Large Rivers	None in Region 4	None in Region 4	None in Region 4
Wadeable Streams	SWAMP may develop statewide design in future	SWAMP statewide design expected in near future	SWAMP statewide monitoring in 2008; Stormwater Monitoring Coalition Monitoring in 2008
Wetlands			Probably will be added to Bight 08 for coastal wetlands; SWAMP statewide monitoring in 2008 will provide some assessment of riparian habitat in wadeable streams

Another major focus of SWAMP, per SPARC recommendations, will be to leverage other monitoring program resources to augment the limited SWAMP funds. The Regional Board already has done this very successfully with the San Gabriel Watershed Regional Monitoring Program. To help get the program started, we subsidized about half of the 2005 monitoring program with funds from our SWAMP allocation (the other half came from dischargers, EPA, SCCWRP, and volunteers), but the 2006 sampling was conducted without financial assistance from SWAMP and the program now is self-sufficient and will be conducting coordinated and integrated regional monitoring of wadeable streams each year. Our goal is to facilitate the implementation of similar programs in other watersheds, namely Calleguas Creek, Ventura River, Santa Clara River, Malibu Creek, Ballona Creek, Los Angeles River and Dominguez Channel. By taking advantage of existing monitoring required by POTWs and stormwater dischargers, TMDL-mandated monitoring, and volunteer monitoring programs, we hope to redesign monitoring programs and reallocate existing resources to create self-sufficient regional monitoring programs. However, these programs may require some contribution of SWAMP funds from our regional allocation to get started or to continue monitoring.

Coastal Fish Contamination Program: Governor Wilson's Executive Order W-162-97 (issued October 8, 1997) required Cal/EPA to inventory existing ocean and coastal water quality monitoring programs and make recommendations for a comprehensive program for monitoring water quality and reducing pollution within coastal watersheds, bays, estuaries, lagoons and nearshore ocean waters. The State Water Resources Control Board was assigned the responsibility to implement this mandate (funded by AB 1581 and AB 1429). SB 753 required the SWRCB to establish a statewide monitoring program to assess human health risks associated with recreational fishing and seafood consumption. A screening study was initiated during 1999 to assess approximately ten sites and supplement the information already available

for Santa Monica Bay. However, oceanic conditions associated with an El Nino event precluded adequate collection of fish samples during 1999, so the screening study was extended into 2000. Sampling during 2001 and 2002 was geared towards collecting additional data for areas where fish tissue contamination levels were high. The ultimate goal was to develop a regional (Region 4 coastline, not just Santa Monica Bay) sampling program, which would keep most of the original framework created by the Bay Restoration Project, but expand it throughout the region. An inventory of coastal water quality monitoring programs has been prepared for Southern California with the assistance of SCCWRP; it can be accessed at: http://www.sfei.org/camp. This program is now under the auspices of SWAMP.

State Mussel Watch/Toxic Substances Monitoring Programs (SMW/TSMP): Water column monitoring for toxic substances can be unreliable since toxic substances are often transported intermittently and can be missed with standard "grab" sampling of water. In addition, harmful levels of toxicants are often present in such low concentrations that detecting them can be difficult and expensive. In some cases, a more realistic and cost-effective approach is to test the flesh of fish and other aquatic organisms that bioaccumulate these compounds in their tissues and concentrate toxicants through the food web.

In 1977, two biomonitoring programs were initiated by State Board: the Toxic Substances Monitoring and State Mussel Watch Programs. The Los Angeles Region is active in both programs which are implemented jointly by the State Board and the California Department of Fish and Game. Tissue samples collected under the TSMP are usually fish but can also include benthic invertebrates. The tissue is analyzed for trace metals and synthetic organic chemicals. The fish are generally collected from inland fresh waters but are occasionally collected from estuaries. The SMWP provides similar documentation of the quality of coastal marine and estuarine waters. Mussels, which are sessile (attached) bivalve invertebrates, serve as indicator organisms and provide a localized measurement of water quality, as they accumulate trace metals and synthetic organic chemicals in their tissues. Mussels are generally transplanted into the test site from "clean" areas of the state (generally Bodega Bay) although occasionally local, "resident" mussels are collected. Other types of shellfish can be used at times and sediments have, at times, been collected. The focus of TSMP sampling in the region has tended to be trend monitoring while the SMWP has been used more for "hot spot" identification although with lesser resources available in recent years, the SMWP has moved away from hot spot identification in favor of long-term trend monitoring at fewer sites in recent years. Data from these two programs have been critical in determining beneficial use impairments in coastal waters. These programs are now under the auspices of SWAMP; their data may be found on the State Board's website at: http://www.waterboards.ca.gov/swamp/mussel_watch.html .

Basin Planning

Water Quality Legislation

The Porter-Cologne Water Quality Control Act (California Water Code) was enacted by the State in 1969 and became effective January 1, 1970. This legislation authorizes the State Board to adopt, review, and revise policies for all waters of the state and directs the Regional Boards to develop regional Basin Plans.

The Clean Water Act (CWA), enacted by the federal government in 1972, was designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. One of the national goals states that wherever attainable, water quality should provide for the protection and propagation of fish, shellfish, and wildlife, and provide for recreation in and on the water (i.e., fishable, swimmable). The

CWA directs states to establish water quality standards for all "waters of the United States" and review and update such standards on a triennial basis.

The USEPA has delegated responsibility for implementation of portions of the CWA to the State and Regional Boards, including water quality planning and control programs such as the National Pollutant Discharge Elimination System (NPDES).

Besides state and federal laws, several court decisions provide guidance for basin planning. One decision reaffirmed the public trust doctrine, holding that the public trust is "an affirmation of the duty of the state to protect the people's common heritage in streams, lakes, marshlands, and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust." Public trust encompasses uses of water for commerce, navigation, fisheries, and recreation.

Basin Plans

Regional Board Basin Plans are designed to preserve and enhance water quality and protect the beneficial uses of all regional waters by providing consistent long-term standards and program guidance for the Region. Specifically, Basin Plans (i) designate beneficial uses for surface and ground waters, (ii) set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and (iii) describe implementation programs to protect all waters in the Region. In addition, Basin Plan incorporate (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. A copy of the Basin Plan may be found at http://www.waterboards.ca.gov/losangeles/html/meetings/tmdl/Basin_plan/basin_plan.html .

As part of the State's Continuing Planning Process, components of Basin Plans are reviewed as new data and information become available or as specific needs arise. Comprehensive updates of Basin Plans occur in response to state and federal legislative requirements and as funding becomes available. State Board and other governmental entities' (federal, state and local) plans, that can affect water quality, are incorporated into the planning process. Following adoption by Regional Boards, the Basin Plans and subsequent amendments are subject to approval by the State Board, the State Office of Administrative Law (OAL), and the United States Environmental Protection Agency (USEPA).

Basin Plan Amendments

Basin Plan amendments will be completed periodically as new standards, policies, and other information are developed. TMDLs will also be adopted as Basin Plan amendments and will generate a significant workload over the next 13 years. We also anticipate that watershed efforts utilized, in part, to accomplish TMDLs will identify other possibilities for Basin Plan studies and amendments (e.g., new or revised standards, new policies).

A Basin Plan amendment updating municipal and domestic water supply designations was brought to the Board for consideration in late 1998. In November 1998, the Regional Board voted to amend the Water Quality Control Plan for the Los Angeles Region (Basin Plan), by adopting a resolution to "Incorporate Changes in Beneficial Use Designations for Selected Waters." This amendment removed the beneficial use designation for "Municipal and Domestic Supply" (MUN) from eight surface waters and two ground water areas along the coast. The State Board voted to approve this amendment at the February 1999 Board hearing, however, in July 1999, the State Office of Administrative Law (OAL) issued a

Notification of Disapproval due to a number of details including our responses to comments. The Regional Board resubmitted groundwater portion of the amendment, which was approved by OAL in 2000.

In 1990, the Regional Board adopted Resolution No. 90-004 (Drought Policy) which had a term of three years and provided interim relief to dischargers who experienced difficulty meeting chloride objectives because of a state-wide drought. The policy adjusted effluent limits to the lesser of 1) 250 mg/l or 2) the chloride concentration in the water supply plus 85 mg/l. In 1995, the Regional Board extended the interim limits for three years and directed staff to develop a long-term solution to deal with the impact of changing water supply, especially during droughts. In 1997, the Regional Board adopted Resolution No. 97-002 (Chloride Policy) which amended the Basin Plan by setting the chloride objective at 190 mg/l except in the Calleguas Creek and Santa Clara River Watersheds where, due to the great concern for protection of agriculture, staff were directed to determine the chloride concentrations sufficient to protect agricultural beneficial uses. The Chloride Policy has since been approved by the State Board and Office of Administrative Law (OAL).

Recent Basin Plan amendments may be found on the Regional Board's website at http://www.waterboards.ca.gov/losangeles/html/meetings/tmdl/Basin_plan/basin_plan_amendment_tmdl.htm.

Water Quality Objectives

The CWA (§303) requires states to develop water quality standards for all waters and to submit to the USEPA for approval all new or revised water quality standards are established for inland surface and ocean waters. Water quality standards consist of a combination of beneficial uses and water quality objectives, as well as an antidegradation policy. Water quality objectives may be expressed as either numeric limits or a narrative statement.

In addition to the federal mandate, the California Water Code (§13241) specifies that each Regional Board shall establish water quality objectives. The Water Code defines water quality objectives as "the allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." Thus, water quality objectives are intended (i) to protect the public health and welfare and (ii) to maintain or enhance water quality in relation to the designated existing and potential beneficial uses of the water. Water quality objectives are achieved through Waste Discharge Requirements and other programs. These objectives, when compared with future water quality data, also provide the basis for identifying trends toward degradation or enhancement of regional waters.

Triennial Review Process

The California Water Code, (§13240), directs the State and Regional Boards to periodically review and update Basin Plans. Furthermore, the CWA (§303 [c]) directs states to review water quality standards every three years (triennial review) and, as appropriate, modify and adopt new standards.

In the Triennial Review Process, basin planning issues are formally identified and ranked during the public hearing process. These and other modifications to the Basin Plan are implemented through Basin Plan amendments as described below. In addition, the Regional Board can amend the Basin Plan as needed. Such amendments need not coincide with the Triennial Review Process.

The 2005 - 2007 Triennial Review identified 56 new basin planning priorities (24 issues were identified as high priorities, 14 as medium priorities, and 10 as low priorities); an additional eight projects are ongoing from the previous triennial review. The Basin Planning Program currently operates with less than two PYs (1.8 PYs) per year or 5.4 PYs over a three-year period. Completing all 56 over the next three years would require an estimated 18.65 PYs. A total of 2.6 Basin Planning PYs are needed to complete the eight ongoing projects leaving 2.8 Basin Planning PYs available over the following three years to address the highest priorities identified during this Triennial Review. Given these resource constraints, staff further ranked the 24 high priorities relative to each other. An estimated 7.95 Basin Planning PYs would be necessary to complete all 24 high priority issues. Ultimately, staff recommended addressing the eight ongoing projects (Basin Planning resource commitment of 2.6 PYs) along with the top eleven high priorities (Basin Planning resource commitment of 2.9 PYs) over the next three years.

The ongoing projects include: 1) develop & oversee pilot project on "tiered aquatic life uses"; 2) clarification of uses related to fish consumption, development of new use(s) and or subcategories of use; 3) oversee stakeholder-led studies to develop copper site-specific objectives (SSOs); 4) evaluate appropriate averaging period(s) for mineral quality objectives; 5) evaluate groundwater MUN de-designation requests, consider as an alternative maintaining the MUN use, but suspending objectives for natural constituents where it can be demonstrated the source is natural in origin; 6) adopt ammonia SSO (in the San Gabriel River, Los Angeles River, and Santa Clara River Watersheds); 7) participate in statewide effort to adopt total residual chlorine objectives and implementation provisions; and 8) develop a regional policy on hydromodification of watercourses in the Los Angeles Region, consider including criteria and evaluation requirements to be used by Board staff when evaluating projects for certification or WDRs.

The new high priority projects to be addressed are: 1) adopt the upcoming TMDLs as Basin Plan Amendments; 2) develop a general policy for interpreting narrative objectives, identify and prioritize narrative objectives for addition or revision, address one or two of the identified priorities; 3) consider developing a regional policy, or work with State Board staff on a statewide policy, on interpreting narrative toxicity objectives; 4) work with State Board staff to develop numeric or narrative objectives for sediment quality and sediment toxicity; 5) continue groundwork, including participation in RTAG, in support of developing nutrient criteria as required by USEPA; 6) update maps in Basin Plan; 7) evaluate what hardness value(s) should be used in the calculation of permit limits (or TMDLs) for hardness-dependent metals; 8) assess what temperature and pH values of what waters should be used in determining the ammonia objective for a waterbody, clarify how the 30-day objectives are evaluated; 9) continue groundwork in support of developing numeric biocriteria, develop a narrative objective for biological integrity (statewide effort); 10) clarify application of the tributary rule; and 11) participate in Statewide effort on Effluent-Dominated Waters Policy. Many of these issues were raised due to EPA recommendations, new legislation, court orders, or stakeholder input. The 2007 Triennial Review Process is currently underway.

Additional information on triennial reviews may be found on the Regional Board website at http://www.waterboards.ca.gov/losangeles/html/meetings/tmdl/Basin_plan/2004Triennial/2004Triennial.html.

Waivers

Regional Boards may issue both categorical and individual waivers. In the case of categorical waivers, the Regional Board must approve and issue categorical waiver criteria either through adopting a specific resolution or Basin Plan amendment. Once a categorical waiver is approved by the Regional Board, Regional Board staff may be delegated the responsibility to review and approve categorical waivers. Four categorical waivers have been approved in the Region, as set forth in Resolution No. 53-5 (adopted in 1953). These are: septic tanks, swimming pool discharges, on-site drilling mud discharges from single oil wells, and discharges from private impoundments or lakes. Individual waivers are typically for construction or development projects that are short-term or one-time events.

Section 13269, Paragraph (a), of the Water Code states that certain Water Code provisions "may be waived" by a Regional Board for a specific discharge or a specific type of discharge "if the waiver is not against the public interest." However, recent legislation (Senate Bill 390, amending Section 13269) requires that all waivers or waiver categories be evaluated and renewed every 5 years. The legislation stated that, initially, Regional Boards must evaluate and renew all waivers and waiver categories by January 1, 2003, otherwise they will automatically terminate. After this initial evaluation and renewal, Regional Boards must conduct on-going compliance monitoring and renew, every 5 years, all waivers and waiver categories. The evaluation of waivers requires an initial review of all waivers and waiver categories, as well as validation of the adequacy of waiver conditions through field sampling at a representative number of discharges granted waivers. Depending on the data generated from this exercise, the Regional Board may decide to renew the waiver category (based on the adequacy of waiver conditions and their observance), amend the conditions (based on their inadequacy as documented through field tests), or allow the waiver category to automatically terminate on 1/1/2003 (based on the documented impact on water quality). If the last option is chosen, the Regional Board will then have to determine how those discharges should be regulated—either through general WDRs or individual WDRs.

Conditional Waiver for Onsite Wastewater Treatment Systems (OSWS)

The septic tank waiver involved many complexities. The Regional Board issued waivers for residential onsite wastewater treatment systems (septic systems) in the early 1950's as Resolution Nos. 52-4 and 53-6. Through these waivers, the Regional Board delegated its septic system permitting responsibility to Los Angeles and Ventura Counties, among other local agencies with land use and planning powers. Recent legislation amending section 13269 of the CWC required that the Regional Board review its septic system waivers and either renew or terminate them by June 30, 2004. The Regional Board would need to issue general or individual WDRs for ongoing discharges in the event waivers were not renewed. The revised section also requires that the Regional Board enforce the waivers and renew and/or terminate them every five years.

According to section 13269 of the CWC and the Basin Plan, in order for the Regional Board to renew the waivers, they must find that discharges from residential septic systems pose a minimal threat to water quality. At the June 10, 2004 regular Board meeting, the Regional Board approved Resolution No. R4-008, adopting waivers and a template memorandum of understanding (MOU) for residential and certain de minimis commercial septic systems. The waivers were in effect for a period of 60 days in the unincorporated portion of the County of Los Angeles and the City of Malibu and 120 days in the remaining areas of the Region. Local agencies were required to enter MOUs with the Regional Board based on the template MOU in order for the waivers to be extended beyond these deadlines.

According to the template MOU, local agencies shall amend their municipal plumbing code and permitting program to be substantially equivalent to upcoming statewide standards for septic systems

adopted pursuant to sections 13290 and 13291 of the California Water Code. The template MOU also requires local agencies to conduct an inventory of all septic systems under their jurisdiction and take additional interim measures to ensure that septic systems pose a minimal threat to water quality. The MOUs shall be reviewed every five years. The Regional Board adopted general WDRs on September 2, 2004 (Order No. R4-2004-0146) to issue to homeowners in cities without waivers.

The Regional Board will issue Order No. R4-2004-0146 in cities where there is no MOU and where residents apply for permits for new or repaired systems.

AB 885 was passed in 2000 and requires the State Water Board to draft and implement statewide regulations for siting, installation, operation, and maintenance of OWTS. A draft of these regulations is available at http://www.waterboards.ca.gov/ab885/docs/ab885_draftrule.pdf.

Conditional Waiver for Irrigated Lands

The Los Angeles Regional Water Quality Control Board adopted the Conditional Waiver for Irrigated Lands at its November 3, 2005, Board meeting.

Statewide monitoring has shown the presence of chemicals associated with agriculture operations in waters of the state. And, in Ventura County, the Regional Board has observed water quality impairments related to agriculture. Under Section 13269 of the Porter Cologne Water Quality Control Act, waivers are appropriate when they are consistent with other water quality control plans and are in the public interest and are not to exceed 5 years in duration. The overall goal of the Conditional Waiver program is to improve and protect water quality in the Region through extensive water quality monitoring and implementation of Best Management Practices (BMPs). If the monitoring results show an exceedance of a water quality benchmark, development of a Water Quality Management Plan (WQMP) is triggered which will include the implementation of BMPs to mitigate the impairment.

The first year focused on enrollment and initiation of the program and identified the location of the Dischargers and monitoring sites. Once enrollment documents were reviewed, the Regional Board's Executive Officer issued the Notice of Applicability (NOA), which is the formal notice that the enrollment documents are approved. Water quality monitoring started in January 2007.

Dischargers can enroll in the program as an Individual or as a member of a Discharger Group. The majority of growers have enrolled as members of a Discharger group. The waiver program also requires 8 hours of educational training for growers.

There are currently two established Discharger Groups participating in the Conditional Waiver program. The Group representing growers in Ventura County is the Ventura County Agriculture Irrigated Lands group which consists of 1,080 landowner members representing 73,697 acres. There are 27,000 acres enrolled in the Santa Clara River Watershed.

Seven monitoring sites have been selected to characterize agriculture inputs in the watershed within Ventura County. The monitoring locations are generally located at the lower end of mainstem tributaries or agricultural drainages and were selected in areas that were primarily influenced by irrigated agriculture and unlikely to receive inputs from other land uses.

The Nursery Growers Association – Los Angeles County Irrigated Lands Group is the Discharger Group formed to represent growers in Los Angeles County.

Water Quality Priorities

Our major water quality priorities, as first described in the Introduction of this document, and roughly organized along program lines are reiterated below. In addition to those that are Regional Board-directed, priorities are mandated by legislation, statute, regulation, State Board, Cal-EPA, USEPA, and from sheer need to protect, restore, or enhance water quality. A list of the highest of these collective priorities follows along with brief highlights of past successes and future issues as appropriate. TMDL-related work is considered the highest statewide, as well as, regional priority. These Board priorities are further highlighted in the watershed and region-wide sections as appropriate. Grant funding may aid in addressing some of these priorities, at least in part, while other of these priorities will need to remain within the sole purview of the Board's regulatory programs. Some priorities that are seemingly associated with a single program, such as municipal stormwater permitting or TMDL development, in fact affect work in multiple programs which can make funding these priorities a complex task. Basin Planning, in particular, is often impacted by work done in other programs.

TMDLs

- Development, adoption, and implementation of **TMDLs** – about 20 TMDLs (with implementation plans) have been approved by USEPA and about 10 are awaiting approval; about 10 more are scheduled for development over the short-term
- Addressing **beach closures** – a number of beach bacteria TMDLs have been adopted including the Santa Monica Bay wet weather and dry weather TMDLs. Upcoming will be the potential adjustment of implementation schedules based on development of integrated water resources approaches and a re-evaluation of the reference system approach for setting allowable exceedance days.
- Implementation of **agricultural waiver** – good success in Ventura County (80% enrollment and WQ monitoring instituted) thus far; now need increased enrollment in LA County and overall strategic implementation of BMPs

Non Point Sources

- Need for strategies to address **agriculture** and **septic systems** - implementation of the agricultural waiver to further TMDL compliance is also helping fulfill NPS program goals; new septic systems located in areas without sufficient separation from groundwater and nearby surface waters must install advanced treatment; the next challenge for septic systems will be to address cumulative effects which occur with infilling new systems in areas already dense with existing systems.

Basin Planning and Standards

- Full implementation of our **water quality standards** program is a necessity – site-specific objectives were adopted for ammonia in the Santa Clara, San Gabriel, and Los Angeles Rivers Watersheds while a water effects ratio was adopted for copper in the Calleguas Creek Watershed.
- Work is ongoing to target a **design storm** for implementation of wet weather BMPs
- **Tiered Aquatic Life Uses**, in relation to biocriteria, are in development

NPDES Permits

- Controlling compounds from point sources which continue to cause instream toxicity and/or accumulate in sediments or biota – pthalates and other **emerging chemicals**, including pharmaceuticals are becoming major issues.

- **Power plants** – the nine facilities in the Region are conducting plankton studies and investigating possible alternatives to once-through cooling water discharges
- Municipal stormwater/urban runoff – the LA County **MS4 permit** was reopened twice to incorporate the summer dry weather provisions of two bacteria TMDLs; renewals of permits are in progress.
- **New/re-development** – proactively addressing water quality issues through CEQA, 401 certifications, or stormwater permits; ensuring wet weather compliance with construction permits.

Water Reclamation Requirements/Water Conservation

- Reduce, reuse, and **recycle water** – maximize water conservation in Region.
- Addressing the **regional salt management**/salt imbalance issue which is becoming increasingly critical in the region, and balancing this issue with the need to promote the use of reclaimed water.

Habitat Protection

- Preservation of high quality habitats – ensure maintenance of beneficial uses at these sites through support of **low-impact development** coupled with minimized/avoided hydromodification
- **Habitat loss/restoration** – even with strides in improving instream water quality, unless habitat is restored (riparian/wetlands, in particular), in many cases beneficial uses can not be fully restored.

Monitoring

- Coordination of existing resources and participation in the Surface Water Ambient Monitoring Program is of great importance as is more use of **bioassessment** as a tool.
- **Coordinated watershed-wide monitoring** programs exist in the San Gabriel River, Calleguas Creek, and Malibu Creek Watersheds while programs are being developed in the Los Angeles River and Santa Clara River Watersheds.

Contaminated Sediments/Waste Discharge Requirements

- Many of the impairments in the Region, particularly in harbors, are related to **contaminated sediments**. While source reduction will decrease pollutant levels over time, remediation of these sediments will also be needed which will be a long-term project. Cleanup of contaminated sediments in Consolidated Slip in Los Angeles Harbor will be a long-term project.
- Accurately characterizing the threat from contaminated sediments throughout the Region will be aided with adoption of **sediment quality objectives** in the near future by State Board.

Potential Projects, Activities, or Needs to Meet Board Priorities or Otherwise Improve Water Quality

The table below contains a cumulative list of activities, projects, or needs which we, or our stakeholders, see as ways to improve water quality and beneficial uses in the various watersheds (or region-wide). Those activities, projects, or needs most directly involved with our water quality priorities listed above are highlighted in **bold**. In general, funding is available from a large variety of state and federal agencies as well as private groups and these should be utilized as fully as possible even when a proposal involves addressing one of our water quality priorities. Funding source requirements should be carefully researched to ensure a good match with potential projects. Consulting the California Watershed Funding Database at http://calwatershedfunds.org/ may be helpful.

Our long-term, cumulative list of potential grant projects

Project/Activity/Needs Type and Description	San Gabriel River	Los Angeles River	Santa Monica Bay	Ventura River	Calleguas Creek	Santa Clara River	Misc. Ventura Coastal	Dominguez Ch/Harbors	Los Cerritos/Alamitos Bay	Region-wide
TMDLs										
Implement TMDLs & projects supporting TMDLs										X
Investigate loading contributions from septic systems			X			X	X			
Evaluate impacts of antifouling paints and pump-outs in marinas			X					X	X	
Evaluate impacts from large-scale development in the upper river, and integration of sustainable land uses and landscape designs						X				
Identify conflicts between water supply and water quality in lower watershed						X				
Loading contributions from agricultural activities:					X	X				
Quantify & characterize nitrogen and salt loading contributions to ground and surface water					X	X				
Quantify & characterize historic pesticides loading					X	X				
Quantify & characterize chlorpyrifos & diazinon loading					X	X				
Quantify & characterize sediment loading					X					
Investigate toxicity from agriculture loading					X	X				
Quantify & characterize crop- or practice-specific pollutant loading contributions (i.e., strawberries or nurseries)	X	X	X	X	X	X	X			
Agricultural practices:										
Quantify & characterize irrigation practices										X
Quantify & characterize pesticide application rates					X	X	X		X	X
Quantify & characterize tile drains					X				X	
Quantify & characterize existing Agriculture Management Measures										X
Loading contributions from urban activities:										X
Investigate loading contributions from residential and urban activities					X	X	X			
Quantify & characterize organics and/or metals accumulation and loadings				X	X			X	X	
Evaluate and identify sources of urban runoff toxicity			X							
Prioritize storm drains needing diversion; focus efforts on major problem drains for coliform TMDL implementation	X		X							
Identify and evaluate opportunities to promote recovery and restoration of steelhead trout			X	X		X				
Develop TMDLs										X
Investigate loading contributions from golf courses										X
Evaluate impacts of reservoir cleaning on water quality	X									

Evaluate impacts of reclaimed water on surface/groundwater	X									
Evaluate impacts of urban runoff on isolated water bodies									X	
Evaluate impacts of loss of tidal exchange									X	
Evaluate peak storm water runoff discharge control to reduce erosion			X							
Assess fish contamination levels in entire Santa Monica Bay			X							
Investigate eutrophication in the Ventura River Estuary				X						
Investigate sedimentation in Mugu Lagoon					X					
Non Point Sources										
Nonpoint pollution control strategies:										X
Implement Irrigation Management Measures										X
Implement septic corrective measures		X	X				X			
Implement management measures to reduce NPS pollution in marinas			X				X	X		
Implement Erosion & Sediment Control Management Measures (natural/non-structural) to reduce erosion while increasing wildlife habitat			X	X	X	X	X			
Urban nonpoint pollution control:										X
Implement trash reduction BMPs	X	X	X							
Implement urban runoff reduction BMPs	X	X	X					X	X	
Manage urban runoff	X	X	X		X	X	X	X		
Agricultural nonpoint source control:	X	X	X	X	X	X	X			
Implement Ag waiver BMP program				X	X	X	X			
Implement Integrated Farm Management Plans				X	X	X	X			
Implement Nutrient Management Measures				X	X	X	X			
Implement agricultural buffer BMPs				X	X	X	X			
Pesticide Management:										X
Implement Integrated Pest Management Practices					X	X				
Implement chlorpyrifos & diazinon loading control measures					X	X				
Manage horse corral runoff	X	X	X	X						
Manage golf course irrigation runoff		X			X				X	
Manage nursery runoff	X	X								
Research management measures to reduce NPS pollution in marinas							X			
Evaluate which BMPs are most effective for the various industrial sectors										X
Study effectiveness of non-structural BMPs (public outreach)			X							
Evaluate design and performance standards for implementation of storm water BMPs										X
Analyze storm water quality data and trends from various industrial sectors (e.g. metal yards, waste management facilities, etc.)										X
Develop nonpoint pollution control strategies										X
Basin Planning and Standards										
Further investigate efficacy of Tiered Aquatic Life Uses										X

Support continued work in development of nutrient objectives										X
NPDES Permits										
Septic tank education/outreach			X				X			
Implement Agriculture Management Measures Education/Outreach					X	X	X			
Conduct activities to increase public awareness of nonpoint source pollution and the related solutions available										X
Implement watershed education and outreach										X
Water Reclamation Requirements/Water Conservation										
Expand water recycling/conservation facilities										X
Habitat Protection										
Restore pocket wetlands along highly altered waterways where there were historic wetlands	X	X						X	X	
Restoration impaired riparian and aquatic habitats (i.e. Malibu Lagoon, McGrath Lake, Topanga Lagoon, Ormond Beach area, Colorado Lagoon, Dominguez Ch. soft bottom)	X	X	X		X	X	X	X	X	
Restore river channels and habitat following impacts from mining	X					X				
Enhance/restore steelhead trout habitat			X	X		X				
Enhance the water's beneficial and recreational uses	X	X	X				X			
Implement mitigation measures for floodplain development						X				
Monitoring										
Implement a watershed wide monitoring program								X		
Implement biological & toxicity monitoring	X		X		X	X	X	X	X	
Implement ag waiver monitoring program										X
Research and develop indicators and a "report card" format										X
Develop practical sanitation survey tools			X							
Implement citizen monitoring	X								X	
Contaminated Sediments/Waste Discharge Requirements										
Mitigate groundwater overdraft						X	X			
Investigate nitrogen and salt loading contributions to ground and surface water					X	X			X	X
Demonstrate water reuse projects to lower demand on supply										X
Identify conflicts between water supply and water quality in lower watershed						X				

Watersheds where projects/activities/needs to be addressed are of the greatest important *(independent of whether a water quality priority is being addressed)* are marked with an "X". We would prefer the identified projects/activities/needs in these watersheds specifically be funded.

Since many funding sources require proposed projects be consistent with watershed management, restoration, or other plans for the watershed (otherwise collectively identified here as "Watershed Restoration Action Strategies"), the table below list those we know about, whether final, draft, or in process. Additionally, many State grant funding sources are now requiring a proposed project be included in an Integrated Regional Water Management Plan (IRWMP).

Watershed Restoration Action Strategies in the Los Angeles Region

Watershed or Watershed Management Area	Watershed Restoration Action Strategies or Equivalent Documents (in progress, draft, or final)
Los Angeles River Watershed	US Forest Service. *Forest Plan, Angeles National Forest*. (Final) http://www.fs.fed.us/r5/scfpr/projects/lmp/index.htm San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy. *Guiding Principles Watershed and Open Space Plan* (Final) http://www.rmc.ca.gov/ City of Los Angeles, US Army Corps of Engineers, et al. *Los Angeles River Revitalization Master Plan*, 2007. (Final) http://www.lariver.org Northeast Trees. *Arroyo Seco Watershed Management and Restoration Plan* (Final), 2006. http://www.waterboards.ca.gov/losangeles/html/programs/funding/ArroyoSeco%20WMRP.pdf San Gabriel Valley Council of Governments. *Rio Hondo Watershed Management Plan*, 2004 (Final) http://www.rmc.ca.gov/rio_hondo/rh_index.html The River Project. *Tujunga Watershed Management Plan* (in progress) http://www.theriverproject.org/tujunga/ Los Angeles and San Gabriel Rivers Watershed Council. *Compton Creek Watershed Management Plan* (Final) http://www.lasgrwc.org/ComptonCreek.htm
Calleguas Creek Watershed	Natural Resources Conservation Service. *Calleguas Creek Watershed Erosion and Sediment Control Plan for Mugu Lagoon*, 1995. (Final) Calleguas Creek Watershed Management Plan Committee. *Draft Calleguas Creek Watershed Management Plan* (draft) http://www.calleguas.com/ccbrochure/cc.htm David Magney Environmental Consulting. *Calleguas Creek Watershed Wetland Restoration Plan*, 2000. (Final) http://www.calleguas.com/ccbrochure/ccwrp.pdf
Santa Monica Bay WMA	Santa Monica Bay Restoration Project. *Santa Monica Bay Restoration Plan*, 1995. (Final) RCD of the Santa Monica Mountains. *Topanga Creek Watershed Management Plan*, 2002 (Final) http://www.topangaonline.com/twc/index.html Natural Resources Conservation Service. *Malibu Creek Watershed Natural Resources Plan*, 1995. (Final) Los Angeles County Department of Public Works. *Watershed Management Area Plan for the Malibu Creek Watershed* (Draft) Los Angeles County Department of Public Works. *Ballona Creek Watershed Management Plan*, 2004 (Final) http://www.ladpw.org/wmd/watershed/bc/
San Gabriel River Watershed	US Forest Service. *Forest Plan, Angeles National Forest*. (Final) http://www.fs.fed.us/r5/scfpr/projects/lmp/index.htm Los Angeles County Department of Public Works. *San Gabriel River Master Plan* (Final) http://www.sangabrielriver.com San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy. *Guiding Principles Watershed and Open Space Plan* (Final) http://www.rmc.ca.gov/ *Coyote Creek Watershed Management Plan* (Final) http://www.ocwatersheds.com/watersheds/coyotecreek.asp
Los Cerritos Channel/Alamitos Bay WMA	*Colorado Lagoon Restoration Feasibility Study* (Final). http://www.longbeach.gov/news/displaynews.asp?NewsID=561

Watershed or Watershed Management Area	Watershed Restoration Action Strategies or Equivalent Documents (in progress, draft, or final)
Dominguez Channel WMA	Los Angeles County Department of Public Works. *Dominguez Channel Watershed Management Area Plan*, 2004. (Final) http://ladpw.org/wmd/watershed/dc City of LA Department of Recreation and Parks and Palos Verdes/South Bay Audubon Society. *Ken Malloy Harbor Regional Park Development Program. Volume I. Habitat Restoration and Lake Water Quality Improvement Design Development Report*, Prepared by Parsons. 2001. (Final)
Channel Islands WMA	Department of Navy. *San Clemente Island Integrated Natural Resources Management Plan*. 2002 (Final)
Santa Clara River Watershed	Santa Clara River Enhancement and Management Plan Steering Committee. *Santa Clara River Enhancement and Management Plan.* (Final) http://www.vcwatershed.org/Watersheds_SantaClara.html City of Santa Clarita. *Santa Clara River Corridor Plan.* (Final) US Forest Service. *Forest Plan, Los Padres National Forest*. (Final) http://www.fs.fed.us/r5/scfpr/projects/lmp/index.htm Upper Santa Clara River IRWMP (in progress) http://www.ladpw.org/wmd/scr/
Ventura River Watershed	Entrix, Inc. *Steelhead Trout Restoration and Recovery Plan*, 1997. (Final) US Forest Service. *Forest Plan, Los Padres National Forest*. (Final) http://www.fs.fed.us/r5/scfpr/projects/lmp/index.htm
Regionwide	California Regional Water Quality Control Board, Los Angeles Region. *Watershed Management Initiative Chapter*, 2007. (Final) http://www.waterboards.ca.gov/losangeles/html/programs/regional_programs.html California Regional Water Quality Control Board, Los Angeles Region. Adopted TMDLs. http://www.waterboards.ca.gov/losangeles/html/meetings/tmdl/tmdl.html Los Angeles County IRWMP (Final) http://www.lawaterplan.org/ Ventura County IRWMP (Final) http://www.watershedscoalition.org/
Regionwide, wetlands	Current fiscal year workplan adopted by Board of Governors of the Southern California Wetlands Recovery Project. (Final) http://www.scwrp.org

Wetlands Protection and Management

Wetlands acres in the Region have diminished greatly over the past several decades as coastal development, in particular, has increased. Wetlands provide habitat, serve to slow down water flow, decrease total volume through infiltration, and filter out a number of pollutants through active uptake by plants as well as deposition in sediments. Wetlands such as coastal estuaries are a buffer zone between ocean and inland water resources and are heavily utilized by aquatic organisms. Continuous stretches of riparian habitat function as wildlife corridors to allow animal movement between increasingly isolated populations. They also serve as popular recreational destinations for residents and visitors. Unfortunately, many of our Region's wetlands are impacted by varying kinds and amounts of pollutants and alterations.

Over the past approximately 15 years, we have embarked on a number of efforts to inventory and evaluate our Region's wetlands. These efforts have included the following:

- We funded a 1993 study, entitled *Waterbodies, Wetlands, and their Beneficial Uses in the Los Angeles Region* which provides descriptions, maps, photos, and functional values of wetlands throughout the region.

- The Santa Monica Bay Restoration Project funded a wetlands inventory in 1993 which outlines historical changes in wetlands in the Santa Monica watershed, an inventory of current wetlands in the watershed, and potential restoration and creation projects in the watershed.

- The Regional Board continues involvement in the Southern California Wetlands Recovery Project (WRP) which is a partnership of public agencies working cooperatively to acquire, restore, and enhance coastal wetlands and watersheds between Point Conception and the International border with Mexico. Using a non-regulatory approach and an ecosystem perspective, the WRP works to identify wetland acquisition and restoration priorities, prepare plans for these priority sites, pool funds to undertake these projects, implement priority plans, and oversee post-project maintenance and monitoring. When compared to estimated historical acreages, Los Angeles County has lost 93% of its wetlands while Ventura County has lost 58% of its wetlands. Currently, the Project funds wetlands projects which involve planning, restoration, or acquisition. Some of the this region's wetlands given a high priority for funding include Los Cerritos Wetlands, Malibu Lagoon, Ormond Beach Wetlands, and the Ventura River estuary. More information about the Project may be found on its webpage at http://www.scwrp.org.

  Several major recent activities of the WRP (and partners) has direct relevance to our wetlands protection efforts. The WRP participated in development of a method to assess the condition of wetlands, the California Rapid Assessment Method (CRAM). It is envisioned that this method will eventually be incorporated into monitoring for various regulatory programs such as 401 certifications. It will also serve as a major component of the Integrated Wetlands Regional Assessment Program (IWRAP) which is under development by the WRP in coordination with similar efforts elsewhere in the State. Coordination with Bight '08 is in the planning stages. Finally, remaining activities include the mapping of existing wetland and riparian acreages to serve as a baseline in the IWRAP since monitoring will include a regional survey every ten years, the digitizing of historic topographic maps to help inform restoration work, and development of a Wetlands Tracker database to aid in tracking gains and losses of wetlands acres across both regulatory and non-regulatory programs.

Water Quality Certification (401) Program

A key wetlands regulatory tool for the Regional Board is the CWA Section 401 Water Quality Certification Program which regulates discharges of dredge and fill materials to waters. The 401 certification program is one of the most effective tools the state has for regulating hydrologic modification projects, especially those which directly impact the region's diminishing acres of wetlands and riparian habitat. Program work is conducted in conjunction with U.S. Army Corps of Engineers and the California Department of Fish & Game.

Key program activities should include CEQA documents review/response (possibly involvement as lead agency), pre-construction meetings with applicants, site visits, application processing, follow-up monitoring and inspections, and enforcement. Unfortunately, the program is currently severely underfunded with only application processing being undertaken. Any incremental increases in the baseline PYs would go first toward follow-up work and enforcement, then toward increased support of application processing, then coordination meetings, site visits, and CEQA documents review/response. Follow-up work is especially critical since mitigation wetlands often do not function as well as projected during the planning phase. Another very important activity that could be funded is the development of policies regarding in-stream gravel mining and use of in-stream sediment basins.

Furthermore, beginning in FY00/01, the program began requiring in-house certification rather than sign-off by State Board. This has resulted in more detailed review of all projects, even those which would previously have been given less attention (those with little likelihood of producing impacts) with less time then being available for large projects likely to produce impacts. Another program change which occurred during FY00/01 was allowing third-party petitions of certification decisions; previously, only the applicant was allowed to do this. This leads to potentially needing to divert scarce resources from application processing to litigation work.

Approximately 150-200 applications are processed each year. Information about projects and the program in general is available on the Regional Board website at http://www.waterboards.ca.gov/losangeles/html/meetings/401wqc.html. Additional information may be found on the State Board website at http://www.waterboards.ca.gov/cwa401/index.html

It is envisioned that the eventual use of CRAM and Wetland Tracker as a condition of granting a 401 certification will lead to better information on the effectiveness of mitigation projects in replacing wetlands acres and lost ecosystem values.

Management of Nonpoint Source Pollution

Background

Management of NPS pollution is based upon the requirements of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The Porter-Cologne Act, Division 7 of the California Water Code, establishes a comprehensive program for the protection of water quality and beneficial uses of the State's waters and makes explicitly clear the law applies to nonpoint as well as point source discharges. The implementation portion of this comprehensive program should provide for the attainment of water quality standards. The Porter-Cologne Act also establishes the administrative permitting authority—in the form of Waste Discharge Requirements (WDRs), waivers of WDRs or basin plan prohibitions—to be used to control NPS discharges. Additional legislative requirements state that all waivers must be conditional, they are to be re-evaluated and subsequently reissued every five years, and the RWQCBs must require compliance with waiver conditions.

California's Nonpoint Source (NPS) Pollution Control Program has been in effect since 1988 and was updated in 2000. In August 2004 the Office of Administrative Law approved the NPS Policy. The policy supersedes certain elements of the NPS Program Plan and formally eliminates the "three-tiered approach" in informal use.

The two primary federal statutes that establish a framework for addressing nonpoint source pollution in this Region are **Clean Water Act (CWA) Section 319** and the **Coastal Zone Act Reauthorization Amendments (CZARA) of 1990 Section 6217**. Together these statutes encourage states to assess water quality problems associated with nonpoint sources of pollution and to develop programs to control these sources.

- CWA Section 319 requires that, in order to be eligible for federal funding, states develop an assessment report detailing the extent of nonpoint source pollution, and a management program specifying nonpoint source controls.

- CZARA Section 6217(a) requires the state to develop and implement management measures for nonpoint source pollution to restore and protect coastal waters; establish coastal nonpoint source programs.

These programs are being implemented through changes to the state's nonpoint source control program approved by USEPA under CWA Section 319 and through the state's coastal zone management program (implemented in this state by the California Coastal Commission) approved by NOAA under Coastal Zone Management Act Section 306.

Under CZARA, California must (1) provide for the implementation of management measures that are in conformity with the USEPA *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (1993) and (2) provide a process for developing and revising management measures to be applied in critical coastal areas and in areas where necessary to attain and maintain water quality standards.

Management measures are defined in CZARA as: "economically achievable measures to control the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollution reduction achievable through application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other available alternatives." Mechanisms for implementation of these management measures may include, for example, permit programs, zoning, enforceable water quality standards, and general environmental laws and prohibitions by which a state exerts control over private and public lands and water uses and natural resources in the coastal zone (including those which may be implemented by agencies other than the State Water Resources Control Board and the California Coastal Commission). States may also use voluntary approaches like economic incentives if they are backed by appropriate regulations.

The State's updated nonpoint source management plan includes a 5-year implementation plan as well as a longer-term 15-year implementation strategy. The plan was adopted by USEPA and NOAA in July 2000. Implementation of the plan will entail the use of considerable resources at the Regional Board level. The "Policy For Implementation And Enforcement Of The Nonpoint Source Pollution Control Program" was adopted by State Board in 2004.

Documents relating to the management plan as well as other useful information may be found at http://www.waterboards.ca.gov/nps/index.html .

The Plan for California's Nonpoint Source Pollution Control Program includes requirements for Critical Coastal Area (CCA) designation. The intent of CCA designation is to direct needed attention to coastal areas of special biological, social, and environmental significance and to provide an impetus for these areas to receive special support and resources. The goal was to identify areas of the coast that are adjacent to coastal water bodies impacted by nonpoint source pollution, or adjacent to high quality waters threatened but not yet impacted by nonpoint source pollution. Documents relating to CCAs can be found at http://www.coastal.ca.gov/nps/cca-nps.html .

While it is clear nonpoint sources of pollution are difficult to manage, the state's current nonpoint source management plan approach which can be tailored to the particular situation:

- Regulatory-based encouragement of management practices (MPs), may occur when voluntary implementation is lacking. Encouragement may be effected through Regional Board waiving of waste discharge requirements if compliance with MPs occurs. Or, MPs may be enforced indirectly by entering into management agency agreements (MAAs) with agencies which have the authority to enforce. These MAAs would reference the specific MPs to be used and the means of implementation.

- The Regional Board can adopt and enforce requirements on any waste discharge including those from nonpoint sources. This involves prescribing effluent limitations which would in turn require implementation of MPs in order to insure compliance.

Specific nonpoint source issues and implementation activities relative to individual watersheds are described in the appropriate watershed section while a general outline of our approach in addressing nonpoint pollution follows.

Our Approach

The State's Nonpoint Source Management Plan puts an emphasis on prioritization of nonpoint source categories as well as those waters impacted by nonpoint source pollution. It also states that management activities and implementation schedules needs are to be identified (e.g. monitoring for source identification, education, training, regulation, interagency agreements, and employment of MPs). As is discussed elsewhere, many of these activities are severely underfunded. However, with that in mind, the following presents this Region's goals and objectives for the implementation of the State's Nonpoint Source Management Plan. Program objectives which apply most specifically to particular watersheds are highlighted and enlarged upon in the appropriate watershed section, as appropriate. The following program objectives will serve as a basis for workplan development; the final list of tasks will be dependent on the level of funding.

Nonpoint Source Program Goals

Long-term Program Goal: improve water quality by implementing the management measures identified in the California Management Measures for Polluted Runoff Report (CAMMPR) by 2013

- Coordinate the nonpoint source program
- Manage Clean Water Act Section 319(h) nonpoint source control contracts
- Implement the Region's Waiver of Waste Discharge Requirements for Irrigated Agriculture
- Reduce pollutant loadings through atmospheric deposition control

Nonpoint Source Program Objectives

1) Program coordination – To coordinate 319(h) work plan activities to reflect Water Board priorities; to better coordinate our resources with other divisions and agencies; and implement a strategy that reflects all the NPS Programs contributions to improve water quality.

2) Contract management - Continue focusing 319(h) grant management effort toward building measurable water quality improvements.

3) Agricultural waiver implementation - Continue with first year of agricultural waiver water quality monitoring, review Discharger Group and Individual Discharger 1st annual monitoring reports (includes monitoring data). Initiate development of Water Quality Management Plans as necessary and oversee first round of BMP implementation (irrigation management, pesticide management, nutrient management and erosion control.). Continue grower education and outreach meetings, particularly in LA County to increase enrollment. Set up database to house water quality data generated by the Ag Waiver program

4) Atmospheric deposition control - Collection of data and rigorous and comprehensive assessment of the contribution of atmospheric deposition to water quality impairments; establishment of a working group with local air quality agencies to participate on the Los Angeles and Long Beach Harbors metals TMDL; development of parts of an implementation plan/guidance which addresses air deposition.

REGIONAL NPS* PROBLEMS BY MANAGEMENT MEASURE CATEGORY

	Pollutants impairing or threatening Beneficial Uses arranged by Management Measure Category					
Watershed	Agriculture	Silviculture	Urban	Marinas & Recreational Boating	Hydromodification	Wetlands & Vegetated Treatment Systems
Calleguas Creek Watershed	nitrogen sediment toxicity siltation toxicity salts selenium historic pesticides chlorpyrifos		nitrogen sediment toxicity siltation toxicity mercury other metals historic pesticides chlorpyrifos PCBs trash		siltation	
Los Angeles River Watershed	nitrogen chlorpyrifos historic pesticides coliform		nitrogen chlorpyrifos historic pest. trash selenium other metals coliform PCBs oil VOCs			
Miscellaneous Ventura Coastal Waters WMA	sediment toxicity historic pesticides		sediment toxicity historic pesticides coliform PCBs metals	coliform PCBs TBT metals		
Santa Clara River Watershed	historic pesticides nitrogen salts toxicity chlorpyrifos diazinon		historic pesticides nitrogen coliform toxicity chlorpyrifos diazinon trash			
San Gabriel River Watershed	nitrogen coliform toxicity diazinon		nitrogen coliform toxicity PCBs trash chloride diazinon selenium mercury other metals			

REGIONAL NPS* PROBLEMS BY MANAGEMENT MEASURE CATEGORY (cont'd)

	Pollutants impairing or threatening Beneficial Uses arranged by Management Measure Category					
Watershed	Agriculture	Silviculture	Urban	Marinas & Recreational Boating	Hydromodification	Wetlands & Vegetated Treatment Systems
Santa Monica Bay WMA	coliform nitrogen		coliform nitrogen PCBs sediment toxicity benthic community effects toxicity PAHs arsenic mercury other metals historic pesticides trash fish consumption advisory debris salts	coliform metals PCBs sediment toxicity benthic community effects toxicity PAHs TBT	exotic vegetation habitat alteration hydromodification reduced tidal flushing fish barriers	reduced tidal flushing exotic vegetation
Dominguez Channel and LA/LB Harbors WMA			coliform sediment toxicity benthic comm. effects PCBs historic pesticides PAHs metals nitrogen trash	coliform sediment toxicity benthic comm. effects PCBs historic pesticides PAHs metals TBT		
Los Cerritos Channel and Alamitos Bay WMA			historic pesticides PCBs sediment toxicity PAHs metals nitrogen coliform			
Ventura River Watershed	eutrophication DDT selenium		eutrophication metals trash		diversions	diversions

* Problems may be partially or fully due to NPS. Point sources may also be contributing to the problem.

Regional Board Enforcement Strategy

The statewide Water Quality Enforcement Policy adopted by State Board in 1996 and revised again in 2002 is intended to make all enforcement consistent, predictable, and fair throughout the state. On March 3, 1997, the Regional Board adopted Resolution No. 97-005 which confirmed the Board's desire to carry out enforcement in a manner consistent with State Board's enforcement policy and that Regional Board staff prepare a regional enforcement strategy consistent with State Board's enforcement policy. The Resolution directed staff to implement the Regional Enforcement Strategy.

The statewide Water Quality Enforcement Policy upon which the Region Board Enforcement Strategy is based states that "(v)iolations of Waste Discharge Requirements (WDRs) or applicable statutory or regulatory requirements should result in a prompt enforcement response against the discharger. At a minimum, the Regional Board staff must bring the following to the attention of their Regional Board for possible enforcement action:" effluent limit violations/other permit violations - major dischargers; effluent limit violations/other permit violations - other NPDES/WDR dischargers; toxicity violations - all NPDES dischargers; violations of compliance schedules and enforcement orders - all dischargers; failure to submit reports/deficient reports (excluding stormwater); violations of POTW pretreatment programs; stormwater permit violations/deficiencies/failure to submit reports; other violations and enforcement actions; and spills (generally, non-permittees).

Priority violations include: all NPDES violations that the United States Environmental Protection Agency (USEPA) requires to be reported on the Quarterly Non-Compliance Report (QNCR) for the purpose of tracking significant non-compliance; all violations subject to mandatory minimum penalties pursuant to California Water Code section 13385; and other violations that the SWRCB and/or RWQCB considers to be significant and therefore high priority. Depending on the circumstances, violations that are not included on this list could nonetheless be considered "priority" as well. A copy of the Policy may be found at http://www.waterboards.ca.gov/plnspols/index.html .

Board staff are also involved in a number of interagency environmental task/strike forces including the U.S.EPA Environmental Strike Force, Los Angeles County Strike Force, Ventura County Strike Force, and Santa Monica Mountains Task Force.

Data Management And GIS

Historically, the State Water Information Management system (SWIM) was used as an organizational-wide database designed to facilitate electronic reporting, tracking, and analysis of regional data and information. The California Integrated Water Quality System (CIWQS) has succeeded SWIM as the computer system used by the Water Boards. CIWQS tracks permits, inspections, violations, and enforcement actions. CIWQS also allows on-line submittal of information by Permittees within certain programs and makes data available to the public through reports. A link to CIWQS can be found at http://www.waterboards.ca.gov/ciwqs/index.html. Of great importance is collection of location information so that data and information can be portrayed in layers in a Geographic Information System(GIS).

Other Region-wide Activities

Other activities may be undertaken at odd intervals during the watershed cycle. These include, among others, reviewing CEQA and NEPA documents, reviewing and commenting on requests for Section 401 water quality certification, landfill regulation, site (including DOD/DOE) cleanups, well investigation program activities, leaking underground storage tank cleanups, routine public outreach, and responding to spills, complaints (unrelated to permits), and special requests from the Regional Board. Some of the other region-wide strategies and programs the Regional Board implements are described in more detail below.

BEACHES/COASTAL WATERSHED ACTIVITIES

This Region's coastal resources support many of our most valuable beneficial uses. Our beaches, from Ventura through Zuma, Malibu, Venice and Long Beach are world-renowned. The Region's coastal estuaries, dunes, and wetlands are nearly gone and what is left are highly degraded. These resources, while inherently valuable as natural resources, also have a high economic value to the State with many vacationers naming beaches and lakes as their prime vacation destination. These beaches and coastal resources are a huge tourist dollar generator.

Concurrently, our Region's ports and marinas support valuable beneficial uses providing important avenues of trade as well as recreational boating opportunities and marine habitat. They too are impacted by the need to dredge and dispose of sediments often contaminated by upstream watershed sources.

It is clear the impacts to beaches, bays, coastal wetlands and estuaries, and nearshore waters is especially critical to address from both an economic and ecological perspective. The Regional Board is focusing on protecting these resources through a combination of integrated coastal planning and an aggressive effort to assess and control watershed loadings of key pollutants which continue to degrade coastal areas and increase the costs of dredging. Specific elements of our Beaches/Coastal Watersheds activities that have funding are described below.

Contaminated Sediment Long-term Management Strategy

The Los Angeles County's coastline includes two of the nation's largest commercial ports and several major marina complexes and small-vessel harbors. Maintenance of authorized depths in existing channels and berthing areas and expansion and modernization of ports, harbors, and marinas, requires periodic dredging in virtually all of these facilities. Some of the sediments dredged from these harbors contain elevated levels of heavy metals, pesticides, and other contaminants. In most cases, the concentrations of these contaminants do not approach hazardous levels. However, the sediments contain enough contaminants that they are not suitable for unconfined ocean disposal. The State's Bay Protection and Toxic Cleanup Program identified bays and estuaries containing areas with contaminated sediments. Remediation of these sites may require dredging and disposal of this material. Disposal of any contaminated dredged materials requires special management, such as placement in a confined aquatic disposal site, capping, or disposal in an upland site. Additionally, some ports and harbors have considered other management techniques, such as treatment and beneficial re-use.

The ports and harbors have at times delayed or canceled dredging projects because of contaminated sediment issues. The regulatory agencies were evaluating disposal options for these projects on a case-by-case basis without the benefit of a regional perspective on management alternatives, cumulative impacts, and long-term solutions to prevent re-contamination of sediment. This approach has led to

public concern over the ecological and human health implications of contaminated dredged material disposal. To resolve these issues, the regulatory and resource agencies, ports and harbors, environmental groups, and other interested parties agreed to establish a task force. The mission of the **Contaminated Sediment Task Force** (CSTF) is to prepare a Contaminated Sediment Long-Term Management Strategy (Strategy) for the Los Angeles Region (limited to Los Angeles County). Past projects suggest that the major sources of contaminated dredge material will continue to be Marina del Rey Harbor, the ports of Los Angeles and Long Beach, and the mouth of the Los Angeles River.

The members of the CSTF agreed that the Strategy will consider confined aquatic and upland disposal, sediment treatment, beneficial re-use, other management techniques, and contamination source control. The CSTF agreed on a number of goals including identifying the scope of the contaminated sediment problem, an analysis of management and disposal alternatives, development of a unified regulatory approach, and identify inputs of contaminants to coastal waters and ongoing regional efforts to reduce such inputs with a view towards promoting efforts that would reduce the inflow of contaminants. Initially, the CSTF will work with existing watershed management programs.

The CSTF was established through a Memorandum of Understanding (MOU) among the state and federal agencies with regulatory jurisdiction over dredging and disposal activities, as identified by SB 673, and other agencies representing ports, harbors, and marinas. The following agencies are signatory to that MOU: U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; California Coastal Commission; Regional Water Quality Control Board, Los Angeles Region; County of Los Angeles Department of Beaches and Harbors; City of Long Beach; Port of Long Beach; and Port of Los Angeles.

The CSTF is carrying out its operation by two main committees (Executive and Management Committees), and five strategy development committees (Watershed Management and Source Reduction, Aquatic Disposal and Dredging Operations, Upland and Beneficial Re-use, Sediment Screening Thresholds, and Implementation Committees). The membership of the Management Committee includes those parties that signed the MOU and one organization selected to represent the environmental community (Heal the Bay). This committee is the main decision-making group with the CSTF. The Executive Committee consists of the chief executives of the four major agencies that regulate and manage dredging and disposal in Southern California. This committee will facilitate final agency concurrence, adoption, and implementation of the completed strategy. The strategy development committees will develop specific elements of the long-term management plan.

The CSTF completed a Contaminated Sediment Long-Term Management Strategy in 2005 and the document is available at http://www.coastal.ca.gov/sediment/long-term-mgmt-strategy-5-2005.pdf . Other relevant documents may be found at http://www.coastal.ca.gov/sediment/sdindex.html.

Areas of Special Biological Significance

The California Ocean Plan (Ocean Plan) establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's coastal waters. It applies to point and non-point source discharges. The State Board adopts the Ocean Plan, and both the State Board and the six coastal Regional Boards implement the Ocean Plan. In 1972 the Ocean Plan stated: "Waste shall be discharged a sufficient distance from areas designated as being of special biological significance to assure maintenance of natural water quality conditions in these areas."
In the mid-1970's, thirty-four areas on the coast of California were designated as requiring protection by the State Board and were called Areas of Special Biological Significance (ASBS). The ASBS were

intended to afford special protection to marine life through prohibition of waste discharges within these areas. Similar to previous versions of the Ocean Plan, the 2005 Ocean Plan states: "Waste shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas."

During the latter half of the 20th century, various state agencies and the Legislature designated some 18 different major categories of Marine Protected Areas and Marine Managed Areas. The Marine Managed Areas Improvement Act added sections to the Public Resources Code (PRC) that simplified the nomenclature and created a system of six defined categories of Marine Managed Areas (MMAs): Marine Reserves, Marine Parks, Marine Conservation Areas, Marine Recreation Management Areas, Marine Cultural Preservation Areas, and State Water Quality Protection Areas (SWQPAs). Under state law the Reserves, Parks, and Conservation Areas are further categorized as Marine Protected Areas (MPAs).

The PRC defines a SWQPA as "a non-terrestrial marine or estuarine area designated to protect marine species of biological communities from an undesirable alteration in natural water quality, including, but not limited to, areas of special biological significance that have been designated by State Board through its water quality control planning process." The PRC goes on to state: "In a state water quality protection area point source waste and thermal discharges shall be prohibited or limited by special conditions. Non-point source pollution shall be controlled to the extent practicable. No other use is restricted." The classification of ASBS as SWQPAs went into effect on January 1, 2003.

Senate Bill 512 later amended the marine managed areas portion of the PRC, effective January 1, 2005, to clarify that ASBS are a subset of SWQPAs and require special protection as determined by the State Board pursuant to the Ocean Plan and the California Thermal Plan. SB 512 also replaced the prior language that required point sources into ASBS to be prohibited or limited by special conditions, but allowed non-point sources to be controlled to the extent practicable. Instead, the absolute discharge prohibition in the Ocean Plan is maintained, unless an exception is granted.

In 2005, the Ocean Plan was amended to change the names of specific ASBS and incorporate the classification of ASBS as SWQPAs pursuant to the PRC. In addition, the Ocean Plan was amended to state that exceptions would be reviewed during the Triennial Review.

Despite the designation of these areas for protection, little was known about the presence and types of discharges occurring within ASBS. And, State Board hearings on the 2001 Ocean Plan amendments brought to light the fact that there are storm water and non-point source discharges into ASBS, despite the Ocean Plan prohibition. The State Board decided in 2001 to fund a study to assess the extent of storm water and non-point source discharges into ASBS/SWQPAs. In July of 2003, the Southern California Coastal Water Research Project (SCCWRP) issued its final report on these discharges. Information gained from the study was intended to be used to guide future action on these discharges. However a more comprehensive monitoring program is necessary to fully determine the status and protection of beneficial uses in ASBS over time. State Board Ocean Unit staff presented an initial set of monitoring requirements in a June 2006 draft Special Protections document to address storm water and nonpoint source discharges. Ocean Unit staff intends to continue working with the Natural Water Quality Committee, the Multi Agency Rocky Intertidal Network (MARINe), and Water Board's Surface Water Ambient Monitoring Program (SWAMP) staff to further design and plan an ASBS monitoring program. Coordination and/or integration with Bight '08 monitoring may also play an important role in an ASBS monitoring program.

There are eight ASBS within the Los Angeles Region.

- In the Mugu Lagoon to Latigo Point ASBS, 538 drainages were identified. Most of the drainages in this ASBS are discharges, 88 of which are considered a higher threat. Responsible parties include Los Angeles County Department of Public Works, City of Malibu Department of Public Works, California Department of Parks and Recreation, and California Department of Transportation.

- The San Nicolas Island and Begg Rock ASBS has 47 drainages; twelve are discharges, eleven of which are considered a higher threat. The island is owned and operated by the U.S. Navy; there is no access to the public.

- The Santa Barbara and Anacapa Islands ASBS and has two discharges, both of which are considered a higher threat. The islands are managed by the National Park Service.

- The San Clemente Island ASBS has 123 drainages with 23 discharges, fourteen of which are considered a higher threat. The island is owned and operated by the U.S. Navy; there is no access to the public.

- Santa Catalina Island:
  - Subarea One, Isthmus Cove to Catalina Head - This is the largest of the four subareas on Catalina covering approximately 17 miles on the west end. This area has 58 drainages, 38 of which are discharges and are all considered to be a higher threat. The Two Harbors is served by a sewage treatment plant; the effluent is disposed of via spraying on a hillside. In addition, Two Harbors has marina facilities.
  - Subarea Two, North End of Little Harbor to Ben Weston Point - This subarea is relatively small covering approximately 2.7 miles and ranging from the north end of Little Harbor to Ben Weston Point. This area has three discharges, all of which are considered to be a higher threat. This area is used primarily for recreation by islanders and boaters and consists of areas used for camping, picnicking, hiking, and surfing.
  - Subarea Three, Farnsworth Bank Ecological Reserve - This subarea's location offshore precludes it from having any direct land-based anthropogenic inputs. There are no discharges. This area is popular for such activities as scuba diving and fishing
  - Subarea Four, Binnacle Rock to Jewfish Point - This subarea covers approximately 2.8 miles and ranges from Binnacle Rock to Jewfish Point on the east end of the island. It has two discharges , both of which are considered a higher threat. Its major source of anthropogenic inputs most likely would come from a large quarry.

Drainages include both outlets (naturally occurring streams) and discharges, which have an anthropogenic source. Higher threat discharges include municipal, transportation (including stream crossings), construction and industrial storm water, marine operations and piers, agricultural discharges, contaminated surface seeps, sources of human sewage, fish cleaning stations, and marine laboratories and aquaria. Higher threat sources of wastes should be addressed immediately. The State Board report, *Status Report - Areas of Special Biological Significance - August 2006*, describes actions underway to address higher threat discharges. The results of the statewide survey may be found in the report, *Discharges Into State Water Quality Protection Areas* produced in 2003 by SCCWRP for the State Board. Both reports and other information about ASBS may be found at http://www.waterboards.ca.gov/plnspols/asbs.html .

Regional Monitoring of Ocean Waters

The Southern California Bight Pilot Project conducted a survey in 1994 to assess the spatial extent and magnitude of ecological disturbances on the mainland shelf between Point Conception in Central California to the California-Mexico border. The survey was a cooperative effort between four large discharger agencies (City of Los Angeles, County Sanitation Districts of Los Angeles County, Orange County Sanitation District, and City of San Diego), regulators (U.S. Environmental Protection Agency, State Water Resources Control Board, and Los Angeles, Santa Ana, and San Diego Regional Water Quality Control Boards), as well as the Southern California Coastal Water Research Project, and the Santa Monica Bay Restoration Project. Monitoring focused on benthic infauna, sediment chemistry, sediment toxicity, demersal fish/invertebrate populations (trawling), water quality (CTD measurements), and bioaccumulation (fish tissue with species not consumed by humans). Final reports were published in 1998.

A second regional survey of the Southern California Bight was conducted in 1998. Rather than simply repeat the 1994 survey, the participants in the 1998 survey agreed to expand the monitoring program to include a larger geographic scope (including enclosed bays, harbors and estuaries, the Mexican coastline south of California, and offshore channel islands), new monitoring components (microbiology, greater emphasis on stormwater runoff impacts) and additional participants (small point source dischargers, stormwater groups and other interested parties, including volunteer monitoring programs being implemented by environmental organizations). Most of the sampling occurred over a six-week period from late July to early September, although certain components (water quality, microbiology) were performed during different time periods. Sampling of benthic infauna and sediment chemistry took place at approximately 250 stations, sediment toxicity at approximately 200 stations, and demersal fish/invertebrate populations and bioaccumulation at approximately 175 stations. The microbiology sampling was conducted at approximately 250 stations once per week over a 5-week period in August-September 1998 (dry season) and February-March 1999 (wet season). The water quality component included sampling once during dry weather (September-October) and twice during wet weather along several transect lines throughout the Bight.

A third regional survey was conducted in 2003 and planning for Bight ’08 has begun. More information about the Bight and other related projects may be found on the SCCWRP webpage http://www.sccwrp.org/.

Other Regional Monitoring Programs (BPCTP)

Bay Protection and Toxic Cleanup Program (BPTCP): In 1989, state legislation added Sections 13390 through 13396 to the California Water Code which established the BPTCP. The program has four main goals: 1) to provide protection of existing and future beneficial uses of bays and estuarine waters, 2) to identify and characterize toxic hot spots, 3) to plan for cleanup or other mitigating actions of toxic hot spots, and 4) to develop effective strategies to control toxic pollutants, abate existing sources of toxicity, and prevent new sources of toxicity.

While in its identification and characterization phase, the program implemented regional monitoring at each of the coastal Regions. Sediment toxicity tests, chemical analyses, and benthic community surveys were used to classify each bay or estuarine waterbody. Waters were generally "pre-screened" for contamination using toxicity tests; if enough was found, more intensive monitoring followed to confirm

the existence and spatial extent of monitoring. Using this approach, the Santa Monica Bay/Palos Verdes Shelf, parts of, Consolidated Slip/Dominguez Channel, Cabrillo Pier, Mugu Lagoon/Calleguas Creek, McGrath Lake, Los Angeles River Estuary, Marina Del Rey, and Marina Del Rey Entrance Channel were identified as candidate toxic hot spots. A number of other waters were identified as sites of concern.

State Board adopted a statewide, consolidated cleanup plan in June 1999 with Office of Administrative approval following in November 1999. Regional cleanup plans deal specifically with high priority candidate toxic hot spots; detailed cleanup plans were not required for moderate priority candidate toxic hot spots or sites of concern although listed in the document. Identified remediation/cleanup alternatives for toxic hot spots range from specific actions such as in-situ capping, issuing waste discharge requirements, or dredging to more regional/watershed activities such as long-term management of contaminated sediments or proactive application of the watershed management approach as a preventive measure. At this point, no specific funding source has been identified to pay for remediation activities although potential funding mechanisms are addressed in the statewide consolidated cleanup plan. The best chance for obtaining funds for cleanup appears to be through the use of Supplemental Environmental Projects (SEPs) from enforcement actions or by partnering with other groups within the context of the watershed management approach to take advantage of local efforts. Funding for staff resources ended in June 1999.

After the Consolidated Plan was approved, the Regional Board was required to reevaluate WDRs in compliance with Water Code Section 13395. The reevaluation was to consist of (1) an assessment of the WDRs that may influence the creation or further pollution of the known toxic hot spot; (2) an assessment of which WDRs need to be modified to improve environmental conditions at the known toxic hot spot; and (3) a schedule for completion of any WDR modifications deemed appropriate. We evaluated WDRs associated with high priority known toxic hot spots (i.e., Palos Verdes Shelf, Consolidated Slip, Cabrillo Beach, Mugu Lagoon, McGrath Lake) and did not identify any existing WDRs which required modifications Similarly, we did not need to modify any WDRs associated with moderate and low priority known toxic hot spots. As we renew, modify, or issue new WDRs, we need to include a finding that the discharge may contribute to the pollution present at the toxic hot spot.

The program also has a website which may be consulted for additional information: http://www.waterboards.ca.gov/bptcp.

TMDL Scheduling And Development

The 303(d)-listed waterbodies/reaches were listed in the watershed sections. The TMDLs scheduled in the near-term were also listed. Clearly, there are a large number of waters in the Region which are impaired by a number of constituents (over 700 individual impairments). All TMDLs covered by a consent decree must be completed by 2011. The overriding problem associated with TMDL development needs to be reiterated here, namely, staff resources at the Regional Board to either directly conduct or be involved in stakeholder-led TMDL investigations and in general stay dedicated to nonpoint source activities are still minimal. **In general, depending on the watershed, it is anticipated that 0.5 - 2.0 PYs/watershed more will be needed** at a minimum to make additional headway on TMDLs and implementation of our nonpoint source strategy (as well as augment point source regulation, where needed); this need will increase as we add more TMDLs in the next two years to fully accomplish our TMDL mandate. Additionally, AB1740 (Ducheny) was enacted in 2000 and requires that to the extent interest is expressed by the public, and resources are available, each Regional Board shall establish for each watershed where a water body is listed as impaired, an Advisory Committee consisting of the public

and interested stakeholders who wish to be involved in the process of adoption and implementation of the corrective actions necessary to eliminate the impairment.

However, with a seemingly impossible workload before us, there is a reasonable and logical way to collapse or group TMDLs to make the most effective use of resources we currently have and any which we may obtain in the future. This is largely due to the fact that some of the "pollutants" for which a water may be listed are actually "effects" of pollutants. For example, many reaches of the Los Angeles River are listed for ammonia. Some of the same reaches are listed for pH problems while other reaches are listed for algae, scum, and odors. It is very likely the presence of these "pollutants" are interrelated. Excessive nitrogen (reflected here as high levels of ammonia) may lead to a condition of eutrophication (excessive nutrient loading) which can influence pH levels as well as promote increased algal growth. Scum may be evident due to floating algal material and odors may result when excessive algae starts to die off. Thus, it is reasonable to group together these TMDLs (calling it a "nitrogen and related effects" TMDL) and approach the problem by determining the sources of nitrogen loading into the watershed and the appropriate allocations in order to reduce loadings.

Another example relates to the Malibu Creek Watershed. Many of its reaches are listed as impaired due to coliform. Other reaches are listed for swimming restrictions or shellfish harvesting advisories (an effect of elevated coliform levels). It is reasonable to group together these various reaches and "pollutants" together when performing a TMDL. USEPA has produced a number of documents relating to TMDL development; these may be found at http://www.epa.gov/owow/tmdl/.

Appendix L

Ventura County General Plan 2010 Excerpt

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VENTURA COUNTY GENERAL PLAN

GOALS, POLICIES AND PROGRAMS

Last Amended by the Ventura County Board of Supervisors
on
April 6, 2010

Ventura County General Plan
GOALS, POLICIES AND PROGRAMS

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VENTURA COUNTY GENERAL PLAN

GOALS, POLICIES AND PROGRAMS

Adopted by the Ventura County Board of Supervisors – May 24, 1988 (GPA #88-1)

All amendments became effective 30 days after approval date, except as otherwise noted below:

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Amended	-	October 28, 1997 (97-5)
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Amended	-	April 6, 2010 (GP09-0001)

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General Plan Appendices & Area Plans

The General Plan appendices and area plans are separate documents and are listed below:

Document Title	Date adopted or last amended
Appendices:	
Resources Appendix	04-06-10
Hazards Appendix	11-15-05
Land Use Appendix	11-15-05
Public Facilities and Services Appendix	11-15-05
Area Plans:	
Ahmanson Ranch Area Plan	12-15-92
Coastal Area Plan	11-20-01
El Rio/Del Norte Area Plan	11-15-05
Lake Sherwood/Hidden Valley Area Plan	04-06-10
North Ventura Avenue Area Plan	12-11-90
Oak Park Area Plan	11-15-05
Ojai Valley Area Plan	11-15-05
Piru Area Plan	11-15-05
Saticoy Area Plan	12-10-96
Thousand Oaks Area Plan	04-06-10

Introduction

Purpose

Section 65300 of the California Government Code states; "Each planning agency shall prepare and the legislative body of each county and city shall adopt a comprehensive, long-term general plan for the physical development of the county or city, and of any land outside its boundaries which in the planning agency's judgment bears relation to its planning." Further, as stated in Section 65300.5 of the Government Code, it is the intent of the State Legislature "that the general plan and elements and parts thereof comprise an integrated, internally consistent and compatible statement of policies for the adopting agency."

The Ventura County General Plan is intended to fulfill these requirements of State Law.

Form and Content

Section 65301 of the Government Code states:

"(a) …The general plan may be adopted in any format deemed appropriate or convenient by the legislative body, including the combining of elements. The legislative body may adopt all or part of a plan of another public agency in satisfaction of all or part of the requirements of Section 65302 if the plan of the other public agency is sufficiently detailed and its contents are appropriate, as determined by the legislative body, for the adopting city or county.

(b) The general plan may be adopted as a single document or as a group of documents relating to subjects or geographic segments of the planning area.

(c) The general plan shall address each of the elements specified in Section 65302 to the extent that the subject of the element exists in the planning area. The degree of specificity and level of detail of the discussion of each such element shall reflect local conditions and circumstances..."

Section 65302 of the Government Code states that "the general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals." The section then goes on to list seven mandated elements, and describes the purpose and content of each of the elements.

Text

Ventura County has found that preparing a General Plan in the form of separate "elements" creates a General Plan which is disjointed, awkward to use, and redundant. Furthermore, much of the General Plan consists of background information and data which is necessary for the understanding of the subject matter and serves as justification for specific development policies, but is generally not needed for the day-to-day administration and implementation of the General Plan's development policies. Lastly, because Ventura County is so large and diverse, it is impossible to prepare a single, countywide General Plan of sufficient detail to cover all areas adequately.

Because of these concerns, Ventura County has formatted its General Plan in a manner which is clear, concise, logical and usable, while meeting the requirements of the Government Code. Specifically, the County General Plan consists of: (a) Countywide Goals, Policies and Programs containing four chapters (Resources, Hazards, Land Use, and Public Facilities and Services), (b) four Appendices (Resources, Hazards, Land Use, and Public Facilities and Services) which contain background information and data in support of the Countywide Goals, Policies and Programs, and (c) several Area Plans which contain specific goals, policies and programs for specific geographical areas of the County. The following table lists the seven mandated elements and the required content of each (as described in Section 65302 of the Government Code), and references which chapter of the Countywide Goals, Policies and Programs and/or Appendix of the Ventura County General Plan where the requirements for each element can be found:

State Requirements	Ventura County General Plan Chapter And Appendix Location			
	Resources	Hazards	Land Use	Public Facilities and Services
Land Use Element:				
Housing			X	
Business			X	
Industry			X	
Open Space	X	X	X	X
Agriculture	X		X	
Scenic Beauty	X			
Education				X
Public Buildings & Grounds				X
Solid & Liquid Wastes		X		X
Population Density/Building Intensity			X	
Flooding		X		X
Timberland Production	X		X	
Circulation Element:				
Major Thoroughfares				X
Transportation Routes				X
Terminals				X
Utilities				X
Housing Element			X	
Conservation Element:				
Water	X			X
Hydraulic Force		X		X
Forests	X			
Soils	X			
Rivers	X	X		X
Harbors				X
Fisheries	X			
Wildlife	X			
Minerals	X			
Open Space Element	X		X	
Noise Element		X		
Safety Element		X		X

Maps

The Ventura County General Plan Goals, Policies and Programs contain four sets of maps which relate to specific policies: Resource Protection Maps, Hazard Protection Maps, General Land Use Maps and Public Facilities Maps. These map sets are located on the County's Geographic Information System (GIS) and are available from the Resource Management Agency's Mapping, GIS and Graphic Services.

In addition to the above maps, there are several maps within the text of the General Plan Goals, Policies and Programs that illustrate specific policies or depict important information. These maps are 8½" x 11" and display various scales.

Within the General Plan Appendices, there are several maps, of various scales, that are illustrative of information discussed within the text. These maps are illustrative only and should not be used for policy interpretation or administration.

Within the Area Plans, there are several maps, of various scales, which depict information discussed within the text or illustrate specific policies within each Area Plan.

Definitions

Unless the provision(s) or context otherwise requires, the definitions of words and terms as found in the Glossary of the General Plan Goals, Policies and Programs govern the construction of the General Plan The words shown in *italics* in the body of the text are defined in the Glossary.

Goal: The ultimate purpose of the County's effort stated in a way that is general in nature. Example: "Increase housing opportunities for households of all income levels, with special emphasis on lower-income households, the elderly, mentally ill, single heads of household, large families, farmworkers, handicapped and homeless."

The term "objectives," which are referred to in State Law, are goals that are quantified. Example: “Promote and facilitate at least a 2.3 percent market vacancy rate in owner-occupied housing and 5 percent market vacancy rate in rental housing..”

Policy: A specific statement guiding day-to-day actions and implying clear commitment to carry out the goals of the General Plan in a prescribed manner. Example: "The County shall give priority in providing housing assistance to those groups with demonstrated special needs, such as the elderly, mentally ill, handicapped, large families, single heads of household, farmworkers and the homeless."

Program: A coordinated set of actions to carry out the goals of the Plan. Example: "The County Executive Office will continue to administer Federal and State funds and grants in order to facilitate the development of affordable housing for *lower-income* households, and for those with identified special needs (farmworkers, elderly, mentally ill, handicapped, homeless), and notify other housing agencies and non-profit organizations of the availability of funding for lower-income families and special needs housing."

An asterisk (*) next to a program means that particular program will not be pursued until the specified county agency/department is given direction by the Board of Supervisors to proceed with the program

Determining Consistency with the General Plan

Section 65860 of the Government Code states; "County or city zoning ordinances shall be consistent with the general plan of the county or city.... A zoning ordinance shall be consistent with a city or county general plan only if:

(i) the city or county has officially adopted such a plan, and

(ii) the various land uses authorized by the ordinance are compatible with the objectives, policies, general land uses, and programs specified in such a plan."

Furthermore, Section 66473.5 of the Government Code states; "No local agency shall approve a tentative map, or a parcel map for which a tentative map was not required, unless the legislative body finds that the proposed subdivision, together with the provisions for its design and improvement, is consistent with the general plan. A proposed subdivision shall be consistent with a general plan or a specific plan only if the local agency has officially adopted such a plan and the proposed subdivision or land use is compatible with the objectives, policies, general land uses, and programs specified in such a plan."

Also, Section 65401 of the Government Code states that all proposed public works (facilities) of any county, city, special district or school district, shall be reviewed for consistency with the appropriate local city or county general plan. Furthermore, Section 65402(a) states that no real property shall be acquired for public purposes and no real property shall be disposed of, until the location, purpose and extent of such acquisition or disposition has been reviewed for conformity with the appropriate local city or county general plan. Section 65403(c) concludes by stating, "A district or local agency shall not carry out its capital improvement program or any part of the program if the planning agency finds that the capital improvement program is not consistent with the applicable general plan, any specific plans, and all elements and parts of the plan. A district or local agency may overrule the finding and carry out its capital improvement program."

Lastly, Section 65454 states; "No specific plan may be adopted or amended unless the proposed plan or amendment is consistent with the general plan."

At the local level, the Ventura County Zoning Ordinance states that no Planned Development Permit, Conditional Use Permit, or Zoning Clearance may be approved which is inconsistent with the County General Plan. Furthermore, the Ventura County Subdivision Ordinance states that no subdivision may be approved which is inconsistent with the County General Plan.

Hence, in the unincorporated area of Ventura County, zoning and any permits issued thereunder, any subdivision of land, any public works project, any public (County, Special District, or Local Government) land acquisition or disposition, and any specific plan, must be consistent with the Ventura County General Plan Goals, Policies and Programs, and where applicable, the adopted Area Plan.

Interpretations

Although every effort has been made to provide *goals, policies* and *programs* that are clear, the necessity of interpreting such goals, policies and programs in light of specific and unusual cases will occur from time to time. When such interpretations are necessary, the Planning Director is responsible for the review and interpretation of the General Plan Goals, Policies and Programs (with the right of appeal to the Planning Commission and the Board of Supervisors).

Since goals are general in nature, the goals should not be interpreted in the same way as policies and programs. Goals are meant as targets toward which the County's actions are directed, but do not serve as absolute standards. In other words, although the County is committed to strive toward attaining a particular goal, a goal may not always be attainable in an absolute sense. Policies and programs, on the other hand, are to be read as the specific means by which the County will move toward carrying out its goals.

The goals, policies and programs of the General Plan are cumulative and, as such, individual goals, policies and programs should be used and interpreted in the context of other goals, policies and programs. Since a goal may be implemented through multiple policies and/or programs, and a specific policy or program may serve to implement more than one goal, the goals, policies and programs for a subject (e.g., biological resources), should be read in the context of other similar goals, policies and programs. In cases where there are multiple goals (or policies or programs), and two or more goals (or policies or programs) address the same subject, the more specific and restrictive goal (or policy or program) would take precedence. In this regard, goals are compared to goals, policies are compared to policies, and programs are compared to programs.

General Plan Amendments

According to Section 65358 of the Government Code:

"(a) If it deems it to be in the public interest, the legislative body (of a City or County) may amend all or part of an adopted general plan. An amendment to the general plan shall be initiated in the manner specified by the legislative body. A legislative body that permits persons to request an amendment of the general plan may require that an amount equal to the estimated cost of preparing the amendment be deposited with the planning agency prior to the preparation of the amendment.

(b) Except as otherwise provided in subdivision (c) or (d), no mandatory element of a general plan shall be amended more frequently than four times during any calendar year. Subject to that limitation, an amendment may be made at any time, as determined by the legislative body. Each amendment may include more than one change to the general plan.

(c) The limitation of the frequency of amendments to a general plan contained in subdivision (b) does not apply to amendments of the general plan requested and necessary for a single development of residential units, at least 25 percent of which will be occupied by or available to persons and families of low or moderate income, as defined by Section 50093 of the Health and Safety Code. The specified percentage of low- or moderate-income housing may be developed on the same site as the other residential units proposed for development, or on another site or sites encompassed by the general plan, in which case the combined total number of residential units shall be considered a single development proposal for purposes of this section.

(d) This section does not apply to the adoption of any element of a general plan or to the amendment of any element of a general plan in order to comply with any of the following:

(1) A court decision made pursuant to Article 14 (commencing with Section 65750). [i.e. Challenges to Plan's validity]

(2) Subdivision (b) of Section 65302.3. [i.e. Airport Land Use Plan]

(3) Subdivision (d) of Section 56032 of the Health and Safety Code. [i.e. Large Scale Comprehensive Development Plan]

(4) Subdivision (b) of Section 30500 of the Public Resources Code. [i.e. Local Coastal Plan]"

Ventura County allows owners, lessees or buyers (in escrow) of land to make application for amendments to the Ventura County General Plan for land they own, lease or are buying. General Plan Amendment applications must contain all information required by the Planning Division and must be accompanied by all application processing fees/deposits as specified by the Board of Supervisors. Furthermore, all privately initiated General Plan Amendments are screened by the Board of Supervisors to determine if the amendment is appropriate for further processing.

According to Government Code Section 65588(b), "The Housing Element shall be revised as appropriate, but not less than every five years..." Except for the Housing Element, State Law does not establish a mandatory time schedule for comprehensive updates. According to the State General Plan Guidelines, "A jurisdiction is expected to make running changes to its General Plan as they are necessary. As a general rule, major General Plan revisions should occur at least every four to five years." With regard to the Ventura County General Plan, the Planning Division, with the support of other County agencies, is responsible for annually reviewing the General Plan and reporting to the Board of Supervisors on the status of the plan and progress in its implementation.

Municipal Annexations/Sphere of Influence and State or Federal Facility Changes

In order to maintain the timeliness of various general plan land use maps and tables, the Planning Director is authorized to update the appropriate maps and tables to reflect:

- Local Agency Formation Commission (LAFCO) approved and recorded municipal boundary or Sphere of Influence changes without the need to process such changes through the General Plan Amendment process; and

- Property acquired by the State or Federal government for expansion of a State or Federal Facility.

Notwithstanding the above, LAFCO approved municipal detachments or detachments from a State or Federal Facility shall require a general plan amendment in order to establish the detachment’s land use designation and zoning.

Limitations on General Plan Amendments Relating to Agricultural, Open Space and Rural Designations

Pursuant to the provisions of the SAVE OPEN-SPACE and AGRICULTURAL RESOURCES (S.O.A.R.) ORDINANCE, the following shall obtain until December 31, 2020:

a) The provisions setting forth the Agricultural, Open Space and Rural land use designations, and the goals and policies as they specifically apply to those land use designations in Sections 3.1 and 3.2 of this General Plan shall not be further amended unless such amendment is approved by vote of the people or by the Board of Supervisors pursuant to the procedures set forth herein.

b) Those lands designated as Agricultural, Open Space or Rural on the "General Land Use Maps" adopted by the Board of Supervisors for Ventura County on May 24, 1988, and amended through September 16, 1997 shall remain so designated unless redesignated to another general plan land use category by vote of the people, or redesignated by the Board of Supervisors pursuant to the procedures set forth herein.

c) The Board of Supervisors, following at least one public hearing for presentations by an applicant and the public, and after compliance with the California Environmental Quality Act, may place any amendment to land use designations of Agricultural, Open Space or Rural, or any provision, goal or policy as set forth in subsection "a", above, on the ballot pursuant to the mechanisms provided by State Law.

d) The Board of Supervisors without a vote of the people may reorganize, reorder, or renumber individual provisions of the General Plan, as well as the provisions herein, in the course of ongoing updates of the General Plan in accordance with the requirements of state law. Additional technical, non-substantive language modifications may be made to the General Plan with reference to Agricultural, Open Space or Rural designations for clarification and internal consistency provided such modifications are consistent with the Findings and Purpose of the ordinance creating these provisions.

e) The Board of Supervisors, without a vote of the people, may redesignate Rural designated properties to either Agricultural or Open Space, or may redesignate Open Space to Agriculture pursuant to the provisions for making such amendments set forth in state law and Board adopted policies.

f) The Board of Supervisors, without a vote of the people, may redesignate Agricultural designated properties to Open Space if the Board of Supervisors makes all of the following findings supported by substantial evidence:

   i) The land proposed for redesignation has not been used for agricultural purposes in the past 2 years and is unusable for agriculture due to its topography, drainage, flooding, adverse soil conditions or other physical reasons;

   ii) The land proposed for redesignation is immediately adjacent to areas developed in a manner compatible with the uses allowed under Open Space;

   iii) Adequate public services and facilities are available and have the capacity and capability to accommodate the Open Space uses allowed;

   iv) The proposed redesignation is compatible with agricultural uses, does not interfere with accepted agricultural practices, and does not adversely affect the stability of land use patterns in the area; and

   v) The land proposed for redesignation does not exceed 40 acres for any one landowner in any calendar year, and one landowner may not obtain redesignation pursuant to this subdivision (f) more often than every other year. Landowners with any unity of interest are considered one landowner for purposes of this limitation.

g) The Board of Supervisors, without a vote of the people, may redesignate Agricultural, Open Space or Rural properties provided the Board complies with the following two conditions:

i) The Board makes a finding based upon the advice of the County Counsel that the designation of the property effects an unconstitutional taking of the landowners' property; and

ii) In permitting the redesignation, the Board allows a less restrictive designation to be applied to the property only to the extent necessary to avoid the unconstitutional taking of the landowner's property.

h) The Board of Supervisors, without a vote of the people, may amend the provisions of the General Plan which apply to the Agricultural, Open Space or Rural designations, as set forth in subsection "a", above, for the express purpose of further protecting and preserving resources identified in the General Plan, provided that said amendment(s) are consistent with the Findings and Purpose of the ordinance adopting these provisions of the General Plan.

i) In recognition of the urban nature of the Piru community and to provide essential flexibility to the Board of Supervisors to address the special needs of that community, the Board of Supervisors, without a vote of the people, may amend the land use designations on the General Land Use Map, as set forth in subsection "b", above, for land located within the Piru Redevelopment Area or land described by the following Assessor Parcel Numbers:

056-0-180-01	056-0-180-08
056-0-180-02	056-0-190-05
056-0-180-06	056-0-190-06
056-0-180-07	056-0-190-09

The total land represented by this subsection "i" is set forth on Exhibit "A"

j) The Board of Supervisors, without a vote of the people, may amend the land use designations on the General Land Use Map, as set forth in subsection "b", above, to any Existing Community designation for land which, prior to the effective date of the ordinance setting forth these provisions, is found to contain lawfully established urban building intensities or urban land uses, to the minimum extent necessary to validate such pre-existing uses consistent with the Findings and Purpose of the ordinance adopting these provisions of the General Plan.

k) Following December 31, 2020, redesignations of then existing General Plan designations may be occasioned by the Board of Supervisors without a vote of the people, Until then, approval by a vote of the people is accomplished when a General Plan amendment is placed on the ballot through any procedure provided for in the Election Code, and a majority of the voters vote in favor of it. Whenever the Board of Supervisors adopts an amendment requiring approval by a vote of the people pursuant to the provisions of this subsection, the Board's action shall have no effect until after such a vote is held and a majority of the voters vote in favor of it.

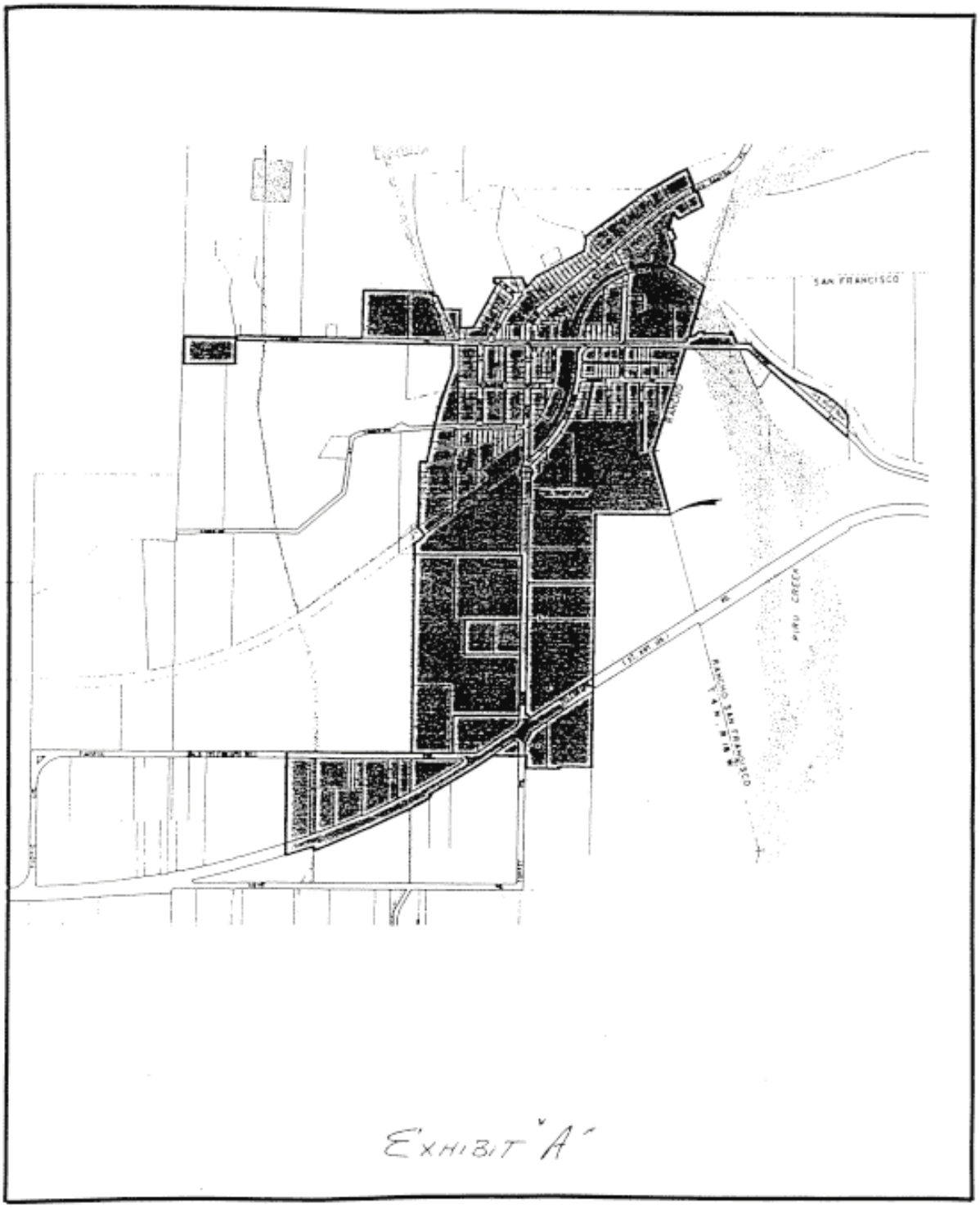
Planning Horizon

The planning horizon for this General Plan is the year 2020.

FIGURE A

S.O.A.R. ORDINANCE - PIRU AREA MAP

AREA EXEMPT FROM S.O.A.R.



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1. Resources

This Chapter of the General Plan identifies *goals, policies,* and *programs* relating to the preservation, conservation, production and utilization of resources in Ventura County. The specific goals, policies, and programs are listed under the following major headings: General goals, policies and programs, Air Quality, Water Resources, Mineral Resources, Biological Resources, Farmland, Scenic Resources, Cultural Resources, Energy Resources, and Coastal Beaches and Sand Dunes.

1.1 General Goals, Policies and Programs

The following are the general goals, policies and program which apply to Resources:

1.1.1 Goals

1. Inventory and monitor the natural and man-made (e.g., cultural) resources of Ventura County.
2. Plan for the *preservation*, *conservation*, efficient use of, enjoyment of, and access to resources, as appropriate, within Ventura County for present and future generations.
3. Identify and work with all entities responsible for the protection, management and enhancement of the County's resources.

1.1.2 Policies

1. All General Plan amendments, zone changes and *discretionary development* shall be evaluated for their individual and cumulative impacts on resources in compliance with the California Environmental Quality Act.
2. Except as otherwise covered by a more restrictive *policy* within the Resources Chapter, significant adverse impacts on resources identified in environmental assessments and reports shall be mitigated to less than significant levels or, where no feasible mitigation measures are available, a statement of overriding considerations shall be adopted.

1.1.3 Program

The Planning Division, with the technical support of other appropriate agencies, will annually review the Resources Appendix to identify what information needs to be updated and, when appropriate, shall submit a budget request as part of the next year's County budget.

1.2 Air Quality

The Federal government has established ambient air quality standards to protect public health (primary standards) and welfare (secondary standards). The State of California has established separate, more stringent standards. Federal and State standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter (e.g. dust) and lead. In addition, California has standards for ethylene, hydrogen sulfide, sulfates and visibility-reducing particles.

Ventura County frequently exceeds federal and state ambient air quality standards for ozone. Under both federal and state Clean Air Acts, the County is a "severe" (worst category) *nonattainment area*. Ozone is a highly chemically reactive gas that poses a serious threat to human health. People who suffer from cardiopulmonary and respiratory diseases such as asthma, emphysema, and chronic bronchitis are particularly susceptible to ozone. However, athletes and physically active people also can be adversely affected by ozone. Ozone also causes extensive damage to agricultural crops and various materials, such as paints, rubber, and metals.

Ventura County also has elevated ambient levels of very fine dust particles called PM-10 (10 macrons or less in diameter). Concern for PM-10 is based on the ability of small particles to reach deep into the lungs, posing a threat to the respiratory system. As with ozone, people most sensitive to particulates are those with chronic respiratory and cardiovascular diseases, the elderly, and children. Ventura County is an attainment area for the federal PM-10 standard, but nonattainment for the more stringent state PM-10 standard.

The first study of air pollution in Ventura County occurred in 1966. That study found that Ventura County had a serious air pollution problem. Consequently, the Ventura County Air Pollution Control District was formed in 1968. The District's mission is to protect public health and agriculture from the adverse effects of air pollution by identifying air pollution problems and developing a long-range comprehensive program to achieve and maintain state and federal air quality standards. Ventura County's latest Air Quality Management Plan is the 1994 AQMP (adopted 10/9/95). The primary purpose of the 1994 AQMP is to satisfy the planning requirements of the 1990 federal Clean Air Act Amendments and to outline a strategy for meeting the federal ozone clean air standard by 2005.

Further, discussion of air pollution and measures being undertaken to achieve air quality standards can be found in the Air Quality Management Plan, which is available for review at the Ventura County Air Pollution Control District office, 702 County Square Drive, Ventura, California.

The goals, policies and programs which apply to air quality are as follows:

1.2.1 Goals

1. Diligently seek and promote a level of air quality that protects public health, safety, and welfare, and seek to attain and maintain the State and Federal Ambient Air Quality standards.
2. Ensure that any adverse air quality impacts, both long-term and short-term, resulting from *discretionary development* are mitigated the maximum extent feasible.

1.2.2 Policies

1. *Discretionary development* that is inconsistent with the Air Quality Management Plan (AQMP) shall be prohibited, unless overriding considerations are cited by the decision-making body.
2. The air quality impacts of *discretionary development* shall be evaluated by use of the Guidelines for the Preparation of Air Quality Impact Analysis.
3. *Discretionary development* that would have a significant adverse air quality impact shall only be approved if it is conditioned with all reasonable mitigation measures to avoid, minimize or compensate (offset) for the air quality impact. Developers shall be encouraged to employ innovative methods and technologies to minimize air pollution impacts.
4. Where deemed necessary by the APCD, *discretionary development* shall be conditioned to develop, implement, and maintain over time, Transportation Demand Management (TDM) programs consistent with APCD's trip reduction rule 210. TDM programs shall include a requirement for annual performance reporting to and approval by the APCD.
5. *Development* subject to APCD permit authority shall comply with all applicable APCD rules and permit requirements, including the use of best available control technology (BACT) as determined by the APCD.

1.2.3 Programs

1. The Ventura County Air Pollution Control District (APCD) will periodically update the Ventura County Air Quality Management Plan per the requirements of the Federal Clean Air Act and the California Clean Air Act.
2. The APCD will require employers subject to APCD's Trip Reduction Rule 210 to prepare and implement trip reduction plans. The purpose of these plans is to reduce the number of solo drivers commuting to work. Trip reduction strategies may include, but are not limited to, ridesharing promotion, modified work schedules, preferential parking, telecommuting, parking management and van pools. The APCD will continue to be involved with the annual review of the Congestion Management Program and has State mandated responsibility regarding review of deficiency plans.
3. The APCD will continue the program to assist cities in the development and implementation of local Transportation Control Measure (TCM) policies and programs. The assistance program shall include, but not be limited to, periodic meetings to facilitate coordination of efforts between local jurisdictions.

4. The County Air Pollution Control District will continue to monitor and comment on *discretionary development* requests under City, State and/or Federal jurisdiction, to help ensure that they do not significantly impact air quality in Ventura County.
5. The Planning Division and the Public Works Agency will submit, for Board budget consideration, *programs* to implement Transportation Control Measures as outlined in the AQMP.

1.3 Water Resources

There are three local water sources in the County: groundwater, surface water and reclaimed water. Imported water, which is not considered an in-County water resource, is discussed in the Water Supply Facilities Section (#4.3).

Groundwater is the single most important source of water in the County. In 1985, it provided about 67% of the water utilized in the County. It is pumped extensively by individual well owners as well as purveyors who sell it at either retail sales to individuals or at wholesale to other purveyors. Since, overall, more groundwater is used than is replaced, the County's groundwater reserves are slowly decreasing (i.e., water is being extracted more rapidly than it is being replaced).

The largest groundwater supplies in the County are contained within major aquifers which underlie most of the Oxnard Plain, and the Las Posas and Santa Clara Valleys. These are, in order of increasing depth, the Oxnard, Mugu, Hueneme, Fox Canyon, and Grimes Canyon aquifer zones. Both the Oxnard aquifer in the Oxnard Plain area and the Fox Canyon aquifer are being overdrafted. Long term overdrafting has caused serious seawater intrusion of the Oxnard aquifer. A Seawater Intrusion Abatement Project is currently underway to remedy this problem. The United Water Conservation District and County, with the support of local cities, are carrying out this project which includes removal of wells from the intruded Oxnard aquifer and operation of the Freeman diversion structure on the Santa Clara River which, together with new wells in the Fox Canyon zone and the new pumping trough pipeline, will deliver water to users on the Oxnard Plain.

Surface water resources in Ventura County are divided into two major hydrologic units (Ventura River and Santa Clara-Calleguas Units) and into four other smaller hydrologic units (Rincon Creek, Cuyama, San Joaquin, and Malibu Hydrologic Units).

Streams in Ventura County that generally flow for the entire year include Sespe Creek, Piru Creek, Reyes Creek, Matilija Creek, the North Fork of the Ventura River, the Ventura River below Foster Park and the upper portion of the Santa Clara River. However, the year-round flow in the Ventura River below Foster Park, the upper reach of the Santa Clara River and the Arroyo Simi are due primarily to waste water treatment plant discharges. These creeks plus other, small tributaries have extensive riparian zones and provide habitat for a variety of vertebrates such as rainbow trout.

The Casitas Municipal Water District provides wholesale and retail water distribution from Lake Casitas. The United Water Conservation District is responsible for groundwater recharge throughout most of the Santa Clara River Valley and for the wholesale distribution of water to purveyors on the Oxnard Plain. Lake Piru is United's reservoir for water which is released into the Santa Clara River for subsequent recharge into the underground aquifers for later urban and agricultural use. The Calleguas Municipal Water District is responsible for providing imported water for wholesale purposes to retail water purveyors serving municipal/industrial customers in the southeastern portions of the County.

Groundwater quality in Ventura County is gradually being degraded, primarily by agricultural runoff and *leachate*. Water quality can be estimated through the concentration of total dissolved solids (TDS). This value represents the concentration of all minerals and trace elements. Separate standards for individual pollutants also apply.

Improperly designed, installed and maintained septic systems could potentially contaminate groundwater and surface water supplies in some areas of the County. Also, industrial and commercial developments on septic systems could potentially lead to degradation of groundwater supplies from intentional or unintentional discharges of hazardous wastes into these systems. This potential problem is more critical in aquifer recharge areas.

The best quality water is in portions of the Fox and Grimes Canyon aquifer zones, while the worst is in the upper aquifers along the edges of the Santa Clara Valley and in seawater intruded portions of the Oxnard aquifer zone. Water quality of the major reservoirs (Lake Casitas and Lake Piru) has remained constant and is generally of high quality. Surface water quality such as rivers and tributaries fluctuates from season to season, but is adequate in most areas for agricultural uses.

The Countywide Wastewater Reuse (201) Plan identifies reclaimed water from *sewage treatment facilities* as being a potential source of 18,000 acre feet/year. The County is pursuing funding to implement this plan.

There are many agencies that are responsible for the management of water resources at the Federal, State and local levels. Federal agencies include the Forest Service, Army Corps of Engineers, Bureau of Reclamation and the Environmental Protection Agency; State agencies include the Resources Agency and its many departments, the State Department of Public Health, Department of Water Resources and the Water Resources Control Board; and local agencies include the County Departments of Public Works, Environmental Health, Planning, Flood Control Districts, Sanitation Districts, Fox Canyon Groundwater Management Agency, cities, and water retailers and wholesalers.

The goals, policies, and programs which apply to water resources are as follows:

1.3.1 Goals

1. Inventory and monitor the quantity and quality of the County's water resources.
2. Effectively manage the water resources of the County by adequately planning for the development, *conservation* and protection of water resources for present and future generations.
3. Maintain and, where feasible, restore the chemical, physical and biological integrity of surface and groundwater resources.
4. Ensure that the demand for water does not exceed available water resources.
5. Protect and, where feasible, enhance watersheds and aquifer recharge areas.
6. Promote reclamation and reuse of wastewater for recreation, irrigation and to recharge aquifers.
7. Promote efficient use of water resources through water conservation.

1.3.2 Policies

1. *Discretionary development* which is inconsistent with the goals and policies of the County's Water Management Plan (WMP) shall be prohibited, unless overriding considerations are cited by the decision-making body.
2. *Discretionary development* shall comply with all applicable County and State water regulations.
3. The installation of *on-site septic systems* shall meet all applicable State and County regulations.
4. *Discretionary development* shall not significantly impact the quantity or quality of water resources within watersheds, groundwater recharge areas or groundwater basins.
5. Landscape plans for *discretionary development* shall incorporate water conservation measures as prescribed by the County's Guide to Landscape Plans, including use of low water usage landscape plants and irrigation systems and/or low water usage plumbing fixtures and other measures designed to reduce water usage.
6. The use of the Santa Clara River as a multiple resource (i.e., source of supply for water, concrete aggregates and biological habitat) shall be permitted to continue; with the use of the River as a water resource having priority over all other uses.

7. Out-of-river mining below the historic or predicted high groundwater level in the Del Norte/El Rio (Oxnard Forebay Basin) area may be permitted if the applicant can demonstrate to the satisfaction of the County of Ventura that the excavation activity will not interfere with or affect groundwater quality and quantity.
8. All *discretionary development* shall be conditioned for the proper drilling and construction of new oil, gas and water wells and destruction of all abandoned wells on-site.
9. New wells in the Oxnard Plain pressure basin shall not be allowed if they would increase seawater intrusion in the Oxnard or Mugu aquifers.
10. All new golf courses shall be conditioned to prohibit landscape irrigation with water from groundwater basins or inland surface waters identified as Municipal and Domestic Supply or Agricultural Supply in the California Regional Water Quality Control Board's Water Quality Control Plan unless either: a) the existing and planned water supplies for a Hydrologic Area, including interrelated Hydrologic Areas and Subareas, are shown to be adequate to meet the projected demands for existing uses as well as reasonably foreseeable probable future uses within the area, or b) it is demonstrated that the total groundwater extraction/recharge for the golf course will be equal to or less than the historic groundwater extraction/recharge (as defined in the Ventura County Initial Study Assessment Guidelines) for the site. Where feasible, reclaimed water shall be utilized for new golf courses.

1.3.3 Programs

1. The Public Works Agency and the United Water Conservation District will continue to support the Seawater Intrusion Abatement Project.
2. The County Public Works Agency will continue to enforce Chapter 70 (Excavation and Grading) of the Uniform Building Code, as incorporated by reference in and amended by the Ventura County Building Code, to ensure that any proposed grading in a waterway or wetland is adequately investigated and that any *development* incorporates appropriate design provisions to protect waterways or wetlands.
3. The County will continue to support the Fox Canyon Groundwater Management Agency Plan for both the Upper and Lower Aquifer Systems.
4. The County Environmental Health Division will take all administrative, fiscal and legal measures necessary to provide the services of County Service Area 32.
5. The Planning Division and Public Works Agency will continue to coordinate with water districts and other appropriate agencies to establish a data base on actual available supply, projected use factors for types of land use and *development*, and threshold limits for *development* within available water resources.
6. The Planning Division will continue to promote the efficient use of water through the Landscape Design Criteria Program.
7. The Public Works Agency, in cooperation with the Environmental Health Division, will continue to pursue the use of reclaimed water for agricultural irrigation.
8. The Environmental Health Division will continue to monitor, inspect and regulate underground storage tanks.
9. The Environmental Health Division will continue to identify *waste disposal sites* and seek to mitigate impacts to water resources.
10. The Planning Division will prepare, for the consideration of the Board of Supervisors, a Countywide water conservation retrofit program to fund the installation of water conservation fixtures (defined as 1.6 gallons per flush toilets, one gallon per flush urinals and 2.5 gallons per minute showerheads) for businesses and residents located within Ventura County.

1.4 Mineral Resources

The two principal mineral resources located in Ventura County and inventoried in the Resources Appendix are petroleum (oil and gas) and aggregate (principally sand and gravel). Other minerals of

commercial value within Ventura County are: asphalt, clay, expansible shale, gypsum, limestone, and phosphate.

In terms of gross dollars, petroleum production accounted for approximately 75% of the total mineral production of Ventura County. Ventura County produced 15,659,398 barrels of oil and 16,130,168 million cubic feet (mcf) of natural gas in 1987 (excluding Outer Continental Shelf [OCS] production). This was the third highest production total among California counties (only Kern and Orange counties produced more). The petroleum resource areas identified in Figure 1.4.7 of the Resources Appendix are derived from maps prepared by the State Division of Oil and Gas which depict the boundaries of known petroleum fields.

Aggregates represent the other significant type of mineral resource extracted within the County. Aggregates include sand, gravel and rock which are used for fill, construction-grade concrete and riprap, among others. Although many sand and gravel sites exist throughout the County, most of the extraction sites are located in and along the Santa Clara River bed. Transportation, being a major cost in this industry, dictates that extraction sites be in close to areas of use and demand. For this reason, it is important to utilize close-in aggregate resources before urbanization precludes their extraction.

River *mining* standards in the Santa Clara River currently include: depth/profile standards, establishment of a river corridor, slope and setback restrictions, buffer zones, and protection measures for fish and riparian habitats. The objective of the depth/profile standards are to stabilize the riverbed of the Santa Clara River, thus protecting major structures, and promoting downstream transport of sediment from the upper reaches of the river to the degraded lower reaches of the river.

The aggregate resource areas (see the Resources Appendix) are based on Mineral Resource Zone maps developed by the State Division of Mines and Geology. These maps were prepared in response to the Surface Mining and Reclamation Act of 1975 (SMARA). This Act mandated that aggregate resources throughout the State be mapped so that local governments could make land use decisions in light of the presence of the resources and the need to preserve access to them. SMARA's basic objectives are to ensure proper reclamation of mineral land and safeguard access to mineral resources of regional and statewide significance in the face of competing land uses and urban expansion. Its initial focus was on aggregate necessary for construction grade concrete.

The County's mechanism for carrying out SMARA's objective of safeguarding access to mineral resources is the designation of appropriate areas as a Mineral Resource Area on the Resource Protection Maps. These designated areas are then made subject to the Mineral Resource Protection Overlay Zone (see Zoning Ordinance). In order to be so designated, an area must meet the criteria listed in this section, not be committed to alternative uses, nor be within a city's *viewshed.*

The goals, policies and programs which apply to mineral resources are as follows:

1.4.1 Goals

1. Manage mineral resources in a manner which effectively plans for the access to, development and conservation of mineral resources for existing and future generations.
2. Identify and manage mineral resources in order to:
   - Safeguard future access to the resource.
   - Facilitate a long-term supply of mineral resources within the County.
   - Minimize incompatibility between the extraction and production of the resource and neighboring land uses and the environment.
   - Provide notice to landowners and the general public of the presence of significant mineral resource deposits.
3. Promote the utilization of mineral resources located close to urbanized areas before their extraction is precluded by urbanization.
4. Ensure that all mineral extractions are conducted in a manner which protects the environment and the public's health, safety and welfare.

1.4.2 Policies

1. Applications for *mineral resource development* shall be reviewed to assure minimal disturbance to the environment and to assure that lands are reclaimed for appropriate uses which provide for and protect the public health, safety and welfare.
2. *Mining* operations shall comply with the requirements of the County Zoning Ordinance and standard conditions, and State laws and guidelines relating to mining and reclamation.
3. All *discretionary permits* for in-river *mining* shall be conditioned to incorporate all feasible measures to mitigate flooding and erosion impacts as well as impacts to water resources, biological resources, and beach sediment transport.
4. Petroleum exploration and production shall comply with the requirements of the County Zoning Ordinance and standard conditions, and State laws and guidelines relating to oil and gas exploration and production.
5. As existing petroleum permits are modified, they shall be conditioned so that production will be subject to appropriate environmental and jurisdictional review.
6. All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act.
7. Mineral Resource Areas may be established, in whole or part, in accordance with the following criteria:
   - Any area designated by the State Board of Mines and Geology as an area of statewide or regional significance pursuant to the provisions of the Surface Mining and Reclamation Act of 1975.
   - Any area covered by a *discretionary permit* (e.g. CUP) for mining of aggregate minerals determined to be of Statewide or regional significance.
8. *Discretionary development* within a Mineral Resource Area (see Resource Protection Map) shall be subject to the provisions of the Mineral Resource Protection (MRP) Overlay Zone, and is prohibited if the use will significantly hamper or preclude access to or the extraction of mineral resources.
9. The County is not obligated to approve *discretionary entitlements* for the development of mineral resources located in a Mineral Resource Area nor is it the County's intent to preclude mineral resource development from occurring outside of Mineral Resource Areas as identified on the Resource Protection Map (Figure 1).

1.4.3 Programs

1. As new information regarding mineral resources is received from authoritative sources, the Planning Division will update the Mineral Resources Section of the County General Plan, where appropriate.
2. The Planning Division will continue to check for the existence of abandoned oil and gas wells on parcels of land before *development* occurs, with the highest priority being in those areas where there are existing or historic oil fields.
3. The Planning Division will continue the Oil Enforcement Program to ensure compliance with the requirements of the Zoning Ordinance and conditions of *discretionary permits*.
4. The Planning Division will prepare, and update as necessary, maps and other data indicating oil and gas reserves and production areas.

1.5 Biological Resources

Biological resources include plant and animal species and their habitats, plant communities and ecosystems.

Vegetation

The diverse topography and climate of Ventura County provide an environment where a range of vegetation communities (from Coastal sage-scrub to subalpine forest, from desert chaparral to riparian woodland) can maintain successful populations. Native vegetation in Ventura County can be categorized into seven general plant communities: grasslands, coastal sage-scrub, chaparral, oak woodland, riparian, pinyon-juniper, and timber-conifer (see Resources Appendix).

Most native vegetation in the north half of the County has been preserved as a result of the low level of development in this area (outside of Lockwood Valley). The exceptions are the large expanses of native grasslands that were eliminated by cattle ranching operations several decades ago. Development in the Lockwood Valley area has impacted the pinyon-juniper community; however, the higher elevations surrounding the valley contain nearly undisturbed stands of timber-conifer vegetation.

A large portion of the native vegetation in the south half of the County has been displaced as a result of urban and agricultural development. For the most part, this development is confined to the fertile valleys and plains, and along the coastline. Consequently, most of the mountainous areas in the south half still support significant native plant communities.

Chaparral is the most common plant community in the County. This community consists of woody shrubs and herbaceous plants, is generally located on steep slopes with rocky or heavy soils, and is characteristically dense and subject to fires. Large expanses of chaparral are found in the Santa Monica Mountains.

The Coastal sage-scrub community is located below the chaparral community, generally below 3000 feet, on dry, rocky slopes. It consists of woody shrubs, and is a more open community than the Chaparral. Substantial areas of this community remain on South Mountain and in the Simi Hills and Santa Susana Knolls areas; however, these populations are threatened by encroaching residential development.

Grassland vegetation is not common, and as groundcover, is usually associated with oak-woodland or open areas. The La Jolla Valley in Point Mugu State Park is the only area in the County that still contains native bunch grasses in pure stands, and is considered a locally unique habitat.

The oak woodland community in Ventura County contains the easily identifiable valley oaks, with trees 20 to 60 feet tall and grassland and soft shrubs as groundcover, as found in the Thousand Oaks, Lake Casitas, and Hidden Valley areas. A large area of foothill oak woodland is found on Sulphur Mountain.

Riparian vegetation is found in *wetlands* along most of the permanent and ephemeral streams within the County. Typical trees of this community include sycamores, willows, cottonwoods, and alders. Extensive riparian growth now lines Piru, Sespe, and Santa Paula Creeks, and the Santa Clara and Ventura Rivers. These riparian areas provide both essential habitat and migration corridors for wildlife in Ventura County.

Fish and Wildlife

The naturally vegetated areas of the County provide shelter, food, and nesting areas to create habitats for a wide variety of animal species. Each plant community has different characteristics which support different species of wildlife, although an animal species may use various habitats at different times of the year or at various stages in the animal's life cycle.

The low-elevation, drier plant communities, such as the grasslands, coastal sage-scrub, and chaparral, support a wildlife population which includes rodents, insectivores, hares, foxes, coyotes, raptors (such as hawks, falcon, owls, and eagles) and numerous perching birds, from hummingbirds to ravens. The upland plant communities, such as the oak woodlands, pinyon-juniper, and timber-conifer, provide habitats for larger animals, and include populations of bobcat and mountain lion, mule deer, and black bear, in addition to a game population of quail, rabbit, tree squirrel, band-tailed pigeon, dove, turkey, and chukar (partridge). Reptiles are commonly found throughout the County.

Several hundred species of vertebrates find permanent and transitory range in the varied habitats and topography of the Los Padres National Forest. These species are listed in the U.S. Forest Service

Wildlife Survey of 1982. The number of individuals of many of these species is below optimum replacement levels, a result of the declining quality of habitats and deficient vegetation management.

Riparian areas support a great intensity and diversity of species. These species include the bank swallow, western yellow-billed cuckoo, southern rubber boa, and migratory waterfowl. Populations of these species have greatly diminished as a result of human intrusion and degradation of their habitats.

Locally Unique Habitats

Ventura County contains several unique habitats that support a variety of plants and animals found nowhere else in the country.

The coastal wetlands and lagoons found along the south coast of the County provide shelter, forage, and nesting areas for thousands of birds, fish, mollusks, crabs, seals, and many other marine organisms and plants. The wetland area with the richest diversity is the Mugu Lagoon, which shelters the remnants of many plant, bird, fish, and insect populations which once inhabited the coast from the Ventura River to the Santa Monica Mountains. Other wetlands include the McGrath Lake and Ormond Beach areas, and the mouths of the Ventura and Santa Clara Rivers. These areas are considered significant biological resources.

Ventura County also has two large areas set aside as sanctuaries for the California condor. Although there are (as of 1986) no longer any of these birds living in the wild, the U.S. Fish and Wildlife Service remains hopeful that its Condor Recovery program, involving captive breeding and eventual release, will again allow the condor to safely exist and repopulate in Southern California. As a result, both Matilija and Sespe Condor Sanctuaries remain as significant biological habitats, as shown on the Biological Resources Map in the Resources Appendix.

The Hopper Mountain National Wildlife Refuge is just outside of the Los Padres National Forest, east and south of, and adjacent to, the Sespe Condor Sanctuary. It is a traditional feeding site for the California condor, and is currently operated as a cattle ranch. In addition, a variety of raptors, including prairie falcons, and red-tailed and Cooper's hawks, populate this area.

The Sespe Creek is designated as a "Wild Trout Stream" by the State of California. The steelhead trout, an anadromous fish, uses this stream as its spawning area. The Pacific lamprey, an anadromous fish, also uses the Sespe Creek and the Santa Clara River for its spawning area. The creek also supports a significant population of rainbow trout, cousin to the steelhead. The "Wild Trout Stream" designation affords some protection of water flows and riparian vegetation, both threatened by water development projects. In addition, the Forest Service has proposed that a 28½ mile portion of Sespe Creek receive a "Wild and Scenic River" designation. The Sespe is also mapped as a significant biological resource.

Endangered, Threatened and Rare Species

Ventura County is host to numerous species of plants and animals that are *endangered, threatened, rare,* or considered to be a *candidate species* for one of those designations. A full listing of these species, with their State and Federal designations, and a general description of their locations is found in the Resources Appendix. The areas where these species are located are also designated on the Significant Biological Resources Map in the Resources Appendix.

Although fish and wildlife are generally renewable resources, the rates of renewal are usually very slow and are often impeded by the disruptive forces or urbanization, human harassment, predator control, and pollution. The species and ecosystems in this County are of aesthetic, ecological, educational, historic, recreational and scientific value to the people of Ventura County and the nation as a whole.

The goal, policies and programs which apply to biological resources are as follows:

1.5.1 Goal

Preserve and protect significant biological resources in Ventura County from incompatible land uses and development. Significant biological resources include *endangered, threatened* or *rare species* and their habitats, *wetland habitats, coastal habitats, wildlife migration corridors* and *locally important species/communities.*

1.5.2 Policies

1. *Discretionary development* which could potentially impact *biological resources* shall be evaluated by a qualified biologist to assess impacts and, if necessary, develop mitigation measures.

2. *Discretionary development* shall be sited and designed to incorporate all feasible measures to mitigate any significant impacts to *biological resources***.** If the impacts cannot be reduced to a less than significant level, findings of overriding considerations must be made by the decision-making body.

3. *Discretionary development* that is proposed to be located within 300 feet of a marsh, small wash, intermittent lake, intermittent stream, spring, or perennial stream (as identified on the latest USGS 7½ minute quad map), shall be evaluated by a County approved biologist for potential impacts on *wetland* habitats. *Discretionary development* that would have a significant impact on significant *wetland* habitats shall be prohibited, unless mitigation measures are adopted that would reduce the impact to a less than significant level; or for lands designated "Urban" or "Existing Community", a statement of overriding considerations is adopted by the decision-making body.

4. Discretionary development shall be sited a minimum of 100 feet from significant *wetland* habitats to mitigate the potential impacts on said habitats. Buffer areas may be increased or decreased upon evaluation and recommendation by a qualified biologist and approval by the decision-making body. Factors to be used in determining adjustment of the 100 foot buffer include soil type, slope stability, drainage patterns, presence or absence of endangered, threatened or rare plants or animals, and compatibility of the proposed development with the wildlife use of the wetland habitat area. The requirement of a buffer (setback) shall not preclude the use of replacement as a mitigation when there is no other feasible alternative to allowing a permitted use, and if the replacement results in no net loss of wetland habitat. Such replacement shall be "in kind" (i.e. same type and acreage), and provide wetland habitat of comparable biological value. On-site replacement shall be preferred wherever possible. The replacement plan shall be developed in consultation with California Department of Fish and Game.

5. The California Department of Fish and Game, the U.S. Fish and Wildlife Service, National Audubon Society and the California Native Plant Society shall be consulted when *discretionary development* may affect significant *biological resources*. The National Park Service shall also be consulted regarding *discretionary development* within the Santa Monica Mountains or Oak Park Area.

6. Based on the review and recommendation of a qualified biologist, the design of road and floodplain improvements shall incorporate all feasible measures to accommodate wildlife passage.

1.5.3 Programs

1. The Planning Division, in conjunction with State and Federal agencies, will identify those areas of the County that are considered to be critical habitats of *endangered, threatened* or *rare species* as well as for other significant *biological resources*.

2. The Planning Division will retain a list of qualified biological consultants for the purpose of providing information to complete Initial Studies and Environmental Impact Reports.

3. The Fire Protection District, in conjunction with the California Department of Forestry (CDF), will, under the California Vegetation Management Program, continue the use of prescribed burning to mimic the effects of natural fires in order to reduce the fire hazard to human residents and to enhance the health of biotic communities.

4. The Planning Division shall prepare a program proposal, for Board of Supervisors' consideration, to map significant *wetland habitat* areas and amend the General Plan and Zoning Ordinance in order to establish a Biological Resource Protection Overlay designation/zone which would require all development in said overlay areas to be evaluated for impacts on significant *wetland habitat* areas.

1.6 Farmland Resources

Agriculture plays an important role in the National, State, and County economy. Ventura County is one of the principal agricultural counties in the State, ranking tenth in 1987, with a total income of over 610 million dollars and ranked seventeenth in farm earnings out of 3,175 counties nationally.

This high productivity is made possible by the County's abundance of the natural resources required for agricultural production; primarily soils, water, climate and topography.

The first step in evaluating and preserving farmland is to inventory existing resources. For inventorying County farmlands, the Federal Important Farmlands Inventory (IFI) system is used. This system generally evaluates farmland in light of its productive capabilities rather than the mere presence of ideal soil conditions. The system effectively recognizes a great deal of land in California and Ventura County which would not ordinarily be classified as "prime" under the old evaluation system, but which is, nevertheless, among the most productive land in the country.

The Important Farmland Inventory uses five classifications: *Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance,* and *Grazing Land.* The minimum mapping unit is 10 acres, except for *Grazing Land* which is 40 acres. Areas smaller than the minimum mapping unit are not considered as agricultural land.

Prime Farmland and Farmland of Statewide Importance were identified by the Department of Conservation in cooperation with the United States Department of Agriculture Soil Conservation Service. Both Unique Farmland and Farmland of Local Importance are identified by local advisory committees composed of members of the agricultural community, citizens groups, and concerned public agencies. (For a map of Important Farmlands Inventory, refer to Resources Appendix.)

Erosion of soil is a problem in much of the County. This erosion problem is closely correlated with steep slopes or areas subject to flooding. Agricultural development on hillsides has caused erosion and the subsequent siltation.

The County has adopted a number of programs designed to preserve farmland. These programs include:

- The Agricultural land use designation (see Land Use Chapter), which established a forty acre minimum parcel size and A-E zoning;
- Participation in *Greenbelt Agreements* and the *Guidelines for Orderly Development* with the cities which seek to prevent urban encroachment into agricultural areas (see Land Use Chapter).
- Widespread use of Land Conservation Act Contracts to provide tax rate reductions as an incentive for maintaining agriculture.
- Participation in numerous water resource development and conservation programs to ensure long-term availability of water for agriculture.

The goals, policies, and programs which apply to farmland are as follows:

1.6.1 Goals

1. Preserve and protect irrigated agricultural lands as a nonrenewable resource to assure the continued availability of such lands for the production of food, fiber and ornamentals.
2. Encourage the continuation and development of facilities and programs that enhance the marketing of County grown agricultural products.

1.6.2 Policies

1. *Discretionary development* located on land designated as Agricultural (see Land Use Chapter) and identified as *Prime Farmland* or *Farmland of Statewide Importance* on the State's Important Farmland Inventory, shall be planned and designed to remove as little land as possible from potential agricultural production and to minimize impacts on topsoil.
2. Hillside agricultural grading shall be regulated by the Public Works Agency through the Hillside Erosion Control Ordinance.

3. Land Conservation Act (LCA) Contracts shall be encouraged on irrigated farmlands.
4. The Public Works Agency shall plan transportation capital improvements so as to mitigate impacts to important farmlands to the extent feasible.
5. The County shall preserve agricultural land by retaining and expanding the existing *Greenbelt Agreements* and encouraging the formation of additional *Greenbelt Agreements*.
6. *Discretionary development* adjacent to Agricultural-designated lands shall not conflict with agricultural use of those lands.

1.6.3 Programs

1. The Planning Division, in conjunction with the Agricultural Commissioner, Farm Advisor, Agricultural Advisory Committee and Assessor's Office, will administer, periodically review, and update as necessary the County's Land Conservation Act Guidelines and standard contract language.
2. The Planning Division, in conjunction with the Agricultural Commissioner, Farm Advisor and Agricultural Advisory Committee, will develop and implement standards governing *development* adjacent to agricultural uses. The standards should address fencing and spray buffers between agricultural areas and residences, off-site flood control measures, siltation control from grading operations and the development of a standard County-imposed entitlement condition which notifies new property owners of County and State laws protecting agricultural operations. After the development of standards, they could be added as *policies* into the General Plan to guide future land use decisions.
3. The Planning Division will continue to work with State and Federal agencies to periodically update the Important Farmlands Inventory Map to reflect current conditions.
4. The Planning Division will prepare an annual status report on Land Conservation Act Contracts (LCA), agricultural acreage, and other agriculture related information.

1.7 Scenic Resources

The visual beauty and aesthetic quality of the natural landscape in Ventura County are significant resources. The County's natural visual resources are largely composed of the varied topography, exposed geological formations, heterogeneous vegetation, beaches and waterways. The man-made environment of parks, golf courses, harbors, public buildings, and major commercial, industrial, and residential developments can also contribute to, or detract from, scenic resource quality. The scenic resources of Ventura County, especially the coastline, within the *viewshed* of the County's lakes, and along designated State and County Scenic Highways, are of considerable value both in providing a pleasurable environment for local citizens and in stimulating tourism. Coastline resources are discussed in the Coastal Area Plan, and the viewshed of lakes and scenic highways are discussed herein.

Conservation of scenic resources is most critical where the resources will be frequently and readily viewed, as from a highway, or where the resource is particularly unique.

Ventura County has identified the *viewsheds* of lakes (excluding land designated Existing Community) and State or County designated scenic highways as being worthy of special protection. These protected areas are described as *Scenic Resource Areas* which are depicted in Resource Protection Map (Figure 1). In addition, area plans may identify local scenic resources as *Scenic Resource Areas* unique or of significant importance to that area.

The goals, policies and programs which apply to scenic resources include:

1.7.1 Goals

1. Preserve and protect the significant open views and visual resources of the County.
2. Protect the visual resources within the *viewshed* of lakes and State and County designated scenic highways, and other scenic areas as may be identified by an area plan.
3. Enhance and maintain the visual appearance of buildings and *developments.*

1.7.2 Policies

1. Notwithstanding Policy 1.7.2-2, *discretionary development* which would significantly degrade visual resources or significantly alter or obscure public views of visual resources shall be prohibited unless no feasible mitigation measures are available and the decision-making body determines there are overriding considerations.

2. *Scenic Resource Areas,* which are depicted on the Resource Protection Map (Figure 1), shall be subject to the Scenic Resource Protection (SRP) Overlay Zone provisions and standards set forth in the Non-Coastal Zoning Ordinance, which include the following:

   (1) Any request for grading, structures or vegetation removal per the standards of the SRP Overlay Zone shall be evaluated through a discretionary permit.

   (2) Removal, damaging or destruction of protected trees shall be in compliance with the County's "Tree Protection Regulations" of the Non-Coastal Zoning Ordinance.

   (3) All *discretionary development* shall be sited and designed to:

      a. Prevent significant degradation of the scenic view or vista;

      b. Minimize alteration of the natural topography, physical features and vegetation;

      c. Utilize native plants indigenous to the area for re-vegetation, whenever possible;

      d. Avoid silhouetting of structures on ridge tops that are within public view.

      e. Use colors and materials that are designed to blend in with the natural surroundings.

      f. Minimize lighting that causes glare, illuminates adjacent properties, or is directed skyward in rural areas

   (4) No on-site freestanding advertising signs in excess of four feet in height and no freestanding off-site advertising signs shall be permitted.

   Federally-owned land is not subject to the Scenic Resource Protection Overlay Zone and is not subject to any permit requirements as specified under (1) or (2) above. To the extent possible, the agencies responsible for the administration of land use activities on Federally owned land should consider Policies 1.7.2-2(3) and (4) above in the planning and administration of new land uses within Scenic Resource Areas.

3. Proposed undergrounding of overhead utilities within *Scenic Resource Areas* shall be given first priority by the Public Works Agency in utilizing the County's allocation of Utility Undergrounding Funds.

4. The Planning Division shall continue to implement the landscaping requirements of the Zoning Ordinance and the "Guide to Landscape Plans" to enhance the appearance of *discretionary development.*

1.7.3 Programs

1. The Planning Division, in coordination with appropriate State and local agencies, will inventory and take steps to preserve and maintain unique natural features, and other scenic resources. These areas could be included in future *Scenic Resource Areas* for consideration by the Board of Supervisors to be incorporated into the Resource Protection Map.

2. The Planning Division will continue to seek official State Scenic Highway designations for County designated Scenic Highways.

1.8 Paleontological and Cultural Resources

Paleontological resources are the fossilized remains of ancient plants and animals.

A wide variety of *paleontological resources* exist in both the North and South halves of the County. The diverse geology of the Transverse Ranges encompasses many different kinds of fossil organisms. These fossil remains provide a record of lifeforms over millions of years, as well as having potential economic value.

The term *cultural resources* is most frequently identified with prehistoric (archaeological) or historic material items. These include prehistoric and historic districts, sites, structures, artifacts and other evidence of human use considered to be of importance to a culture, subculture, or a community for traditional, religious, scientific or other reasons. *Cultural resources* in Ventura County include: prehistoric aboriginal Indian sites, historic areas of occupation and activity, or features of the natural environment. *Cultural resources* also include less tangible, nonmaterial resources. These may include cognitive systems (including meanings and values attached to items of material culture, biota, and the physical environment), religion and world views, traditional or customary behavior patterns, kinship and social organization, folklore, and so on.

Archaeological resources refer to the material remains (artifacts, structures, refuse, etc.) produced purposely or accidentally by human beings. The scientific study of these remains can result in the identification of activities, types of adaptation to the environment, and changes in activities and organization that were experienced by groups of people in the past. Furthermore, these remains often have special significance to Native Americans, ethnic groups, special interest groups (i.e., avocational archaeologists), and the general public.

Archaeological sites exist throughout the County, particularly adjacent to existing and previously existing natural water and food sources. Many sites have been located, and according to existing data, many potential sites remain undiscovered.

In the North Half there are 106 *cultural resource* sites which are recorded with Ventura County numbers in the official clearinghouse (at the University of California - Los Angeles). The Forest Service has surveyed and recorded an additional 71 sites and the Bureau of Land Management surveyed the Hungry Valley area and recorded 57 for a total of 234 known sites as of 1987. Two archaeological sites in the North Half are listed on the National Register of Historic Places and are characterized by a variety of remains including shells and shark's teeth.

Several Chumash villages in the North Half contain caves with elaborate artwork. A preliminary list of special management properties compiled by the Forest Service in the Los Padres National Forest (as of March, 1985) included both Mount Pinos and Frazier Mountain as sites of value to the practice of Indian religion. These sites are considered by many Native Americans to be the center of the Chumash world. Sespe Hot Springs and Nordhoff Peak are also significant religious sites.

In the South Half there are three archaeological sites on the National Register: Burro Flats Painted Cave, Calleguas Creek Archaeological Site and a lithic scatter (the remnants of stone implement fabrication) in Senior Canyon. In addition, many other significant sites are located in the South Half, including many large villages located near the coast and along major waterways.

Historical resources refer to the material and nonmaterial expressions of human adaptations which characterized the post-contact or historic period. These resources include historic event or activity sites, historic archaeological sites, standing architecture and other significant properties, and documents and other sources of historical information, objects of material culture, and, secondarily, the more nonmaterial cultural qualities such as folklore, social organization, and value systems which are associated with these properties.

The Ventura County Cultural Heritage Board recommends *cultural, archaeological* and *historical resources* for designation as County Historical Landmarks. The 42 landmark categories range from adobes to wharf sites. There are 156 sites designated Countywide. In the North Half, four sites are so designated. Sites in the South Half include homes, oil industry workings, ranches, groves of trees, cemeteries, portions of the Mission Aqueduct, and others. The list is quite diverse and properties are regularly considered for addition to the Landmarks list by the Cultural Heritage Board.

There are 16 historic sites listed on the National Register of Historic Places. Thirteen of these are also designated as County Landmarks and five of the 13 are California Historical Landmarks.

The goals, policies and programs which apply to *paleontological* and *cultural resources* are as follows:

1.8.1 Goals

1. Identify, inventory, preserve and protect the *paleontological* and *cultural resources* of Ventura County (including *archaeological, historical* and Native American resources) for their scientific, educational and cultural value.

2. Enhance cooperation with cities, special districts, other appropriate organizations, and private landowners in acknowledging and preserving the County's *paleontological* and *cultural resources*.

1.8.2 Policies

1. *Discretionary developments* shall be assessed for potential *paleontological* and *cultural resource* impacts, except when exempt from such requirements by CEQA. Such assessments shall be incorporated into a Countywide paleontological and cultural resource data base.
2. *Discretionary development* shall be designed or re-designed to avoid potential impacts to significant *paleontological* or *cultural resources* whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical or paleontological consultants, depending on the type of resource in question.
3. Mitigation of significant impacts on *cultural* or *paleontological resources* shall follow the Guidelines of the State Office of Historic Preservation, the State Native American Heritage Commission, and shall be performed in consultation with professionals in their respective areas of expertise
4. Confidentiality regarding locations of archaeological sites throughout the County shall be maintained in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts.
5. During environmental review of *discretionary development* the reviewing agency shall be responsible for identifying sites having potential archaeological, architectural or historical significance and this information shall be provided to the County Cultural Heritage Board for evaluation.
6. The Building and Safety Division shall utilize the State Historic Building Code for preserving historic sites in the County.

1.8.3 Programs

1. The County Cultural Heritage Board will continue to assist the County of Ventura in identifying and preserving significant County architectural and historical landmarks.
2. The Planning Division will continue to compile and retain a list of qualified archaeological, historical, and paleontological consultants to provide additional information to complete Initial Studies and Environmental Analyses
3. The General Services Agency will continue to develop a *cultural resources* program at Oakbrook Park emphasizing Chumash history and heritage.

1.9 Energy Resources

Energy is an equally essential resource to the modern day world as are land, air, and water resources. It is required for all human activity and provides the power necessary to operate and maintain our way of life.

Ventura County relies primarily on an interrelated energy system. Electricity and natural gas are the primary forms of household energy while petroleum is the primary energy source for most modes of transportation. The utilization of each of these energy sources raises energy resource availability, environmental and conservation issues.

Considerable energy can be saved in new and existing buildings through efficient design, more efficient appliances, and the use of *renewable energy* resources. Buildings use 40% of the nation's energy. Much of this energy can be saved by fitting existing buildings with energy conservation systems and utilization of *renewable energy* such as solar energy. Other *renewable energy* resources include: hydroelectricity, biomass (organic matter), wind and cogeneration. The sun is the most

abundant source of *renewable energy*. Efficient use of public transportation and the encouragement of van pools and carpools could make significant energy conservation contributions.

Land use patterns and development practices have a profound effect on energy usage. New buildings can be expected to have a natural life span of 50 years or more. For energy planning purposes, building size, design and arrangement, the mix of land uses, and the geographic extent of the built environment are critical factors with long-term implications. Because land use patterns determine distances between residential, commercial and industrial developments, they influence an individual's decision to walk, bicycle, drive or use public transit. Development practices directly affect the amount of energy needed to operate a building. Building orientation, color, shading, windows and landscaping are among the many factors that can be manipulated to optimize opportunities for energy conservation.

The goals, policies and programs which apply to energy resources are as follows:

1.9.1 Goals

1. Promote land use patterns which minimize energy consumption.
2. Encourage the use of *renewable* sources of *energy* and energy conservation techniques in new development.
3. Encourage retrofit programs for energy conservation.
4. Encourage increased fuel efficiency of vehicles and decreased number and length of vehicle trips.

1.9.2 Policies

1. *Discretionary development* shall be evaluated for impact to energy resources and utilization of energy conservation techniques.
2. Land use policies in area plans should be developed to promote energy conservation and should include the following:

   (1) The pattern of residential, commercial and industrial land use should be compact, relate to transit routes and centers and minimize vehicular travel.

   (2) The infill of vacant lots should be encouraged over step-out developments.
3. Energy efficiency and *renewable energy* use shall be included as factors in designing capital improvement projects of all County agencies, departments and service areas.
4. The Building and Safety Division shall continue to implement Title 24 energy efficiency standards for buildings.
5. Tentative subdivision maps shall provide, to the extent feasible, for passive or natural heating or cooling opportunities in the subdivision.

1.9.3 Programs

1. The General Services Agency will review its energy consumption performance and implement programs designed to increase energy efficiency in County buildings, including, but not limited to:

   - installation of insulation where feasible,
   - installation of plumbing flow restrictors,
   - reduced operating hours for heating, ventilating and lighting systems,
   - installation of weather stripping on all openable doors and windows,
   - development of energy audit and energy management programs,
   - implementation of operation and maintenance programs which contribute to energy conservation,
   - develop energy audits and energy management programs for all County facilities,
   - develop a plan to re-invest utility company rebates and utility savings into a long range funding program for on-going conservation projects,

- implement operational and maintenance programs which contribute to energy conservation,
- investigate and implement new energy technologies such as solar and fuel cells,
- install energy management systems in all County facilities to control air conditioning and lighting systems,
- install ceiling, wall, and roof insulation whenever feasible,
- install plumbing flow restrictors in toilets, lavatories and showers, and
- provide energy conservation training and literature to all County agencies.

2. The Solid Waste Management Department will seek to reduce the amount of waste disposed and energy consumed and implement where viable:

   - source reduction,
   - recycling programs,
   - waste composting programs, and
   - public information programs.

3. The County will continue to implement the Air Pollution Control District's Trip Reduction Rule 210 which reduces energy consumption and improves air quality. This would include, but is not limited to:

   - promotion of park-and-ride lots,
   - promotion of Countywide Transit Information Center,
   - promotion of Commuter Rail System,
   - ridesharing promotion,
   - modified work schedules,
   - parking management programs,
   - employer-sponsored van pools, and
   - public transit promotion.

1.10 Coastal Beaches and Sand Dunes

Sandy beaches are nourished largely by the weathering of coastal bluffs and dunes, and by riverine transport of material to the sea. Ventura County has three major sources of beach sand: the Santa Clara River (contributing 60%), the other rivers and streams (10%), and beaches upcoast of the Ventura River (30%). The total volume of sand contributed by these sources is estimated to vary from 200,000 to 1,700,000 cubic yards or 1,000,000 cubic yard average per year (Ventura County Flood Control District, 1979). This sand becomes part of the Santa Barbara *littoral cell* in which the north to south littoral drift terminates in the Mugu and Hueneme submarine canyons.

A *littoral cell* is a section of shoreline where the flow of sand begins at a major sediment source and terminates at a major sediment sink, such as submarine canyon. In Ventura County, waves moving in the direction of prevailing westerly to northwesterly winds generally meet the beaches at a slight angle because of the shoreline's orientation from northwest to southeast. The resultant effect is a net movement of sand over time from northwest to southeast along the beaches.

The maintenance of sandy beaches is critical because beaches serve as natural buffers between wave action and easily eroded uplands. Sandy beaches tend to dissipate wave energy, yet incur very little damage. Naturally occurring buffer zones (such as coastal sand dunes) are generally much more effective at reducing wave damage and protecting the coastline than are man-made protective devices (Department of Navigation and Ocean Development, 1979).

The recreation value of beaches and their contribution to the County tourist industry is significant. Loss of recreation and private beaches has occurred along the North Coast of the County with attendant loss of surfing areas as well. Loss of beach homes from storm damage has occurred in areas of beach depletion. Countywide, beaches are eroding at the rate of 0.7 feet per year (Army Corps of Engineers, Ventura County Survey Report for Beach Erosion Control, May 1980).

Sand dunes constitute another important coastal resource. Major sand dune communities are found in the McGrath-Mandalay area, at Ormond Beach, in the vicinity of Point Mugu, and near the mouths of the Santa Clara and Ventura Rivers.

Generally, sand dunes form as windblown sand collects on an object of obstruction. Coastal sand dunes are extremely fragile, yet highly protective. They inhibit beach erosion and form a protective buffer from both wind and wave action for areas and resources, both natural and man-made, immediately inland. They also protect coastal salt marshes and wetlands. Coastal dunes also have biological significance. In this County, they provide nesting habitat for the snowy plover, the California least tern (an *endangered species*), and a number of other shore birds. They also support a variety of coastal plant species, including the sand verbena, the sea rocket, the sea fig, and others. Vegetation is particularly important to the maintenance of the dunes, insofar as it serves to stabilize the dunes and promote dune formation.

Coastal dune formations are dynamic in nature, migrating and reforming, depending on wind and wave patterns and coastal topography. Development in the vicinity of dunes is therefore, often subject to sand encroachment, which results in increased costs for street sweeping and sand removal.

The ecological as well as protective characteristics of dune communities can be easily altered by human activities, especially development and off-road vehicle use. Additionally, unrestricted pedestrian access may, on a cumulative basis, result in the trampling and loss of dune vegetation and ultimately in the degradation of the community and loss of the dune.

For a discussion of coastal wave and beach erosion hazards, refer to Section 2.11 of the Hazards Chapter.

The goal, policies and program which apply to coastal beaches and sand dunes are as follows:

1.10.1 Goal

Protect and conserve coastal beaches and sand dunes.

1.10.2 Policies

1. *Discretionary development* which would cause significant impacts to coastal beaches or sand dunes shall be prohibited unless the *development* is conditioned to mitigate the impacts to less than significant levels.
2. *Discretionary developments* which would result in the removal of dune vegetation shall be conditioned to replace the vegetation.
3. All *shoreline protective structures* which alter natural shoreline processes shall be designed to eliminate or mitigate adverse impacts on local shoreline sand supplies.
4. Discretionary permits for all mining activities in County streams and rivers shall incorporate all feasible measures to mitigate beach sand replenishment impacts.

1.10.3 Program

Ventura County will continue to participate in the BEACON (Beach Erosion Authority for Control Operations and Nourishment) Joint Powers Agreement, created in 1986 with Santa Barbara County and all coastal Cities, to promote beach sand replenishment and coordinate government funding efforts to fight beach erosion.

Figure 1a
Resources Protection Map (North Half)
(separate document)

[Click above to go to map]

Figure 1b
Resources Protection Map (South Half)
(separate document)

[Click above to go to map]

2. Hazards

This Chapter of the County General Plan identifies *goals, policies*, and *programs* relating to known existing and potential hazards, and other significant physical constraints to development/land use. The specific goals, policies, and programs are organized under the following major headings: (1) general goals, policies and programs, (2) fault rupture, (3) ground shaking, (4) liquefaction, (5) seiche, (6) tsunami, (7) landslides/mudslides, (8) expansive soils, (9) subsidence, (10) flood hazard, (11) inundation from dam failure, (12) coastal wave and beach erosion, (13) fire hazards, (14) transportation-related hazards, (15) hazardous materials and waste, (16) noise hazards, and (17) civil disturbance

More detailed information about the identified hazards and the County's emergency management practices may be found in the *Multihazard Functional Plan* maintained by the Sheriff's Office of Emergency Services.

2.1 General Goals, Policies and Programs

The following general *goals, policies* and *programs* apply to hazards:

2.1.1 Goals

1. Identify all major hazards and other physical constraints to development in Ventura County, and convey this information to all appropriate parties.
2. Protect public health, safety and general welfare from identified hazards and potential disasters.
3. Shield public and private property and *essential facilities* from identified hazards and potential disasters.
4. Minimize loss of life, injury, damage to structures, and economic and social dislocations resulting from identified hazards and potential disasters.

2.1.2 Policies

1. Applicants for land use and *development* permits shall provide all necessary information relative to identified hazards that may affect or be affected by their proposed project. Applicants shall also specify how they intend to mitigate identified hazards.
2. All geologic and soil engineering reports submitted with land use and *development* permit applications, including recommendations for measures to eliminate or mitigate possible hazards, shall be signed by qualified personnel registered and certified by the State in the appropriate discipline, such as Professional Engineers and/or Certified Engineering Geologists.
3. *Essential facilities, special occupancy structures* and *hazardous materials storage facilities* shall be designed and constructed to resist forces generated by earthquakes, gravity, precipitation, fire and winds.
4. Develop, maintain and enhance mutual training and aid agreements with other public agencies, and cooperatively plan to prevent and respond to regional emergencies.

2.1.3 Programs

1. The County Planning Division, with the technical support of the Public Works Agency and other applicable agencies, should periodically review the Hazards Appendix to identify what information needs to be updated, and where appropriate, will submit a budget request as part of the next year's County budget.

2. CEO-Risk Management, Health, Safety & Loss Prevention (HSLP) will continue to provide advisory guidance to GSA-Facilities & Materials in administration of the Seismic Management Program. The program, which is applicable to all County-owned buildings and facilities, addresses structural, nonstructural, lifelines and life safety issues related to earthquake events.
3. The County Building and Safety Division should prepare a program for Board consideration to reduce structural deficiencies through the removal, reinforcement, or modification of the structures whose failure could cause significant numbers of injuries, substantial loss of life, or unacceptable level of economic loss.
4. California Geologic Survey (CGS) maps are periodically revised and updated and will be subsequently incorporated into the General Plan, within the budgetary limitations of the Planning Division.
5. The County Sheriff's Department Office of Emergency Services (OES) will continue to maintain and periodically update the Ventura County *Multihazard Functional Plan*, including mitigation measures and preparedness, response, and recovery strategies for the following twelve hazard specific contingency sections (i.e., plans): Earthquake Hazards, Hazardous Materials and Waste, Flood and Flood Hazards, Inundation from Dam Failure, Transportation Related Hazards, Civil Unrest, Terrorism, National Security Emergency, Landslides/Mudslides, Tsunami, Marine Oil Spill, and Fire Hazards. To the extent feasible, County agencies will, and other public agencies are encouraged to, participate in joint emergency planning and response training, and cooperatively respond to emergencies when they occur.
6. All agencies involved in warning and evacuation activities should periodically review and, if necessary, update their plans and procedures for the hazards defined and described in this Chapter, and shall provide updated hazard and constraint information to the Planning Division when available.
7. The Building and Safety Division will continue to enforce requirements of the California Building Code pertaining to earthquake-resistant design and construction.
8. The Building and Safety Division will comply with applicable provisions of Chapter 12.2 (commencing with Sec. 8875), Division 1, of Title 2 of the Government Code, pertaining to identification of potentially *hazardous buildings* in the unincorporated area of Ventura County, and establishment of a mitigation program for such potentially *hazardous buildings*.
9. The Planning Division and the Resource Management Agency Mapping, GIS and Graphic Services should maintain the Hazards Maps on the Geographic Information System and should update changes as needed.

2.2 Fault Rupture

A *fault* is a fracture in the earth's crust accompanied by displacement of one side of the fracture with respect to the other side. Most faults result from repeated displacement that has taken place suddenly or by "slow creep" over time.

An *active fault* (or "Holocene Fault") is a fault that shows evidence of movement during the Holocene Epoch (within the last 11,000 years) and can be expected to move within the next 100 years.

A *potentially active fault* is either: (1) a fault known to have been active in the Pleistocene Epoch (Between 11,000 and 1.6 million years before the present date), but cannot be shown to be inactive in the Holocene Epoch or is shown by direct geologic evidence to be inactive during the Holocene Epoch, or; (2) a fault which, because it is judged to be still capable of ground rupture or shaking, poses an unacceptable risk for an existing or proposed structure.

An *inactive fault* is a fault that shows no evidence of movement in the last 1.6 million years. A *fault zone* is a zone of related faults that may be braided or sub-parallel and the zone has a significant width.

The County of Ventura lies within the seismically active region of Southern California and is transected by many faults. Currently, there are 14 active *fault hazard zones* in the South Half of the County. The Big Pine Fault, located in proximity to the northeast County boundary and bisecting Lockwood Valley, is the only currently known active fault located in the North Half of the County. The San Andreas Fault extends just outside of the northern County boundary.

Additional fault hazard areas will most likely be designated in the future as additional information becomes available.

The State Legislature, concerned about public safety near hazardous faults, enacted the Alquist-Priolo Special Studies Zones Act in 1972 (now known as the Alquist-Priolo Earthquake Fault Zoning Act of 1994). To assure that structures for human occupancy are not built across or on *active faults*, the Act requires a geological investigation before local governments can approve most development projects located in the Act's earthquake fault zones. In 1975 the State Geologist made a policy decision to zone faults that have a relatively high potential for ground rupture and utilizes the terms of "sufficiently active" and "well-defined" to constitute the criteria for zoning faults. "Sufficiently active" requires evidence of Holocene surface displacement along one or more of the fault segments or branches. Displacement need not be present along the entire fault for the fault to be zoned. "Well defined" requires that the trace of the fault be clearly detectable by a trained geologist as a physical feature at or just below the ground surface.

The *goal, policies* and *programs* that apply to fault rupture are as follows:

2.2.1 Goal

Minimize the risk of loss of life, injury, collapse of *habitable structures*, and economic and social dislocations resulting from fault rupture.

2.2.2 Policies

1. Detailed geologic investigations performed by Certified Engineering Geologists are required for all proposed *habitable structures* in *Earthquake Fault Hazard Zones* as defined by the Alquist-Priolo Earthquake Fault Zoning Act. Development will not be allowed unless the investigation confirms that the proposed *habitable structures* are not subject to fault rupture hazard. Proposed developments that are located at the ends of the *Earthquake Fault Hazard Zones* may be required, at the discretion of the Public Works Agency Certified Engineering Geologist, to be evaluated for earthquake fault rupture hazards.
2. No habitable structures shall be located across or on any active fault zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act. Furthermore, no habitable structures shall be located within 50 feet of the mapped trace of an active fault unless an appropriate geologic investigation and report demonstrates that the site is not subject to a fault rupture hazard.
3. All development projects involving construction within Earthquake Fault Hazard Zones (as depicted on the State of California, Earthquake Fault Hazards Map for County of Ventura; Figure 2), shall be reviewed by the Public Works Agency Certified Engineering Geologist in accordance with the requirements of the Alquist-Priolo Earthquake Fault Zoning Act and the policies and criteria established by the State pursuant to said Act.
4. Land in *Earthquake Fault Hazard Zones* and *potentially active fault* areas should, where feasible, be designated Open Space or Agriculture on the General Land Use Maps.
5. Roads, streets, highways, utility conduits, and oil and gas pipelines, shall be planned to avoid crossing *active faults* where feasible. When such location is unavoidable, the design shall include measures to reduce the effects of any fault movement as much as possible.
6. No new *essential facilities, special occupancy structures*, or *hazardous materials storage facilities* shall be located within *active fault zones* unless it can be adequately demonstrated that the facilities are not subject to fault rupture hazard.

2.2.3 Programs

1. The Fault Rupture chapter should be updated as part of every update to the Hazards Appendix of the County General Plan.

2. The *Multihazard Functional Plan* - Major Earthquake Contingency section will be reviewed and revised annually by the County Sheriff's Office of Emergency Services. The Office of Emergency Services will continue to provide public information programs and pamphlet information on earthquake preparedness.
3. The Building and Safety Division, with the support of the General Services Agency-Facilities & Materials Division and CEO- Risk Management, Health, Safety & Loss Prevention (HSLP) will implement the requirements of the Essential Services Buildings Seismic Safety Act of 1986.

2.3 Ground Shaking

Ground shaking is the physical movement of the land surface due to earthquakes. Ground shaking is the most hazardous effect of earthquakes because it is most widespread and accompanies all earthquakes. The largest loss of life and property damage during an earthquake is due to ground shaking. The primary effects of ground shaking are damage to structures (ranging from minor cracking of plaster to total destruction) and infrastructure (roads, bridges, power lines, oil, gas, water and sewer lines, etc.), and the potential related human injury and loss of life. The secondary effects of ground shaking (including *liquefaction*, *tsunamis*, *seiche* and earthquake induced *landslides/mudslides*) are evaluated as separate hazards.

Ventura County lies within the active earthquake region of Southern California. Available geologic information indicates that the potential of strong ground shaking occurring over much of the County as a result of an earthquake along one of the major *faults* within the County, within the useful life of existing structures, is high when compared to other areas of the State. This is because of the close proximity of many fault systems. Exactly where, when, and how strong the next earthquake will be cannot be determined.

The ground shaking hazard exists throughout Ventura County and is most significant wherever there are subsurface conditions that result in greater earthquake wave amplitude or a longer duration of ground shaking. Ground shaking hazard areas are areas that can be expected to experience intense ground shaking during a maximum probable earthquake.

Ground shaking intensity depends on the earthquake magnitude, distance and direction from the site, depth, type of earthquake, the soil and bedrock conditions beneath the site, and the topography of the site and vicinity. The potential for the highest amplification of ground shaking occurs in the Oxnard Plain and the Santa Clara River Valley in the south half of the County, and in the Lockwood, Cuyama, and Cuddy Valleys in the north half.

Hazards associated with ground shaking events include *liquefaction, seiche, tsunami* and *landslide/mudslide***,** which also may occur without an associated earthquake or ground-shaking event.

The effects of the hazard can be reduced by prudent location and design of structures and *essential facilities*, and evaluation of existing structures and facilities that should be strengthened, replaced or modified in use, as necessary.

The goal, policy and programs that apply to ground shaking are as follows:

2.3.1 Goal

Minimize the risk of loss of life, injury, collapse of *habitable structures*, and economic and social dislocations resulting from ground shaking.

2.3.2 Policy

All structures designed for human occupancy shall incorporate engineering measures to mitigate against risk of collapse from ground shaking.

2.3.3 Programs

1. The Ground Shaking Hazard chapter should be updated as part of every update to the Hazards Appendix of the County General Plan.
2. The Building and Safety Division will be responsible for implementing the requirements of the California Building Code to reduce the effects of ground shaking on *habitable structures***.**

2.4 Liquefaction

Liquefaction is a process by which loose, water-saturated granular materials (silt, sand or gravel) behave for a short time as a dense fluid rather than as a solid mass, usually as a result of ground shaking of high intensity and long duration. Liquefaction is manifested either by the formation of sand boils and mud spouts at the ground surface and the seepage of water through ground cracks, or, in some cases, by the development of quicksand-like conditions over substantial areas. When the quicksand-like conditions occur, buildings may sink substantially or tilt into the ground and lightweight buried facilities may float to the surface. An additional manifestation of liquefaction is movement of blocks of earth referred to as lateral spreads which can move hundreds of feet.

The liquefaction hazard generally exists throughout the Oxnard Plain and Pleasant Valley. The hazard areas extend up the Ventura and Santa Clara Rivers, mainly in the areas underlain by extensive alluvial deposits. Some of the valleys in the Thousand Oaks area are also affected, as is the Arroyo Santa Rosa downstream of the City of Thousand Oaks-Hill Canyon Wastewater Treatment Plant. Simi Valley is affected at both the east and west ends. Both the upper and lower Ojai Valleys are in the hazard areas as well as San Antonio Creek from Ojai to the Ventura River. The low-lying areas north of Lake Casitas are also subject to liquefaction. There are other scattered locations affected by liquefaction hazard; they are usually in stream canyons, tributary to the major areas.

Many riparian (streamside or lakeside) areas could be disrupted by liquefaction. These areas include (1) San Antonio and Thacher Creeks; (2) Ventura River; (3) Lake Casitas and low lying areas of the Casitas watershed; (4) the Santa Clara River and Piru Creek area; (5) Calleguas Creek including Arroyo Simi from Simi Valley to beyond Virginia Colony; (6) Arroyo Conejo from the Thousand Oaks Hill Canyon Sewage Treatment Plant through most of the Santa Rosa Valley; (7) Mugu Lagoon and coastal areas north of the lagoon which were originally tidal estuaries; and (8) coastal beach areas.

The goal, policy and programs that apply to *liquefaction* are as follows:

2.4.1 Goal

Minimize the risk of loss of life, injury, collapse of *habitable structures*, and economic and social dislocations resulting from *liquefaction*.

2.4.2 Policy

Prior to the issuance of building or grading permits for *essential facilities*, *special occupancy structures*, two-story single family residences, or *hazardous materials storage facilities* located within areas prone to *liquefaction*, a geotechnical report that includes a seismic analysis and evaluation of liquefaction in accordance with the State of California Guidelines shall be prepared in order to assess the liquefaction potential and provide recommendations for mitigation.

2.4.3 Programs

1. The Liquefaction chapter should be updated as part of all updates to the Hazards Appendix of the County General Plan.
2. The Building and Safety Division will implement the requirements of the California Building Code to reduce the effects of *liquefaction* on *habitable structures*.

2.5 Seiche

A *seiche* is a long wave that oscillates in an enclosed or partially enclosed body of water as a result of seismic events, landslides or atmospheric disturbances. Seiches typically occur in lakes and bays, and are normally caused by unusual tides, winds or currents, but can also be produced by earthquake ground motion. The shaking oscillates the water back and forth, causing seiche waves.

The primary threat from a *seiche* is to structures and boats in or very near a lake, harbor or bay. Boats and their moorings can be heavily damaged by seiches, and buildings and campgrounds can be inundated. Only in the case of a severe seiche or unusual circumstances would loss of life be likely from the seiche itself. The secondary effects of a seiche can often produce more damage than the seiche itself. Large seiches can overtop the dams of man-made lakes or reservoirs, causing flood in the areas downstream. This overtopping can also wash out unprotected earth-fill dams, causing their

complete collapse. Most modern earth fill dams have a spillway or other outlet that will help to reduce the potential for overtopping.

The *Seiche Hazard Area* surrounds all of the County's reservoirs and lakes. The height of the hazard above the water level is dependent on the subsurface topography of the reservoir or lake and a general estimate for smaller bodies of water is a height of 10 feet. The lakes that are impounded by earth-fill dams could have the greatest hazard potential. These lakes are Lake Bard (Wood Ranch Reservoir), Lake Piru and Lake Casitas. The Santa Clara River Valley could also be affected should a seiche-caused dam failure occur on Castaic Reservoir or Pyramid Reservoir. In addition, some of the homes at Lake Sherwood could be inundated during a seiche.

The goal, policies and programs that apply to *seiche* hazards are as follows:

2.5.1 Goal

Minimize the risk of loss of life, injury, collapse of *habitable structures* and economic and social dislocations resulting from a *seiche*.

2.5.2 Policies

1. The *Seiche Hazard Area* shall be considered during the preparation of regional and area plans and special studies, and used to guide future investigations of the hazard.
2. The *seiche* hazard shall be taken into account in the design of all development within a *Seiche Hazard Area*.

2.5.3 Programs

1. The County Sheriff's Department Office of Emergency Services will annually review and revise the *Multihazard Functional Plan*'s Tsunami/Seiche Contingency section.
2. The Building and Safety Division will implement the requirements of the California Building Code to reduce the effects of *seiche* hazard on *habitable structures*.

2.6 Tsunami

A *tsunami* is a traveling ocean wave generated by disturbances associated with earthquakes, volcanoes or major submarine landslides. Man-made tsunamis have been generated by the explosion of underwater nuclear bombs at Bikini atoll and elsewhere. These waves have a long wavelength (distance from the crest of one wave to the crest of the succeeding wave), normally over 100 miles, and a very low amplitude (height from crest to trough). As these waves approach shallow water, the speed decreases from a deep water speed of over 600 m.p.h. to less than 30 m.p.h., and their energy is transferred from wave speed (velocity) to wave height (amplitude); waves as high as 80 feet can be formed. Although the arrival time of waves can be predicted, the intensity of the wave when it reaches shore cannot be predicted.

Tsunamis are a threat, not because they are extensive or frequent, but because the destruction they cause can be devastating. Tsunamis can cause loss of life from drowning, and they can cause extensive damage to structures on or near beaches and river mouths. In addition, water systems can be contaminated, power supplies disrupted, transportation systems blocked or dislocated, and oil and gas pipelines along the coast destroyed. There can also be an increased occurrence of fire from broken oil or gas tanks or lines, as well as flooding from blocked rivers, etc. The danger is compounded by the fact that the intensity of the wave is unpredictable and the threat is intermittent over many hours. The waves can arrive onshore in intervals of up to an hour, and since there are usually a number of waves (rather than just one), the threat usually exists for as long as ten to twelve hours. Tsunamis are sometimes preceded by a trough which appears to be similar to an extremely low tide. The wave itself may follow the trough by 15 to 45 minutes.

The tsunami threat is mainly confined to the immediate beach areas and river mouths (deltas). All of the coastal areas in Ventura County are susceptible to tsunamis. Most of the land between the beach and the cliffs on both the north and south coasts is included within the hazard zone. The hazard zone is delineated as roughly the elevation of 30 feet (10 meters); however, effects of structures and topography may locally affect the inland extent of the tsunami (run-up). Existing structures located

below an elevation of 30 feet mean sea level (msl) cannot be mitigated against damage or destruction resulting from tsunamis.

The goal, policy and program that apply to *tsunami* hazards are as follows:

2.6.1 Goal

Minimize the risk of loss of life, injury, and collapse of *habitable structures*, and economic and social dislocations resulting from a *tsunami*.

2.6.2 Policy

Essential facilities, special occupancy structures and hazardous materials storage facilities should not be located in tsunami hazard areas.

2.6.3 Program

The County Sheriff's Department Office of Emergency Services will annually review and revise the County *Multihazard Functional Plan*'s Tsunami/Seiche Contingency section.

2.7 Landslides/Mudslides

"*Landslide*" is a general term for the dislodging and falling of a mass of soil or rocks along a sloped surface, or the dislodged mass itself. A "*mudslide*" is a flow of very wet rock and soil. Various scientists define the terms of mudslide, debris flow, landslide, soil slump, and rock fall differently, but in this usage they are considered the same.

Almost all sites with potential for landslides/mudslides lie within the hillside and coastal areas of Ventura County. Many slopes in the County are only marginally stable and landsliding could occur. A significant landslide destroyed nine homes in the community of La Conchita on March 4, 1995. Geologists have stated that the remaining earth over the community is still capable of moving and causing extensive damage. The County Public Works Agency enforces Chapter 70 (excavation and grading) of the California Building Code to ensure that areas of landslide or hillside areas are adequately identified and investigated prior to development.

The primary effects of landsliding or mudsliding can include:

- Human injury and loss of life;
- Abrupt depression and lateral displacement of hillside surfaces over large distances;
- Disruption of surface drainage;
- Blockage of flood control channels, transportation routes; and
- Displacement or destruction of man-made facilities such as roadways, buildings, oil and water wells, oil and gas pipelines and facilities, etc.

Since the primary land use within hillside and coastal areas is residential, the hazard primarily impacts dwellings and the associated utility facilities.

The hazard from landsliding is also considered to exist within the areas of the County that were developed prior to present-day grading and building codes. The level of hazard cannot readily be determined without detailed investigation of individual sites.

The goal, policies and programs that apply to *landslides/mudslides* are as follows:

2.7.1 Goal

Minimize the risk of life, injury, collapse of *habitable structures*, and economic and social dislocations resulting from *landslides/mudslides*.

2.7.2 Policies

1. Development in mapped *landslide/mudslide hazard areas* shall not be permitted unless adequate geotechnical engineering investigations are performed, and appropriate and sufficient safeguards are incorporated into the project design.

2. In *landslide/mudslide hazard areas*, there shall be no alteration of the land which is likely to increase the hazard, including concentration of water through drainage, irrigation or septic systems, removal of vegetative cover, and no undercutting of the bases of slopes or other improper grading methods.
3. Drainage plans that direct runoff and drainage away from slopes shall be required for construction in hillside areas.

2.7.3 Programs

1. The Landslides/Mudslides chapter should be updated as part of every update to the Hazards Appendix of the County General Plan.
2. The Public Works Agency will continue to enforce Chapter 70 (Excavation and Grading) of the California Building Code to ensure that areas of mapped *landslides/mudslides* or hillside areas are adequately investigated. Proposed development must incorporate appropriate design provisions to prevent landsliding and demonstrate that an adequate factor of safety against landsliding exists or will exist upon completion of the proposed development.
3. The Public Works Agency will enforce the requirements of the State of California Seismic Hazards Act and for all sites within potential earthquake induced *landslide* areas as mapped by the State Geologist. Project proponents for these sites must submit a geotechnical report that addresses the potential for earthquake induced landslides or rock falls to the Public Works Agency for review prior to obtaining a grading or building permit.

2.8 Expansive Soils

Expansive soils are soils that have a high shrink-swell potential; such soils expand when wet and contract when dry. Wetting can occur naturally in a number of ways (e.g., rainfall, groundwater fluctuations) as well as from other sources, such as lawn watering, broken water or sewer lines, etc. Local soils can be expected to shrink or swell if they typically contain significant clay content. The effects of the volume change in expansive soil may be slow, progressing over a period of years, or may be more rapid. Commonly, this movement is associated with seasonal or even longer wet/dry cycles, and is affected by applied irrigation and improper drainage.

Soil expansion can cause structural damage to structures, pavement and utilities in two ways. First, the expansion of the soil can heave a lightly loaded structure, or a structure with various loading conditions may result in different heave amounts or elevation changes. Second, soil expansion can lead to the loss of support under part of a structure. This can occur during dry conditions if the soil shrinks and support is withdrawn. Records exist of expansive soils causing damage to highways, buildings, reservoirs, swimming pools, canals and utilities of all types.

The goal and policies that apply to *expansive soils* are as follows:

2.8.1 Goal

Minimize the risk of damage to structures from the effects of *expansive soils*.

2.8.2 Policies

1. Construction must conform to established standards of the Ventura County Building Code, adopted from the California Building Code.
2. A geotechnical report, prepared by a registered civil engineer and based upon adequate soil testing of the materials to be encountered at the sub-grade elevation, shall be submitted to the County Surveyor, Environmental Health Division, and Building and Safety for every applicable subdivision and Building Permit application (as required by the California Building Code).
3. No *habitable structures* or *individual sewage disposal systems* shall be placed on or in expansive soils unless suitable mitigation measures to prevent the adverse effect of these conditions are incorporated into the project.

2.9 Subsidence

Subsidence is any settling or sinking of the ground surface arising from surface or subsurface causes. Its usual form is a dish-shaped or bowl-shaped large region of downward surface displacements. Some types of subsidence can be the result of natural processes, including natural compaction of loosely consolidated alluvium ("consolidation" refers to the gradual compression of a soil under load), as well as ground shaking from earthquakes. Other types of subsidence are caused by human activities. In California, four types of the latter have been identified; they are named according to the action that causes the subsidence: groundwater withdrawal subsidence, oil or gas withdrawal subsidence, hydro-compaction subsidence and peat oxidation subsidence. Only the first two types are known to be causing problems in Ventura County; evidence of subsidence hazard caused by peat oxidation or hydro-compaction (the wetting and subsequent collapse of loose soil structures) has not been found. Of all the types, groundwater withdrawal subsidence, which generally occurs in valley areas underlain by alluvium, is the most extensive and the impacts most costly. The subsidence problem exists mainly in the Oxnard Plain area of the County.

The goal, policies and programs that apply to *subsidence* are as follows:

2.9.1 Goal

Minimize the risk of damage to structures, transportation corridors, and infrastructure from the effects of *subsidence*.

2.9.2 Policies

1. Potential *subsidence* shall be evaluated prior to approval of new oil, gas, water or other extraction well drilling permits.
2. Structural design of buildings and other structures shall recognize the potential for hydro-compaction *subsidence* and provide mitigation recommendations for structures that may be affected.
3. No structure which is needed for public safety or emergency services shall be located where an interruption in service could result from structural failure due to *subsidence*. If such location in an area subject to potential *subsidence* is unavoidable, the structure shall be designed to mitigate the hazard.

2.9.3 Programs

1. The Subsidence chapter should be updated as part of all updates to the Hazards Appendix of the County General Plan.
2, The Building and Safety Division will implement the requirements of the California Building Code to reduce the effects of *subsidence* on *habitable structures* as required by the California Building Code.

2.10 Flood Hazards

A "flood" is an overflow of water onto land that is normally dry. The most common type of flood, and the major subject of this section, is the "rainstorm-river" flood. A second major type is a "coastal" flood, resulting from a relative increase in sea level that may be caused by a storm, by a tsunami, or by subsidence. Other potential causes of floods in Ventura County include dam or levee failure, *landslides/mudslides* and *seiches*.

The size and frequency of occurrence of a rainstorm-river flood in a particular channel depend on a complex combination of conditions, including the amount, intensity, and distribution of rainfall, previous moisture conditions, and drainage patterns. The area subject to inundation is generally referred to as the *flood plain*. The flood plain is divided into two hazard areas: (1) the *floodway*, which is the portion of the flood plain that carries the deep and fast-moving water of a 100-year storm; and (2) the *flood fringe area*, which is the remainder of the flood plain, subject to shallow, slower moving water.

The magnitude of a flood is measured in terms of its "peak" discharge, which is the maximum volume of water (in cubic feet per second) passing a point along a channel. Floods are usually referred to in terms of their frequency of occurrence, which is related to discharge; for example, the "100-year flood" for a particular channel is the size flood that has a probability of being equaled or exceeded once in 100 years. Another way of defining the term is that the “100-year flood” has a 1% chance of being equaled or exceeded in any given year. The magnitude of the flood selected by a governmental agency for planning purposes (usually 50-year or 100-year) is referred to as the *selected flood* or *regulatory flood*.

The duration and extent of a rainstorm-river flood depend on the specific physical characteristics and conditions of the watershed and the intensity and duration of the storm. Generally, in Ventura County, a flood builds up to a peak and then begins to recede, with the entire process lasting from an hour to a week, depending largely upon the size and slope of the watershed.

Flooding is a natural occurrence, with some long-range beneficial effects such as replenishment of sand to beaches and of nutrients to agricultural lands. It is a hazard only because people find flood plains a desirable place to live and use. Human encroachment on flood plains can also increase the hazard: structures may obstruct the flood flow, thus increasing flood heights, and the covering of the ground with impervious surfaces (e.g., pavement) increases the rate and quantity of stormwater runoff.

The County's three major rivers (Santa Clara River, Ventura River, and Calleguas Creek) and all of their major tributaries, as well as many smaller channels, are located in unincorporated areas over much of their courses. The 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA) is depicted on the Hazards Protection Maps.

Located in the 100-year flood plain of the Ventura River are the communities of Live Oak Acres, Casitas Springs and Hawthorne Acres. In addition, there are sewer mains and water lines along much of the length of the Ventura River and San Antonio Creek. The rest of the Ventura River watershed hazard area is undeveloped or in agriculture. The unincorporated parts of the Santa Clara River watershed flood plain are primarily in agriculture, with some undeveloped and industrially developed areas. The unincorporated portion of the Calleguas Creek floodplain contains water and sewer mains and a sewage treatment plant, but is primarily undeveloped and agricultural land.

The goals, policies and programs that apply to *flood hazards areas* are as follows:

2.10.1 Goals

1. Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from flood hazards.
2. Design and construct appropriate surface drainage and flood control facilities as funding permits.
3. Prevent incompatible land uses and development within *flood plains*.

2.10.2 Policies

1. Land use in the *floodway* should be limited to open space, agriculture, or passive to low intensity recreational uses, subject to the approval of the County Watershed Protection District. The *floodway*’s principal use is for safely conveying floodwater away from people and property.
2. Within areas subject to flooding, the County shall require the recordation of a *Notice of Flood Hazard* or dedication of a *flowage easement* with the County Recorder for all divisions of land and *discretionary permits*.
3. *Development* shall be protected from a 100-year flood if built in the *flood plain* areas.
4. The design of any structures which are constructed in *flood plain* areas as depicted on the Hazards Protection Maps (Figure 2), shall be governed by Federal regulations as well as the County Flood Plain Management Ordinance and shall incorporate measures to reduce flood damage to the structure and to eliminate any increased potential flood hazard in the general area due to such construction.

2.10.3 Programs

1. The County Sheriff's Department Office of Emergency Services will continue to provide public education and evacuation notification and response information. It will also annually review and revise the *Multihazard Functional Plan*'s Flood Hazard Contingency section.
2. Federal Flood Insurance Rate Map and Floodway Map information will continue to be available from the Public Works Agency.
3. The *flood plain* limits will be reviewed annually, as required by Government Code Sec. 65302(a), by the Public Works Agency. All changes will be conveyed to the Planning Division, which will process an amendment to the Hazards Protection Maps Figure 2.
4. The Public Works Agency will make information available to property owners and residents in coastal inundation areas to encourage participation in the Federal Flood Insurance Program.

2.11 Inundation from Dam Failure

This section deals with the flooding that may occur as the result of structural failure of a *dam*. Structural failure may be caused by seismic activity, an extreme flooding event, or by landslides flowing into a *reservoir*.

Lake Casitas and the Santa Felicia (Lake Piru) dams are the largest dams in the County. Bouquet Canyon Dam, Castaic Dam, Drinkwater Reservoir, Dry Canyon Dam, Elderberry Flood Basin, and Pyramid Dam in Los Angeles County are other large dams upstream within the Santa Clara River drainage system. Due to the locations of dams and watercourses in Ventura and Los Angeles Counties, dam inundation could occur in these areas: Santa Clara River Valley, Ventura River Valley, Ojai Valley, Simi Valley and the Westlake area.

Other dams or reservoirs creating potential inundation problems include: Bard Reservoir (Wood Ranch), Ferro Debris Basin (Ventura County Watershed Protection District), Lake Eleanor, Lake Sherwood, Las Llajas Reservoir (Ventura County Watershed Protection District), Las Virgenes Reservoir (Ventura County portion of Westlake), Matilija Dam (Ventura County Watershed Protection District), Potrero Dam (Westlake Village), Runkle Debris Basin (Ventura County Watershed Protection District), Senior Canyon Reservoir, Sinaloa Lake and Sycamore Canyon (Ventura County Watershed Protection District).

Because of existing development patterns and trends, particularly in the south half of the County, and the large amount of land area that is potentially subject to dam inundation, it would be infeasible to preclude future development from locating in *dam inundation* areas.

The goal, policy and programs that apply to inundation from *dam* failure are as follows:

2.11.1 Goal

Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from inundation by *dam* failure.

2.11.2 Policy

Dams shall be designed to withstand catastrophic events. The dams should be located to ensure their safety from all maximum credible seismic events.

2.11.3 Programs

1. The County will conduct *dam* break studies for County-owned facilities and prepare inundation maps. Both the dam break studies and inundation maps should be updated periodically. New dams will be required to have inundation studies.
2. The County Sheriff's Department Office of Emergency Services will annually review and revise the Dam Failure Contingency section of the *Multihazard Functional Plan*. The Office of Emergency Services will continue to provide public information on dam failure preparedness and response.

3. Dam Inundation Maps will be maintained by the Sheriff's Department, Office of Emergency Services, and will be available to the public.

2.12 Coastal Wave and Beach Erosion Hazards

Coastal wave hazards can exist at shorelines as a result of the strong and damaging wave actions that can occur during storms. Damage to properties can result from high wave run-up, wave splashes and flying debris tossed by waves breaking at the beach or on coastal structures. The County Coastline Wave Hazard Areas are identified in the Flood Insurance Rate Map for Ventura County (unincorporated areas). The Federal Emergency Management Agency (FEMA) through the National Flood Insurance Program (NFIP) defines these areas as “V” zones.

Numerous residences are located adjacent to the beach erosion and wave hazard areas identified by the "V" zones, and may be in danger of being destroyed or damaged as a result of being undermined by erosion or from wave and flooding damage. Most of these residences are located in the communities of Rincon, Mussel Shoals (Punta Gorda), Seacliff, Faria, Solimar and Solromar. Five parks in the Ventura County unincorporated area (Hobson County Park, Faria County Park, Emma Wood Beach Park, Point Mugu State Park and Leo Carrillo State Beach) also lie within or adjacent to the Coastal Wave Hazard Area.

The erosion of coastal beaches is a very complex problem. The beach is in a perpetual state of dynamic disequilibria, adjusting to changes in waves, currents, tides and sediment deposition. The force that moves sand along the shoreline, creating the phenomenon known as the "littoral drift", is provided by waves breaking at an angle along the beaches. The sand found on Ventura County beaches travels with the littoral drift from the northwest to southeast.

Man-made shoreline alteration can have severe effects on this natural process and must be closely monitored. Shortsighted solutions may aggravate erosion problems and pose secondary erosion impacts. Effective beach erosion management requires a comprehensive understanding of the erosion process, as well as technically oriented, long-term management plans.

In addition to the littoral drift, there is an onshore-offshore movement of sand. Waves that are small or spaced far apart tend to move sand from the ocean bottom towards the beach, building it out. Large, closely spaced waves tend to cut back the beach and move the eroded sand seaward, forming sand bars in shallow water.

All beaches in Ventura County are subject to erosion to a certain degree. Even beaches stabilized by groins can erode, although they do so at a slower pace. Erosion will increase in the future at all beaches if sand supplies to the coast are decreased.

Intermittent portions of the County coastline are in the Beach Erosion Hazard Area. In the County unincorporated beaches, the Beach Erosion Hazard Areas are generally located at Rincon Point, Punta Gorda, Seacliff Colony, Pitas Point and Faria Colony, Solimar Beach, Bass Rock, and Solromar. The Naval Base Ventura County, Point Mugu is also within the Hazard Area.

For a discussion of coastal beaches and sand dunes as a resource, refer to Section 1.10 of the Resource Chapter.

The goals, policies and program that apply to coastal wave and beach erosion hazards are as follows:

2.12.1 Goals

1. Minimize the risk from the damaging effects of coastal wave hazards and beach erosion.
2. Reduce the rate of beach erosion.

2.12.2 Policies

1. All permits for seawalls, revetments, groins, retaining walls, pipelines and coastal outfalls shall be designed to mitigate wave hazards and protect against further beach erosion, and shall be referred to the County Public Works Agency to be reviewed for possible impacts on the beach area and ocean floor.

2. *Discretionary development* in areas adjacent to coastal beaches shall be allowed only if the Public Works Agency determines that wave action and beach erosion are not hazards to the proposed development, or that the hazard would be mitigated to a less-than-significant level, and that the project will not contribute significantly to beach erosion.

2.12.3 Program

Ventura County will continue to participate in the BEACON (Beach Erosion Authority for Control Operations and Nourishment) Joint Powers Agreement, to promote beach sand replenishment and coordinate government funding efforts to fight beach erosion.

2.13 Fire Hazards

Ventura County experiences fires of a variety of types: wildland, structural, chemical, petroleum, electrical, vehicle and other human-caused material fires. Each is unique in its source of fuel, area of ignition, and degree of hazard. The Ventura County Fire Protection District constantly monitors the fire hazard in the County. There are ongoing programs for investigation and alleviation of hazardous situations.

The Fire Hazards chapter focuses on the rural or wildland areas of the County. The *fire hazard area* extends into all areas where native brush can be found growing in pure natural stands, which is most common on undeveloped hillside areas. The extreme fire hazard zone includes all areas of high brush and woodland and all steep slopes regardless of vegetation. The following areas of the County are particularly hazardous due to the length of time since the last fire, the build-up of flammable brush, and vegetation and inaccessibility:

- Yerba Buena Road - Carlisle Canyon area
- Lake Sherwood area
- Sulphur Mountain
- Matilija Canyon area
- Los Padres National Forest
- Santa Monica Mountains

On the north coast, the communities of La Conchita, Seacliff and Solimar and the south coast area abut the *high fire hazard area*. The communities on the Ventura River, including Oak View and Meiners Oaks, and the community of Piru are also interspersed with, or are adjacent to, high *fire hazard areas*. Oil production and storage facilities are located in the fire hazard areas but are usually well protected.

The goals, policies and programs that apply to fire hazards are as follows:

2.13.1 Goals

1. Minimize the risk of loss of life injury, damage to structures, and economic and social dislocations resulting from fire hazards.
2. Ensure that *development* in high *fire hazard areas* is designed and constructed in a manner that minimizes the risk from fire hazards.

2.13.2 Policies

1. All discretionary permits shall be required, as a condition of approval, to provide adequate water supply and access for fire protection and evacuation purposes.
2. All *discretionary permits* in *fire hazard areas* shall be conditioned to include fire-resistant vegetation, cleared *firebreaks*, or a long-term comprehensive fuel management program as a condition of approval. Fire hazard reduction measures shall be incorporated into the design of any project in a *fire hazard area*.

3. New residential subdivisions shall provide not less than two means of access for emergency vehicles and resident evacuation. A deviation from this policy is only allowed when the proposed road conforms to the County Road Standards and when the County Fire Chief approves the proposed road.
4. All applicants for subdivisions, multi-unit residential complexes, and commercial and industrial complexes shall be required to obtain, prior to permit approval, certification from the Fire Protection District that adequate fire protection is available, or will be available prior to occupancy.

2.13.3 Programs

1. The County Fire Protection District is responsible for the prescribed burn program as mandated by the Vegetation Management Program (VMP) SB 1704, along with fuel breaks and other fire prevention measures.
2. The Fire Protection District will continue to enforce regulations for clearance of vegetation around oil production facilities.
3. The County Fire Protection District will continue to work cooperatively with the U.S. Forest Service, California Department of Forestry, adjacent county fire departments, and local city fire departments, towards managing wildland fires.
4. The County Fire Protection District will continue to revise, maintain, and make available to the Planning Division their historical burn area maps in conjunction with the State Division of Forestry.
5. The County Fire Protection District and Public Works Agency will continue to coordinate their street naming procedures with the cities in the County.
6. The Ventura County Sheriff's Department Office of Emergency Services will annually review and revise the County *Multihazard Functional Plan*'s Wildland Fire Contingency section in conjunction with the County Fire Protection District. The Office of Emergency Services will continue to provide public information on emergency response notification, evacuation and sheltering due to fire.

2.14 Transportation Related Hazards

Hazards associated with movement of goods and people or conveyance of hazardous materials have been grouped together and are addressed below. These include aircraft incidents, railroads, trucking, marine oil transport, and onshore oil pipelines.

Aircraft Incident

A major air crash that occurs in a heavily populated residential area can result in considerable loss of life and property. The impact of a disabled aircraft as it strikes the ground creates the likely potential for multiple explosions, resulting in intense fires. Regardless of where the crash occurs, the resulting explosions and fires have the potential to cause injuries, fatalities and the destruction of property at and adjacent to the impact point. The time of day when the crash occurs may have a profound affect on the number of dead and injured. Damage assessment and disaster relief efforts associated with an air crash incident will require support from other local governments, private organizations and in certain instances from the state and federal governments.

It is impossible to totally prepare, either physically or psychologically, for the aftermath of a major air crash. Since Southern California has become one of the nation's most complex air spaces, as complexity and operations increase, so does the probability of an occurrence of an air crash incident.

Although airplane crashes can occur anywhere, crashes that affect life and property on the ground occur most frequently in airport approach and departure zones. Residences, schools, and other buildings occupied by people that are located in such zones are subject to an ever-present risk from airplane accidents. Hazard zones have been identified for the four airports within the County: 1) Ventura County Airport at Oxnard; 2) Ventura County Airport at Camarillo; 3) Santa Paula Airport; and 4) Naval Base Ventura County, Point Mugu. These zones represent the general areas most frequently

impacted by aircraft emergency or crash landing during the take-off or approach phase. They also represent the areas that, based on aircraft operations and accident probability, should be controlled for the safety of persons both on the ground and in the aircraft. The determination of the hazard areas is based on landing and take-off patterns and clear zones extending beyond the runway as recommended by the Federal Aviation Administration.

Railroad Incident

A major train derailment that occurs in a heavily populated industrial area can result in considerable loss of life and property. As a train leaves its track, there is no longer any control as to the direction it will travel. Potential hazards could be overturned rail cars, direct impact into an industrial building or entering into normal street traffic. Each of these hazards encompasses many threats, such as a hazardous materials incident, fire, severe damage to either adjacent buildings or vehicles and loss of life of those in either adjacent buildings or vehicles and pedestrians.

Trucking Incident

A major truck incident that occurs in a heavily populated industrial area or residential area can result in considerable loss of life and property. Potential hazards could be overturned tank trailers, direct impact either into a residence or industrial building, or entering into the normal flow of traffic. Each of these hazards encompasses many threats, such as hazardous materials incident, fire, severe damage to either adjacent buildings or vehicles, and loss of life of pedestrians or those in either the adjacent buildings or vehicles.

US 101, one of the two major North-South routes in California, traverses Ventura County. Additionally, there are several major State Highways that connect other routes and cities, including Highway 33, Highway 118, and Highway 126. This presents a concern for possible multiple vehicular and truck transportation accidents.

Marine Oil Spill

The potential exists for offshore oil accidents and spills in Ventura County involving petroleum products due to the oil and gas development, transportation of liquid bulk products by tanker, and other vessel traffic carrying petroleum products for fuel. An offshore spill can result in oil-contaminated beaches. The major potential sources of offshore spills are separated into the following categories:

Oil Platform Production - There are four platforms in federal waters offshore Ventura County. They are Chevron's Platforms Grace and Gail and Unocal's Platforms Gina and Gilda. There are no platforms in state waters (i.e., within three miles of shore). Rincon Island, owned by Bush Oil, contains 68 well ports. There are additional platforms in state and federal waters offshore Santa Barbara County. The probability of an oil spill from a platform is small but possible. As a result of the Santa Barbara Oil well blowout in 1969, operating and safety requirements were substantially strengthened. During drilling, all offshore wells are equipped with redundant blowout protectors that can be closed hydraulically from a remote control station in the event of a blowout.

Vessel Traffic - The number of liquid bulk carriers presently transiting the Santa Barbara Channel is estimated to be between one and three per day. The Alaskan tankers may each carry as much as 1.5 million barrels of oil although the average is about 675,000 barrels. The other tankers are much smaller carrying 100,000 to 300,000 barrels. Although the probability of a tanker spill is low, it is possible. Potential causes of spills include collisions, rammings, groundings, and structural failures. The other commercial vessels transiting the channel carry fuel (bunkers), which can be released in the event of an accident.

Subsea Pipelines - All of the platforms listed in the oil platform production section ship their oil to shore via subsea pipelines. Potential causes of pipeline spills include corrosion, mechanical defects, and ruptures caused by events such as anchor dragging or earthquakes. Oil pipelines are normally equipped with various sensors and/or valves that will allow the pipeline to be shut down rapidly and automatically in the event of a rupture.

Marine Terminals - Fuel is off-loaded at the Port of Hueneme for the Ormond Beach power plant. Spills from marine terminals can be caused by operation errors or a rupture or leak in the loading/unloading lines.

Onshore Oil Pipeline Spill - Similar to a marine oil spill, an onshore oil pipeline spill can be a serious hazard to surface and groundwater resources, property, animals and human life. Oil and gas transport lines have been mapped on the County's Geographic Information System to allow improved response to spills in the event of pipeline system failure or a seismic event. Although available to emergency responders and planners, GIS information on the location of these transport lines is proprietary and contact must be first made with the California State Fire Marshall.

The goals, policies and programs that apply to transportation-related hazards are as follows:

2.14.1 Goals

1. Minimize the loss of life, injury, damage to structures, and economic and social dislocations resulting from hazards created by proximity to airports, railroads and truck routes.
2. To reduce or mitigate the effects of marine oil spills or onshore oil pipeline spills upon the population and environment.

2.14.2 Policies

1. Ventura County agencies shall respond to aircraft crashes in accordance with all applicable regulations and safety practices, and provide support to Federal and State agencies responsible for the investigation and management of aircraft incidents.
2. The following policies apply to airports and land in proximity to airports:

   (1) To avoid accidents, land located within Airport Hazard Zones as depicted on the Hazards Protection Maps (Figure 2), shall be designated Agriculture or Open Space on the General Plan Land Use Map (Figure 3.1) and shall be limited to the following uses:

   - Agriculture and agricultural operations.
   - Cemeteries.
   - Energy production from renewable resources.
   - Mineral resource development.
   - Public utility facilities.
   - Temporary storage of building materials.
   - Waste treatment and disposal.
   - Water production and distribution facilities.

   (2) Development within the Airport Hazard Zones shall comply with Part 77 of the Federal Aviation Regulations (objects affecting navigable airspace).

   (3) Private airstrips and agricultural landing fields shall be sited so as not to conflict with the flight paths of existing airports and outside of areas that would present significant hazard or an annoyance to existing or planned land uses.

   (4) *Discretionary development* within the Airport Hazard Zones shall be reviewed by the Ventura County Transportation Commission (VCTC) for consistency with the Ventura County Comprehensive Airport Land Use Plan.
3. New *discretionary development* shall be conditioned to minimize, to the maximum extent practical through site design or setbacks, the risk for exposure to railroad and trucking hazards.
4. The County's Planning Division shall review and analyze all permit applications for compliance with local, state and federal oil spill prevention regulations.

2.14.3 Programs

1. The County Sheriff's Department Office of Emergency Services will annually review and revise the *Multihazard Functional Plan*'s Major Air Crash, Train Derailment, and Trucking Incident Contingency sections.
2. Emergency Response agencies will review or develop plans, and participate in such exercises as are required by the FAA and requested by local authorities.

3. The County Department of Airports will periodically update the County Airport Master Plans, and will pursue the airport safety/improvement projects described in the current approved master plans.
4. The Sheriff's Office of Emergency Services will annually review the County's Marine Oil Spill Response Plan. The County will continue to participate in the U.S. Coast Guard Area Contingency Plan process.
5. County facilities that could potentially be the source of a marine oil spill and onshore oil spill will develop, exercise, review and share their prevention and response plans with regulatory and emergency agencies.

2.15 Hazardous Materials and Waste

Hazardous Material means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety to the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, *hazardous waste*, and any material that the administering agency (Certified Unified Program Agency - CUPA) determines to be potentially injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Agencies responsible for hazardous materials/waste management include the Environmental Health Division, Fire District, Public Works Environmental & Energy Resources Department and Sheriffs Office of Emergency Services.

The Countywide Emergency Response Plan, which is continuously being updated, identifies specific actions to be taken and the resources available for the protection of public health and the environment in the event of accidental and/or illegal release of hazardous substances.

Several catastrophic incidents over the past 20 years involving human illnesses, loss of life and environmental destruction caused by hazardous materials and wastes, as well as gradual long term groundwater pollution from leaking dumps and tanks, have led to the enactment of hundreds of Federal and State laws which place limits and prohibitions on the way hazardous wastes are managed from the point of generation to the point of disposal. Increased regulatory requirements and the increased costs associated with the proper disposal of all classifications of waste have led to illegal disposal operations countywide. The County Planning Division has inventoried all past and current waste disposal sites that may pose health or land use problems by adversely affecting land, water or air resources.

Proposition 65, approved by the voters in 1986, became operative January 1, 1987. Among other things it adds §25180.7 to the Health & Safety Code. Specifically, it requires each designated employee to disclose to the Board of Supervisors and to the local Health Officer any illegal discharge or threatened illegal discharge of a hazardous waste within the County of which the employee obtains knowledge in the course of his or her employment and which the employee knows is likely to cause substantial injury to the public health or safety.

The goals, policies and programs that apply to *hazardous materials* and *hazardous waste* are as follows:

2.15.1 Goals

1. Minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment and disposal of *hazardous materials* and *hazardous wastes*.
2. Locate potentially hazardous facilities and operations in areas that would not expose the public to a significant risk of injury, loss of life, or property damage.

2.15.2 Policies

1. *Hazardous wastes* and *hazardous materials* shall be managed in such a way that waste reduction through alternative technology is the first priority, followed by recycling and on-site treatment, with disposal as the last resort.

2. Site plans for *discretionary development* that will generate *hazardous wastes* or utilize *hazardous materials* shall include details on hazardous waste reduction, recycling and storage.
3. Any business that handles a *hazardous material* shall establish a plan for emergency response to a release or threatened release of a hazardous material. The County Fire Protection District is designated as the agency responsible for implementation of this policy.
4. Applicants shall provide a statement indicating the presence of any *hazardous wastes* on a site, prior to development. The applicant must demonstrate that the waste site is properly closed, or will be closed before the project is inaugurated.
5. Commercial or industrial uses which generate, store or handle *hazardous waste* and/or *hazardous materials* shall be located in compliance with the County Hazardous Waste Management Plan's siting criteria.

2.15.3 Programs

1. To assure that the use of *hazardous materials* are in compliance with Federal, State and local safety provisions, the County Fire Protection District and Environmental Health Division will continue to limit and control the manufacture, storage and use of *hazardous wastes* and *hazardous materials* in the County through the development review process.
2. The County Environmental Health Division is responsible for the following on-going programs involving *hazardous materials* and *hazardous waste*:
   - Monitor underground tanks to ensure that groundwater supplies are free from the intrusion of *hazardous materials* from that source.
   - Respond to reports of suspected and known illegal dumping of wastes and coordinate with the District Attorney's Office in enforcement and the prosecution of known offenders.
   - Maintain an emergency response program to deal with *hazardous waste* spills in conjunction with the Sheriff's Department, Fire Protection District, Highway Patrol and all city fire and law enforcement departments.
   - Inspect all *hazardous wastes* generators to ensure that such wastes are properly stored and disposed of in accordance with State and local ordinances and regulations.
3. The 1986 "Right To Know Law" requires a plan for response to the release or threatened release of a *hazardous material* (California Health & Safety Code Section 25503. (c)). The Environmental Health Division will be responsible for preparation, coordination and implementation of this plan.
4. County Health and Safety/Loss Prevention (General Service Agency) is responsible for monitoring *hazardous materials* in the work place for all County employees through the Hazardous Materials Abatement Program.
5. CEO-Risk Management, Health, Safety & Loss Prevention (HSLP) will continue administration of the Asbestos Management Program which provides a full range of asbestos abatement surveillance guidance and regulatory compliance advisory services applicable to all County owned facilities and operations.
6. The County Agricultural Commissioner's Office is responsible for enforcing all pesticide regulations, issuing licenses to applicators, distributors and dealers who handle pesticides and conducting inspections of all application and distribution facilities.
7. The County Environmental Health Division will continue to work with the appropriate State agencies to assess the public health and environmental impacts of identified waste disposal sites in the County, including abandoned and illegal sites.
8. The County Sheriff's Department Office of Emergency Services, in cooperation with the County Fire Protection District will annually review and revise the County *Multihazard Functional Plan*'s Major Hazardous Materials Incident Contingency section.

9. The County Public Works Agency Environmental & Energy Resources Department will maintain a CHWMP that includes goals, policies, programs and an implementation schedule for management of household *hazardous waste* for action by the County and participating cities.

10. The County Sheriff's Department Office of Emergency Services, will coordinate with local, state and federal agencies regarding off shore oil incidents and onshore oil pipeline incidents and annually update the County *Multihazard Functional Plan*'s Off Shore Oil Incidents Contingency section.

11. The Environmental Health Division is responsible to implement the requirements of Division 20, Chapter 6.5, Section 25189.5 (Health and Safety Code), involving any illegal discharge or threatened illegal discharge of a *hazardous waste* within the County.

12. The Environmental & Energy Resources Department and the Environmental Health Division will continue to coordinate with the Ventura Regional Sanitation District and local cities on the Household Hazardous Waste Program, which involves a) the collection of unused household products and pesticides that are considered hazardous, and b) a community education program on the safe use and disposal of household chemical products.

2.16 Noise

For purposes of this Plan, "noise" can be defined as any sound having an intensity (in terms of volume, pitch or duration) at the point of human perception that has the potential to stress or damage the organs of human hearing or to cause unwanted or unhealthy physiological effects, or is otherwise considered unwanted or annoying by the listener. The effects of noise accumulate over time, so it is necessary to deal not only with the intensity of sound but also the duration of human exposure to the sound.

Noise can be annoying and physically harmful to human beings and to animals. Human exposure to intense noise can result in irreversible hearing damage, and has been linked to other physiological effects including headaches, nausea, irritability, constriction of peripheral blood vessels, changes in heart and respiratory rates and in glandular and gastrointestinal activity and increased muscular tension. The effects of noise exposure in residential environments can include coughs and hoarseness caused by the strain of shouting above the noise. Noise can also affect accuracy at work, and has been found to be linked to job-related accidents and absenteeism.

High levels of noise can have effects on animals that are similar to those on humans, in terms of tissue damage, changes in blood pressure and chemistry, and hormonal changes. Hatching failures (in birds) and other changes in reproductive processes have also been reported. Additional effects on wildlife can include panicking, disruption of breeding and nesting behavior, birth defects, changes in migratory patterns, and even changes in the size of bodily organs. Noise can also mask animals' auditory signals and interfere with some animals' communication of necessary information. Adverse effects of noise on farm animals can include changes in milk production, incubation behavior, mating behavior, and animal size and weight.

Noise can also have adverse effects on materials and structures, particularly as a result of sonic booms and related aircraft noises. These aircraft generated noises can excite buildings to vibrate and can break windows and crack plaster.

While any number of individual measures have been proposed, mitigation measures for identifiable noise problems fall into three categories:

- Reduction of the noise at its source.
- Modification of the path of the noise.
- Reduction of noise at the receiver with various types of insulation.

Noise is directly associated with human activity, and is primarily a function of traffic, machinery and airports. On a generalized basis, motor vehicles, as a group, are the most pervasive contributors to urban noise, while aircraft, railroads and certain high intensity industrial noise generators may produce the most aggravated community annoyance reactions. Due to wide distribution and the types of machinery used, industrial sources are the second greatest noise generator. Airports are regarded as

the third greatest noise generator. Other significant noise sources are powered gardening equipment, amplified music, power tools and air conditioners.

Land uses considered *noise sensitive uses* include residential, educational, and health facilities, research institutions, certain recreational, and entertainment facilities (typically, indoor theaters and parks for passive activities) and churches. Uses considered less sensitive to noise include commercial and industrial facilities and certain noise-generating recreational facilities such as playgrounds and gymnasiums.

The goal, policies and programs that apply to noise are as follows:

2.16.1 Goal

To protect the health, safety and general welfare of County residents by elimination or avoidance of adverse noise impacts on existing and future *noise sensitive uses.*

2.16.2 Policies

1. All *discretionary development* shall be reviewed for noise compatibility with surrounding uses. Noise compatibility shall be determined from a consistent set of criteria based on the standards listed below. An acoustical analysis by a qualified acoustical engineer shall be required of *discretionary developments* involving noise exposure or noise generation in excess of the established standards. The analysis shall provide documentation of existing and projected noise levels at on-site and off-site receptors, and shall recommend noise control measures for mitigating adverse impacts.

   (1) *Noise sensitive uses* proposed to be located near highways, truck routes, heavy industrial activities and other relatively continuous noise sources shall incorporate noise control measures so that:

   a. Indoor noise levels in habitable rooms do not exceed CNEL 45.

   b. Outdoor noise levels do not exceed CNEL 60 or L_{eq}1H of 65 dB(A) during any hour.

   (2) *Noise sensitive uses* proposed to be located near railroads shall incorporate noise control measures so that:

   a. Guidelines (1)a. and (1)b. above are adhered to.

   b. Outdoor noise levels do not exceed L_{10} of 60 dB(A).

   (3) *Noise sensitive uses* proposed to be located near airports:

   a. Shall be prohibited if they are in a CNEL 65 or greater, noise contour.

   b. Shall be permitted in the CNEL 60 to CNEL 65 noise contour area only if means will be taken to ensure interior noise levels of CNEL 45 or less.

   (4) Noise generators, proposed to be located near any *noise sensitive use*, shall incorporate noise control measures so that ongoing outdoor noise levels received by the noise sensitive receptor, measured at the exterior wall of the building, does not exceed any of the following standards:

   a. L_{eq}1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.

   b. L_{eq}1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.

   c. L_{eq}1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.

   Section 2.16.2(4) is not applicable to increased traffic noise along any of the roads identified within the 2020 Regional Roadway Network (Figure 4.2.3) Public Facilities Appendix of the Ventura County General Plan (see 2.16.2-1(1)). In addition, State and Federal highways, all railroad line operations, aircraft in flight, and public utility facilities are noise generators having Federal and State regulations that preempt local regulations.

(5) Construction noise shall be evaluated and, if necessary, mitigated in accordance with the County Construction Noise Threshold Criteria and Control Plan.

2. Discretionary development which would be impacted by noise, or generate project related noise which cannot be reduced to meet the standards prescribed in Policy 2.16.2-1., shall be prohibited. This policy does not apply to noise generated during the construction phase of a project.

3. The priorities for noise control shall be as follows:

   (1) Reduction of noise emissions at the source.

   (2) Attenuation of sound transmission along its path, using barriers, landforms modification, dense plantings, and the like.

   (3) Rejection of noise at the reception point via noise control building construction, hearing protection or other means.

2.16.3 Programs

1. The Oxnard and Camarillo Airport Master Plans recommend the preparation of noise abatement plans, the formation of local noise abatement committees with input from local citizens, and distribution of a periodic newsletter documenting noise abatement policies to aircraft operators and other interested parties. The airport plans also recommend periodic sampling measurements and updating of the CNEL noise model parameters, and discussion of alternative approaches for noise abatement.

   In addition, the Oxnard plan recommends publication of a map of recommended noise abatement flight tracks and operating procedures, for distribution to area airports and other interested parties.

2. The Public Works Agency will continue to work with CalTrans and City transportation offices to optimize signal timings and arterial stop sign location so that stop-go truck traffic is minimized in areas surrounded by noise-sensitive uses.

3. The noise *goals, policies* and *programs,* as well as the noise appendix, will be reviewed by the Planning Division as needed.

4. The Public Works Agency will prepare a proposal for consideration by the Board of Supervisors to study the feasibility of constructing noise barriers in areas containing existing *noise sensitive uses* which are or will be significantly impacted by traffic noise.

5. The Building and Safety Division will continue to enforce Appendix Chapter 35 of the Uniform Building Code (UBC) and UBC Appendix 3501 of the Ventura County Building Code for the purposes of protecting persons within new hotels, motels, apartment houses, and dwelling units from effects of excessive noise including external community noise.

6. The Building and Safety Division and Public Works Agency shall prepare a budgetary proposal for Board consideration to amend the County Building Code, including Excavation and Grading Standards, to impose the noise criteria and mitigation measures contained within the County Construction Noise Threshold Criteria and Control Plan.

2.17 Civil Disturbance

Civil unrest, terrorism, and national security emergency hazards are forms of civil disturbance, which are of major public concern and necessitate a planned and coordinated response by a number of public agencies.

Civil Unrest

Civil unrest is the spontaneous disruption of normal, orderly conduct and activities in urban areas, or outbreak of rioting or violence that is of a large-scale nature. Civil unrest can be spurred by specific events, such as large sporting events or criminal trials, or can be the result of long-term disfavor with authority. Civil unrest is usually noted by the fact that normal on-duty police and safety forces cannot

adequately deal with the situation until additional resources can be acquired. This is the time period when civil unrest can grow to large proportions.

Threat to law enforcement and safety personnel can be severe and bold in nature. Securing of *essential facilities* and services is necessary. Looting and fires can take place as a result of perceived or actual non-intervention by authorities.

The various agencies that are vested with providing emergency response services within their respective jurisdictions are very adept at dealing with ordinary and routine emergency incidents. There are, however, incidents and circumstances that by their very nature exceed the ability and capacity of a single jurisdiction to cope with the situation. When this occurs, a request for additional resources is initiated and is accommodated through mutual aid agreements. Incidents, whether they are natural (e.g., flooding, earthquakes), or civil disturbances that occur simultaneously in a widespread manner affecting multiple jurisdictions, require a greater degree of coordination and organization. The Ventura County Law Enforcement Mutual Aid Manual addresses the mechanics of mutual aid activation and level of response. It also speaks to the establishment of a unified command structure organized to deal with incidents that affect the entire operational area whether in a direct or indirect fashion.

Active participation in the unified command and incident command system is essential if a coordinated effort is to be initiated and maintained.

The entire County, consisting of residential, industrial and commercial properties, is vulnerable to the effects of civil unrest.

Terrorism

Terrorism is defined as the use of fear for intimidation, usually for political goals. Terrorism is a crime where the threat of violence is often as effective as the commission of the violent act itself. Terrorism affects us through fear, physical injuries, economic losses, psychological trauma, and erosion of faith in government. Terrorism is not an ideology. Terrorism is a strategy used by individuals or groups to achieve their goals.

In the wake of the 1993 World Trade Center bombing in New York and the Oklahoma City bombing in 1995, terrorism became a serious concern for emergency management, emergency responders, and the public at large. However, the 2001 attack on the World Trade Center and the Pentagon has now elevated our concern about terrorism to a level we never imagined, and requires us to be prepared to respond to situations that go beyond the terrorist incident scenarios that we are familiar with.

Terrorists espouse a wide range of causes. They can be for or against almost any issue, religious belief, political position, or group of people of one national origin or another. Because of the tremendous variety of causes supported by terrorists and the wide variety of potential targets, there is no place that is truly safe from terrorism. Throughout California there is nearly limitless number of potential targets, depending on the perspective of the terrorist. Some of these targets include: medical facilities/clinics, religious facilities, government offices, public places (such as shopping centers), schools, power plants, refineries, utility infrastructures, water storage facilities, dams, private homes of prominent individuals, financial institutions and other businesses.

In response to this tremendous challenge, the Ventura County Sheriff's Office of Emergency Services, in conjunction with the Ventura County Terrorism Working Group, has developed the Ventura County Terrorism Response Plan.

National Security Emergency

A national security emergency is defined as the potential use of or threat of use of weapons of mass destruction (WMD) whether by terrorists, insurgents, or a foreign government. A WMD is any device, material, or substance used in a manner, in a quantity or type, or under circumstances evidencing intent to cause death or serious injury to persons or significant damage to property.

Today, the likelihood of nuclear war is considered slight. However, terrorist activities could utilize radiological materials or other weapons of mass destruction (chemical, biological). Terrorist activities could result in the security of nuclear weapons being compromised.

Various types of nuclear detonation that could pose a threat include an airburst, surface burst and blast. Subsequent effects of such detonations include damaging and life threatening exposures to thermal radiation, initial radiation, fallout and electromagnetic pulse. These effects are more fully described in the Technical Appendix.

In addition to the goals, policies and programs contained in Section 4.7 (Law Enforcement and Emergency Services) the following goal, policies and program apply to civil unrest, terrorism and national security emergency hazards are as follows:

2.17.1 Goal

Minimize the loss of life and/or property, rescue victims, identify and protect evidence associated with civil unrest, terrorist attack or national security emergency.

2.17.2 Policies

1. County law enforcement agencies shall utilize all available resources at the outbreak of disorder to suppress the outbreak and restore the peace.
2. Ventura County shall continue to participate in the National Alert and Warning System, and provide as much warning and direction to the County's population as is available.

2.17.3 Programs

1. The County Sheriff's Department Office of Emergency Services will annually review and revise the *Multihazard Functional Plan*'s Civil Unrest and Terrorism Contingency Sections and the National Security Emergency section.
2. The County's Terrorism Early Warning Group will continue to meet, analyze intelligence and develop response plans for potential or actual threats to Ventura County.
3. The County Sheriff will continue to review discretionary development with regard to potential terrorism and national security emergency hazards.

Figure 2a
Hazards Protection Map (North Half)
(separate document)

[Click above to go to map]

Figure 2b
Hazards Protection Map (South Half)
(separate document)

[Click above to go to map]

3. Land Use

The purpose of the Land Use Chapter is to set *goals, policies* and *programs* to guide future growth and development in the unincorporated area of Ventura County in a manner consistent with State legal mandates and requirements and in a manner consistent with the goals and quality of life desired by Ventura County citizens. The *policies* of the Land Use Chapter provide the basis for all decisions related to the use of the land and the further expansion of the various communities within the County. They also provide the basis for the establishment of zoning and subdivision regulations, the review of capital improvement programs, the development of housing and redevelopment programs, and other programs related to land use.

In accordance with Section 65302(a) of the Government Code, the Land Use Chapter of the General Plan identifies the goals, policies and programs which guide the distribution, general location and extent of uses of land for housing, business, industry, open space, including agriculture, and other categories of public and private uses of land in the County. This Chapter also establishes the standards of population density and building intensity for various land use designations covered by the plan.

To avoid duplication of material presented in other chapters of this General Plan, not all of the issues listed in Section 65302(a) are included in this chapter. The goals, policies and programs which apply to natural resources and scenic beauty are addressed in the Resources Chapter. The goals, policies and programs which apply to areas subject to flooding are addressed in the Hazards Chapter. The goals, policies and programs which apply to solid and liquid waste disposal facilities, education, recreation, and other public buildings and grounds are addressed in the Public Facilities and Services Chapter.

This Chapter also includes the goals, policies, and programs governing open space as required by Sections 65302(e) and 65560 et seq. of the Government Code. Furthermore, this Chapter includes the goals, policies, and programs governing housing as required by Sections 65302(c) and 65580 et seq. of the Government Code.

The specific goals, policies and programs are listed under the major headings of General goals, policies and programs, Land Use Designations, Population and Housing, and Employment and Commerce/Industry. The official General Land Use Maps are not physically bound as part of this text, but are presented as companion materials accompanying the text. For reference purposes, these maps are identified as Figure 3.1.

The Land Use Appendix summarizes the land use designations, the acreages for each designation, and the corresponding population densities and building intensities for each. The tables in the Appendix include the land use designations for the incorporated and unincorporated areas for use in comprehensive Countywide programs such as air quality management, and water quality management planning, solid waste planning, transportation planning and housing planning. The tables are based on the General Land Use Map included in this Plan, as well as the currently-adopted land use plan maps from each city General Plan and currently-adopted County Area Plans.

3.1 General Goals, Policies and Programs

The following general goals, policies, and programs apply to land use:

3.1.1 Goals

1. Ensure that the County can accommodate anticipated future growth and *development* while maintaining a safe and healthful environment by preserving valuable natural resources, guiding development away from hazardous areas, and planning for adequate public facilities and services. Promote planned, well-ordered and efficient land use and *development* patterns.
2. Promote the establishment of reasonable city boundaries and Spheres of Influence and prevent step-out urban *development.*

3. Promote appropriate and orderly growth and *development* while protecting desirable existing land uses and a desired quality of life.

4. Ensure that land uses are appropriate and compatible with each other, and guide *development* in a pattern that will minimize land use conflicts between adjacent land uses.

5. Ensure that Countywide growth and *development* is consistent with the *Guidelines for Orderly Development.*

3.1.2 Policies

1. **General Land Use Maps**: The *goals* and locational criteria set forth in this Chapter are general guidelines for determining whether land should be within a particular land use designation depicted on the General Land Use Maps (Figure 3.1). The land use designation applied to a specific parcel of land shall be as designated on the General Land Use Maps, whether or not such parcel meets all of the applicable criteria.

   The General Land Use maps cover the mainland only. Anacapa Island is designated "Open Space" and San Nicholas Island is designated "State or Federal Facility."

2. **Consistency of Zoning**: Zoning shall be consistent with the General Land Use Maps (Figure 3.1) and the Zoning Consistency Matrix (Figures 3.2a & b). Where the zoning and subdivision criteria applicable to a particular land use category require a specific subzone, zoning shall be considered consistent with such land use category only if the specified subzone is adopted. To determine the appropriate zone and subzone designation (from among those consistent with the appropriate land use designation), the following factors shall apply:

   - Recognizing the desirability of retaining existing uses and densities on the subject land;
   - Recognizing the desirability of accommodating anticipated uses on the subject land;
   - Maintaining continuity with neighboring zoning, land uses and parcel sizes;
   - Implementing the recommendations of any specific zoning and land use studies of the area in question;
   - Recognizing and addressing the presence and significance of resources and hazards; and
   - Evaluating the ability to provide public services and facilities.

3. **Consistency of Land Use**: Any land use shall be deemed consistent with the General Plan if it is permitted under a zoning designation which is consistent with Policy Number 2 above, and if the land use does not conflict with any other policy of the County General Plan.

4. **Area Plans**: Plans for specific geographic subareas of the County may be adopted as part of the County General Plan. Area Plans shall be consistent with the General Land Use Map, although the Area Plans may be more specific. Figure 3.3 indicates the areas covered by the Area Plan maps.

5. **Building Intensity and Population Density**: Except for Affordable/Elderly Housing developments that are eligible for density bonuses as specified in Article 16 of the Non-Coastal Zoning Ordinance, and Cultural Heritage Sites that are eligible for deviation as specified in the Non-Coastal Ordinance, the following building intensity and population density standards apply to the unincorporated areas of the County:

   - For Area Plans, the building intensity and population density standards that appear in each respective plan shall apply to lands covered by the Area Plan maps.

   - For Existing Communities (as defined and discussed in Section 3.2), the building intensity and population density standards shall be as specified on the tables which accompany each Existing Community map contained in this Chapter commencing with Figure 3.7.

   - For all other unincorporated areas, the building intensity and population density standards shall be as specified in Figure 3.4.

6. **Minimum Parcel Size***:* Except as provided below, subdivisions of land shall meet the most restrictive minimum parcel size requirements established by Figures 3.1 and 3.2a & b, by the applicable Zoning Compatibility Matrix established by the respective Area Plans or by the applicable Existing Community Map contained in this Chapter commencing with Figure 3.7.

- A water well site or sites may be created on a lot for the sole purpose of transferring, by lease or sale, possession of the well and so much of the land around the well as may be necessary for its operation. Such wells shall be for agricultural purposes only.
- Parcels for public purposes such as, but not limited to, fire, police, water wells, flood control and other public health and safety facilities, are exempt from these minimum parcel size requirements.
- Affordable/Elderly Housing developments that are eligible for density bonuses as specified in Article 16 of the County Non-Coastal Zoning Ordinance may be granted a reduction from the minimum parcel size requirements in accordance with the provisions of Article 16.
- Parcels designated Cultural Heritage Sites may be granted a reduction from the minimum parcel size requirements in accordance with the Non-Coastal Zoning Ordinance.
- Parcels subdivided for natural resource conservation purposes in accordance with the Parcel Map Waiver/Conservation Subdivision process established in the Subdivision Ordinance.

7. **Nonconforming Parcel Size**: The use or development of a parcel which is a legal lot for the purposes of the County Subdivision Ordinance, but which fails to meet the minimum parcel size requirements of the applicable land use category, shall not be prohibited solely by reason of such failure. However, this policy shall not be construed to permit the subdivision of any parcel into two or more lots if any of the new lots fails to meet the minimum parcel size requirements.

8. **Interpretation of Boundaries**: Because of the scale of the General Land Use, Area Plan and Existing Community maps, it is not always possible to show boundaries of land use designations precisely enough to exactly represent property lines or geographic features. Where the precise location of boundaries depicted on the General Land Use, Area Plan or Existing Community Map is uncertain, the Planning Director is authorized to resolve the uncertainty. The Map lines or boundaries should follow natural or man-made boundaries. Where the scheme of the map in the immediate area in question is to follow a certain type of natural or man-made boundary, the uncertainty should be resolved consistently with that scheme. The following list contains examples of natural or man-made boundaries:

   - water courses,
   - ridge lines,
   - toes of slopes,
   - lines marking changes in vegetation,
   - lines marking changes in slope,
   - parcel boundaries,
   - roads,
   - rail lines,
   - utility corridors,
   - lines separating different land uses,
   - lines marking the separation between a group of large lots from a group of small lots, and
   - lines marking features or designations referenced in the definitions and criteria of the various land use categories.

9. **Concurrent Processing**: Zone changes, if necessary, shall be processed concurrently with General Plan Amendments to assure zoning consistency.

10. **Variances**: Variances to minimum parcel size requirements and building intensity standards, height and setback standards applicable to a given property may be granted provided that all of the following conditions are met:

    (1) There are special circumstances or exceptional characteristics applicable to the subject property with regard to size, shape, topography, location, or surroundings, which do not apply generally to comparable properties in the same vicinity and land use designation;

(2) Granting the requested variance will not confer a special privilege inconsistent with the limitations upon other properties in the same vicinity and land use designation;

(3) Strict application of the minimum parcel size requirements and building intensity standards as they apply to the subject property will result in practical difficulties or unnecessary hardships inconsistent with the general purpose of such requirements and standards; and

(4) The granting of such variances will not be detrimental to the public health, safety, or general welfare, nor to the use, enjoyment or valuation of neighboring properties.

Any such variance shall be processed in the same manner and subject to the same standards as a variance respecting zoning regulations.

11. **Guidelines for Orderly Development**: *Discretionary development* shall be consistent with the *Guidelines for Orderly Development***.**

3.1.3 Programs

Greenbelt Agreements: In order to maintain the integrity of separate, distinct cities and to prevent inappropriately placed development between city boundaries, some cities and the County have entered into joint *greenbelt agreements.* These agreements protect open space and agricultural lands and reassure property owners located within these areas that land will not be prematurely converted to uses which are incompatible with agriculture or open space uses. In addition, the *greenbelt agreements* reinforce the County *Guidelines for Orderly Development*. Traditionally, agreements have been executed as joint or co-adopted resolutions by mutually interested cities and, in cases where the County is a party to it, by the Board of Supervisors.

Greenbelt agreements have been adopted for the following areas:

- Between the cities of Ventura and Santa Paula.
- Between the cities of Santa Paula and Fillmore.
- Between Fillmore and the Los Angeles County Line (excluding the Community of Piru).
- Between the cities of Ventura and Oxnard westerly of Oxnard to Harbor Blvd.
- Between the cities of Oxnard and Camarillo.
- East of the City of Camarillo for the westerly portion of the Santa Rosa Valley.
- Tierra Rejada Valley.

Additional *greenbelt agreements* should be considered by the County and the appropriate cities for the following respective areas:

- Las Posas Valley.
- Hidden Valley.
- Upper Ojai Valley.
- Between Moorpark and Simi Valley north of Highway 118.

3.2 Land Use Designations

Six basic land use designations are utilized on the General Land Use Map: Urban, Existing Community, Rural, Agricultural, Open Space, and State and Federal Facilities. In addition, the General Land Use Map includes an overlay designation of Urban Reserve. These designations are defined as follows:

- The **Urban** land use designation is utilized to depict existing and planned urban centers which include commercial and industrial uses as well as residential uses where the building intensity is greater than one principal dwelling unit per two acres.

  This designation has been applied to all incorporated lands within a city's Sphere of Influence as established by the Local Agency Formation Commission (LAFCO), and unincorporated urban centers within their own Areas of Interest which may be candidates for future incorporation.

- An *Unincorporated Urban Center* is an existing or planned community which is located in an Area of Interest where no city exists. The unincorporated urban center represents the focal center for community and planning activities within the Area of Interest. For example, the Community of Piru represents the focal center in the Piru Area of Interest.
- An *Area of Interest* is a major geographic area reflective of community and planning identity. Within each Area of Interest there should be no more than one city or Unincorporated Urban Center, but there will not necessarily be a city or Unincorporated Urban Center in each Area of Interest. Figure 3.5 shows the current Area of Interest boundaries for the County.
- A *Sphere of Influence*, as used in this General Plan, is an area determined by LAFCO to represent the "probable" ultimate boundary of a city (LAFCO also recognizes Spheres of Influence for special districts, which are not discussed in this Chapter). The adoption of Spheres of Influence is required by Government Code Section 56425.

- The **Existing Community** designation identifies existing urban residential, commercial or industrial enclaves located outside Urban designated areas. An Existing Community may include uses, densities, building intensities, and zoning designations which are normally limited to Urban designated areas but do not qualify as urban centers. This designation has been established to recognize existing land uses in unincorporated areas which have been developed with urban building intensities and urban land uses; to contain these enclaves within specific areas so as to prevent further expansion; and to limit the building intensity and land use to previously established levels.

- The **Rural** designation identifies areas suitable for low-density and low-intensity land uses such as residential estates of two acres or greater parcel size and other rural uses which are maintained in conjunction with agricultural and horticultural uses or in conjunction with the keeping of farm animals for recreational purposes.

  The Rural designation also identifies institutional uses such as boarding and non-boarding elementary and secondary schools. Additionally, the designation is utilized for recreational uses such as retreats, camps, recreational vehicle parks and campgrounds.

  The designation of areas for Rural land uses is intended to accommodate the need for low density rural residential *development***,** which, in conjunction with the higher density development of the Urban designated land uses, will provide a full range of residential environments.

  The areas considered for inclusion in the Rural designation are existing clusters of rural development and areas deemed appropriate for future rural residential development.

- The **Agricultural** designation is applied to irrigated lands which are suitable for the cultivation of crops and the raising of livestock.

  Because of the inherent importance of agriculture as a land use in and of itself, agriculture is not subsumed under the Open Space land use designation, but has been assigned a separate land use designation.

- The **Open Space** designation encompasses land as defined under Section 65560 of the State Government Code as any parcel or area of land or water which is essentially unimproved and devoted to an open-space use as defined in this section, and which is designated on a local, regional or State open-space plan as any of the following:
  - Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.

- Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, agricultural lands not designated agricultural; areas required for recharge of groundwater basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.
- Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open-space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.
- Open space for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.

- For purposes of the County General Plan, "open space" also includes the following:
  - Open space to promote the formation and continuation of cohesive communities by defining the boundaries and by helping to prevent urban sprawl.
  - Open space to promote efficient municipal services and facilities by confining urban *development* to defined development areas.
- The **State or Federal Facility** land use designation is included on the General Land Use Map to recognize Federal or State facilities, excluding forest and park lands, over which the County has no or limited land use authority. Areas so designated include lands under Federal or State ownership on which governmental facilities are located.
- The **Urban Reserve overlay** designation is applied to all unincorporated land within a city's adopted Sphere of Influence. Although LAFCO has determined these areas to be appropriate for eventual annexation and urbanization, the Urban designation was not applied to all lands within the LAFCO sphere boundaries because it could result in urban development being permitted without annexation. Accordingly, unincorporated lands within spheres have been designated under this General Plan as Existing Community, Rural, Agricultural or Open Space. Under these designations, therefore, more intense development could not occur on affected lands until they are annexed.

The following goals and policies apply to land use designations:

3.2.1 Goals

1. **Urban:**

   (1) Recognize areas within the County planned for urban *development* which are currently incorporated or which are candidates for future incorporation.

   (2) Direct urban *development* to existing cities and unincorporated urban centers within their own Area of Interest, and maintain open space between urban areas.

   (3) Discourage outward expansion of urban *development* when suitable developable areas exist within cities and unincorporated urban centers.

2. **Existing Community:**

   Recognize and confine existing urban enclaves which are outside Urban designated areas, even though the enclaves may include uses, densities, and zoning designations normally limited to Urban designated areas.

3. **Rural**:

   Recognize and plan for low density rural residential and recreational *development,* while preserving resources, avoiding hazards, and providing adequate public facilities and services.

4. **Agricultural**:

   (1) Identify the *farmlands* within the County that are critical to the maintenance of the local agricultural economy and which are important to the State and Nation for the production of food, fiber and ornamentals.

   (2) Preserve and protect agricultural lands as a nonrenewable resource to assure their continued availability for the production of food, fiber and ornamentals.

   (3) Maintain agricultural lands in parcel sizes which will assure that viable farming units are retained.

   (4) Establish *policies* and regulations which restrict agricultural land to farming and related uses rather than other *development* purposes.

   (5) Restrict the introduction of conflicting uses into farming areas.

5. **Open Space**:

   (1) Preserve for the benefit of all the County's residents the continued wise use of the County's renewable and nonrenewable resources by limiting the encroachment into such areas of uses which would unduly and prematurely hamper or preclude the use or appreciation of such resources.

   (2) Acknowledge the presence of certain hazardous features which urban *development* should avoid for public health and safety reasons, as well as for the possible loss of public improvements in these areas and the attendant financial costs to the public.

   (3) Retain open space lands in a relatively undeveloped state so as to preserve the maximum number of future land use options.

   (4) Retain open space lands for outdoor recreational activities, parks, trails and for scenic lands.

   (5) Define urban areas by providing contrasting but complementary areas which should be left generally undeveloped.

   (6) Recognize the intrinsic value of open space lands and not regard such lands as "areas waiting for urbanization."

6. **State and Federal Facilities**:

   (1) Recognize lands devoted to governmental uses which are under the authority of the State or Federal government and over which the County has no effective land use jurisdiction.

   (2) Encourage proper planning of governmental lands so that uses on these lands are compatible with existing and planned uses on adjacent privately owned lands

7. **Urban Reserve**:

   Acknowledge the interests of cities and recognize the LAFCO adopted Spheres of Influence as areas in which urbanization will occur under the cities' authority.

3.2.2 Policies

1. **Urban**:

   (1) The Urban land use designation shall include existing incorporated lands within a city's Sphere of Influence, and unincorporated urban centers within their own Area of Interest. No more than one city or unincorporated urban center shall be designated within an adopted Area of Interest.

   (2) The appropriate zoning, maximum residential building intensity, and the minimum parcel size consistent with the Urban land use designation for unincorporated land shall be that allowed by the adopted Area Plan.

(3) If a suitable amount of developable land exists within a city's Sphere of Influence then outward expansion of urban development into the city's Area of Interest shall be discouraged. If a suitable amount of developable land exists within an unincorporated urban center then expansion of the unincorporated urban center shall be prohibited.

2. **Existing Community**:

(1) The Existing Community designation shall include existing unincorporated urban enclaves located outside cities and unincorporated urban centers.

(2) The Existing Community designation may recognize the range of zones present in the area, be they residential, commercial, or industrial, as well as the range of existing population densities and building intensities. The appropriate zoning, population densities, and building intensities shall be that allowed by the adopted Area Plan or, where no Area Plan exists, by the applicable Existing Community Map contained in this Chapter commencing with Figure 3.7. Because of the degree of specificity on the Existing Community Maps, any zone change within an Existing Community covered by a Zoning Map shall require a General Plan amendment.

3. **Rural**:

(1) Lands designated Rural are those located outside areas designated Urban or Existing Community which are deemed suitable and appropriate for low-density rural residential or recreational development.

(2) The smallest minimum parcel size consistent with the Rural land use designation is two acres. Subzones may require larger minimum parcel sizes.

4. **Agricultural**:

(1) The Agricultural land use designation shall primarily include lands which are designated as *Prime Farmlands*, *Farmlands of Statewide Importance* or *Unique Farmlands* in the State's Important Farmland Inventory (IFI), although land may not be designated Agricultural if small areas of agricultural land are isolated from larger blocks of farming land (in such cases, the agricultural land is assigned to the Open Space or Rural designation of the surrounding properties).

(2) The smallest minimum parcel size consistent with the Agricultural land use designation is 40 acres. Subzones may require larger minimum parcel sizes.

(3) Agricultural land shall be utilized for the production of food, fiber and ornamentals; animal husbandry and care; uses accessory to agriculture and limited temporary or public uses which are consistent with agricultural or agriculturally related uses.

5. **Open Space**:

(1) Open Space should include areas of land or water which are set aside for the preservation of natural resources, including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays, and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and important watershed lands.

(2) Open Space should also include areas set aside for managed production of resources, including, but not limited to, forest lands, rangeland, agricultural lands not otherwise designated Agricultural; areas required for the recharge of groundwater basins; bays, estuaries, marshes, rivers, and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.

(3) Open Space should also include areas within which recreational activities can be pursued, including, but not limited to, areas of outstanding scenic, historic, and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.

(4) Open Space should also include areas of land or water which are set aside for public health and safety, thereby safeguarding humans and property from certain natural hazards, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs, and areas required for the protection and enhancement of air quality.

(5) Open Space should also include undeveloped natural areas surrounding urban-designated areas which have been set aside to define the boundaries of the urban-designated areas, to prevent urban sprawl, and to promote efficient municipal services and facilities by confining the areas of urban development.

(6) The smallest minimum parcel size consistent with the Open Space land use category is 10 acres. Subzones may require larger minimum parcel sizes.

(7) The minimum parcel size for Open Space properties contiguous with the Agricultural land use designation shall be 20 acres.

6. **State or Federal Facility**:

(1) The State or Federal Facility land use designation shall include State or Federally owned lands on which a significant governmental use is located, and which are under the control of the State or Federal government and, therefore, effectively beyond the land use jurisdiction of the County.

(2) Whenever land designated State or Federal Facility is transferred to a private party or another public entity, the land shall be redesignated to an appropriate land use designation through the General Plan Amendment process.

7. **Urban Reserve**:

(1) The Urban Reserve overlay designation shall be applied to all unincorporated land within a city's adopted Sphere of Influence.

(2) Applicants for General Plan amendments, zone changes, and *discretionary development* should apply to the appropriate city and shall be discouraged from applying to the County.

3.3 Population and Housing

State law requires the preparation of a Housing Element as part of a jurisdiction's General Plan [Government Code Section 65302(c)]. The Element is to consist of identification and analysis of existing and projected housing needs, and a statement of *goals* (including quantified objectives), *policies,* and scheduled *programs* for the preservation, improvement and development of housing. It is also required to identify adequate sites for housing and to make adequate provision for the existing and projected needs of all economic segments of the County (Government Code Section 65583).

In addition to State law, the guidelines adopted by the Department of Housing and Community Development are also to be considered in the preparation of the Housing Element (Government Code Section 65585). Periodic review of the Element is required to evaluate:

(1) The appropriateness of its goals, policies and programs in contributing to the attainment of the State housing goals;

(2) Its effectiveness in attaining the County's housing goals and objectives; and

(3) The progress of its implementation (Section 65588).

The Population and Housing Section of the Land Use Chapter of the Goals, Policies and Programs and Land Use Appendix of the County General Plan are intended to fulfill the requirements of State law regarding Housing Elements.

The following goals, policies and programs apply to population and housing:

3.3.1 Goals

1. **Population and Dwelling Unit Forecast Goal**: Monitor the rate and distribution of growth within the cities and unincorporated area of the County, and ensure that the population and dwelling unit forecasts of the County General Plan are periodically updated and are consistent with the cities' and County's General Plans and the ability to provide adequate public facilities and services.

2. **Consistency with Public Facilities and Services Capacity Goal**: Ensure that the rate and distribution of growth within the County does not exceed the capacity of public facilities and services to meet the needs of the County's population and to protect the public health, safety, and welfare.

3. **Housing Preservation Goals**: Preserve the condition of the existing housing stock and the continuing affordability of currently affordable units:

   (1) Encourage preservation of the existing housing stock (30,301 units), with special emphasis on mobile homes in mobile home parks (1,383 units) and multi-family rental units (2,178 units). The preservation objectives by income category are as follows:

***Extremely Low-Income* Units**	***Very Low-Income* Units**	***Low-Income* Units**	***Moderate-Income* Units**	***Upper-Income* Units**
3,454	2,666	4,168	7,180	12,833

   (2) Assure, where feasible, the continued affordability of the existing affordable housing stock.

   (3) Assure, where feasible, that affordable housing in the Coastal Zone is replaced in proximity when demolished or converted.

4. **Housing Rehabilitation Goals**: Continue and expand, where feasible, existing housing rehabilitation programs:

   (1) Continue the existing code enforcement and housing grant/loan *programs* to improve the condition of existing substandard housing (183 units without adequate plumbing), and housing otherwise in need of rehabilitation within the Piru RDA. The rehabilitation objectives within the Piru RDA by income category are as follows:

***Extremely Low-Income* Units**	***Very Low-Income* Units**	***Low-Income* Units**	***Moderate-Income* Units**	***Upper-Income* Units**
0	8	23	14	0

   (2) Promote the improvement of existing housing by informing the public about existing energy conservation and weatherization retrofit.

   (3) Promote the development of room additions and second dwelling units to reduce overcrowding for *lower-income* households.

5. **Housing Opportunities Goals**: Increase housing opportunities for households of all income levels, with special emphasis on *lower-income* households, the elderly, mentally ill, single heads of household, large families, farmworkers, handicapped and homeless:

   (1) Promote and facilitate at least a 2.3 percent market vacancy rate in owner-occupied housing and 5 percent market vacancy rate in rental housing.

(2) Facilitate the construction of the following number of new dwelling units by income category in the unincorporated area of Ventura County between January 1, 2006 and June 30, 2014:

***Extremely Low-Income* Units**	***Very Low-Income* Units**	***Low-Income* Units**	***Moderate-Income* Units**	***Upper-Income* Units**
152	153	250	291	558

(3) Promote and facilitate the construction of housing which is suited to the specific needs of other *lower-income* groups (i.e., farmworkers, elderly, mentally ill, handicapped, single heads of households, large families or homeless) both Countywide and within the unincorporated areas of the County.

(4) Assist *lower-income* households to purchase or rent homes.

6. **Housing Diversity Goals**: Promote a diversity of housing types, *tenure*, and price:

(1) Increase the number of single-family attached, multi-family, and rental units in unincorporated communities that have a disproportionately high percentage of single-family detached and owner-occupied housing units.

(2) Strive for an equitable distribution of housing types and prices throughout the Urban and Existing Community designated areas of the unincorporated County.

(3) Continue the utilization of mobilehomes and manufactured homes in the unincorporated County as a means of providing dwelling units for *lower-income* households.

7. **Housing Equality Goal**: Promote housing opportunities for all persons regardless of race, religion, sex, marital status, age, ancestry, national origin, color, or socio-economic status by attempting to eliminate discrimination in housing by supporting Federal, State and local fair housing laws and policies.

8. **Area Plans and Other County Policies Goal**: Ensure that the Population and Housing Section of the County General Plan and new housing *developments* are consistent with the *goals,* objectives and *policies* of the various Area Plans and other County adopted plans and *policies,* and ensure that Area Plans are consistent with the *goals,* objectives and *policies* of the Population and Housing Section of the County General Plan.

9. **Population and Housing Section Update Goal**: Ensure that the Population and Housing Section of the County General Plan is kept current by updating population data on an ongoing basis by reassessing the *goals,* objectives and *policies* of the Population and Housing Section, and evaluating the effectiveness of the Section's *programs* every five years or as otherwise specified by State law.

3.3.2 Policies

1. **Forecasts Policy**: The population and dwelling unit forecasts (Figures 3.29 and 3.30) do not constitute absolute ceilings for growth in the various subareas of the County. However, they do constitute a framework for general growth patterns and provide a means of evaluating the cumulative effect of projects within each subarea and in the County as a whole. Any project or combination of projects which would cause the forecasts to be exceeded in a given forecast year of a given subarea shall be reviewed to ensure that growth does not exceed the capacity of the public facilities or public services. The purpose of the forecasts is not to impose artificial limits on the rate or form of growth, but to provide a logical basis for planning public facilities and services, and to assist public decision-making bodies in ensuring that public needs will be addressed and accommodated in a comprehensive and long-term manner.

2. **Housing Preservation Policies**:

(1) Existing residentially developed neighborhoods shall not be designated under Area Plans to land uses that would eliminate or degrade the existing housing stock.

(2) *Lower-* and *moderate-income* rental housing located in the Coastal Zone shall be concurrently replaced within three miles, if feasible, when two or more such units are converted or demolished.

(3) The County shall support the efforts of private and public agencies to preserve the existing housing stock.

3. **Housing Rehabilitation Policy**: The County shall coordinate its housing rehabilitation *programs* with those of other public and private agencies.

4. **Housing Opportunities and Diversity Policies**:

(1) As Area Plans are developed or updated, the County shall attempt to accomplish the following to encourage greater housing opportunities:

- Increase density, where appropriate, to reduce the cost of land per unit.
- Ensure a mix of residential densities (i.e., single family attached and multi-family as well as single-family detached).
- Redesignate, where appropriate, any commercial, industrial or public land which has been determined to be surplus for the community needs, to a residential land use designation in order to increase the land available for housing.
- Discourage the conversion of existing residentially developed or designated areas to other land uses.
- Ensure that there is enough residential land to meet planned employment opportunities and that there is a balanced amount of commercial, industrial and residential land use designations.
- Develop a Master Environmental Assessment or Environmental Impact Report for the area encompassed by the Area Plan which could reduce processing time associated with subsequent environmental documents for residential projects.

(2) The County shall give priority in providing housing assistance to those groups with demonstrated special needs, such as the elderly, mentally ill, handicapped, large families, single heads of household, farmworkers and the homeless.

(3) County-owned land that is no longer necessary for the purpose for which it is was acquired or previously used shall be evaluated for its suitability for *lower-income* housing and emergency shelters using criteria including, but not limited to, compatibility with surrounding existing land uses and economic viability. If suitable, such land shall be made available to public or private non-profit organizations for the construction of *lower-income* housing or emergency shelter.

(4) The County shall offer, under Article 16 of the Zoning Ordinance, a density bonus and other concessions for those residential projects that provide a minimum percentage of the units for *lower-income* and *moderate-income* households, and senior households per the requirements of State law. These units shall have resale or rental controls attached to them.

(5) The County shall offer, under Article 19 of the Zoning Ordinance, a density bonus for condominium conversion projects that provide a minimum percentage of the units to *lower-income* and *moderate-income* households per the requirements of State law. These units shall have resale controls attached to them.

5. **Housing Equality Policies**:

(1) The County shall continue to promote equal opportunity in the housing market for all persons regardless of race, color, religion, sex, age, marital status, ancestry or national origin, employment, physical condition, family size or other arbitrary factors.

(2) The County shall continue to encourage and support the enforcement of laws and regulations prohibiting discrimination in lending practices and the sale or rental of housing.

6. **Area Plans and Other County Policies**:

   (1) As Area Plans are developed or updated, they shall be consistent with the *goals* and *policies* of the Population and Housing Section of the County General Plan.

   (2) The *goals,* objectives, and *policies* of the Area Plans and other adopted County plans and *policies* shall be considered at the time of permit application for housing *development,* especially with regard to the following:

   - Consistency with adopted regional population forecasts.
   - Balance of residential *development* with employment opportunities.
   - *Preservation* and *conservation* of natural resources and agricultural lands.
   - Recognition of environmental hazards and constraints.
   - *Preservation* and promotion of community character.
   - Availability of existing and planned infrastructure and urban services.

7. **Population and Housing Section Update Policy**: The Housing Section of the General Plan shall be revised every five years, or as otherwise prescribed by State law. The entire Housing Section and Land Use Appendix shall be reviewed as necessary to identify changes in the County's housing *goals*, objectives*, policies* and *programs* that may be appropriate based upon changing needs or priorities.

3.3.3 Programs

An attempt has been made not to duplicate *programs* under separate headings. For example, some *programs* which will provide "housing opportunity" would also add to "housing diversity", but have not been repeated. It is recommended, therefore, that all *programs* be reviewed to gain an understanding of how the *programs* interrelate and how, together, they will bring Ventura County closer to attaining its housing *goals* and objectives.

1. **Population and Dwelling Unit Forecast Program**: The County Planning Division will continue to update the population and dwelling unit forecasts of the County General Plan periodically, in consultation with the cities, and subject to the approval of the Board of Supervisors. The County General Plan will be periodically updated to incorporate the updated forecasts and to revise County *goals, policies,* and *programs* as necessary.

2. **Population and Dwelling Unit Monitoring Program**: The County Planning Division will monitor population and dwelling unit growth to evaluate consistency of actual *development* patterns with adopted forecasts for the various subareas of the County. In cases where it appears that *discretionary development* would individually or cumulatively exceed the forecasts in a given subarea of the County, the Planning Division will bring the information to the attention of the decision-making body (ongoing).

3. **Housing Preservation Programs**:

   (1) The Resource Management Agency (Planning, Building and Safety, Environmental Health) will continue the enforcement of zoning, building and safety and public health codes on a complaint or voluntary request basis (ongoing).

   (2) To the extent that Federal and State grants and local housing funds are available, the County Executive Office with the assistance of the Resource Management Agency will continue to administer grant/loan programs to assist households with resolving housing health and safety code violations, i.e., building and safety, fire, or public health (ongoing).

   (3) The Planning Division will continue the Mobile Home Park Rent Review Program to assure that the amount of rent does not increase more than set forth in the Mobile Home Park Rent Review Ordinance (ongoing).

4. **Housing Rehabilitation Programs**:

   (1) The Resource Management Agency (Planning, Building and Safety, Environmental Health) will continue to notify and direct affected property owners to the County Executive Office regarding possible grants/loans to resolve health and safety code violations involving housing (ongoing). To the extent that Federal and State grants and local housing funds are available, the County Executive Office will continue to provide low cost loans to *lower-income* households for the rehabilitation of housing units that have health and safety code violations (ongoing).

   (2) The Planning Division will continue to maintain the existing "Build It Smart" information and news web site to encourage energy- and resource-efficient building practices. The Community Action of Ventura County should continue its energy conservation, energy education, appliance repair or replacement, home weatherization and home rehabilitation *programs* for existing eligible homeowners and renters housing units (ongoing).

   (3) To the extent that Federal, State or local funds are available, the County Executive Office will provide low cost loans to *lower-income* households for room additions or second dwelling units to help reduce overcrowding (ongoing).

5. **Housing Opportunity and Diversity Programs**:

   (1) The County Executive Office will continue to administer available Federal and State grants and local housing funds in order to facilitate the development of affordable owner-occupied and rental housing for *lower-income* households, and for those households with identified special needs (farmworkers, elderly, mentally ill, handicapped, homeless), and notify other interested housing agencies and non-profit organizations annually and as funding becomes available for *lower-income* and special needs housing (ongoing).

   (2) The Area Housing Authority should continue to administer subsidies to assist eligible *lower-income* households in renting affordable housing (ongoing).

   (3) The Planning Division will pursue the following actions during FY 2008-2009 to promote special needs housing:

      - Process an amendment to the Non-Coastal and Coastal Zoning Ordinances to clarify which zones allow special needs housing (e.g., emergency shelters, transitional housing, supportive housing, SROs), and to expressly establish a process to approve deviations from zoning standards to meet the reasonable accommodation provisions of the American Disabilities Act.

      - Update the Planning Division's website to include information regarding special needs housing.

   (4) Appropriate non-profit organizations (e.g., Community Action of Ventura County and Project Understanding) should continue to provide loans and/or grants to *lower-income* individuals, families, senior citizens, handicapped or disabled persons who are either homeless or "at risk of becoming homeless" (ongoing).

   (5) The Community Action of Ventura County should continue to:

      - Annually survey the number of persons in the County;

      - Seek feasible and effective strategies to prevent homelessness and house homeless persons and families;

      - Research the funding sources available to deal with homelessness; and

      - Participate on the Interagency Council on Homelessness to implement the 10-Year Strategy to End Homelessness for Ventura County (ongoing).

(6) Ventura County Health Services Agency will continue to financially support, and the County Executive Office will continue to actively participate on, the Ventura County Interagency Council on Homelessness and with each of the cities within Ventura County to facilitate the implementation of the 10-Year Strategy to End Homelessness for Ventura County (ongoing).

(7) During FY 2008-2009, the County Executive Office and Planning Division will complete the recommended actions of the County Redevelopment Agency's Piru Housing Plan. Residential projects within the Redevelopment Area and Piru expansion area will provide for the construction or rehabilitation of *very low-income, low-income* and/or *moderate-income* housing per the requirements of California Redevelopment Law and Piru Area Plan policies, as applicable.

(8) During FY 2008-2009, the Planning Division, in consultation with farmworker housing organizations, will pursue the following actions to encourage the construction of *extremely low-income* and *very low-income* farmworker housing:

- Process an amendment to the General Plan and Zoning Ordinance to allow the creation of parcels less than 40 acres in the AE zone for Farmworker Housing Complexes within or adjacent to City Spheres of Influence or adjacent to city boundaries.
- Prepare informational brochure and website information regarding Farmworker and Animal Caretaker Dwelling Units and Farmworker Housing Complexes.

(9) During FY 2009-2010, the Planning Division will pursue the following actions to promote the construction of second dwelling units for *lower-income* households:

- Solicit and assemble pre-approved building plans for Second Dwelling Units, and update informational brochures and website to include this information.
- Process an amendment to the Non-Coastal Zoning Ordinance to allow second dwelling units on non-conforming lots subject to the same standards as conforming lots, and increase the size of second dwelling units to 1,800 square feet on parcels of 40 acres or more to accommodate larger, non-farmworker families.

(10) During FY 2009-2010, the Planning Division will process an amendment to Articles 16 and 19 of the Non-Coastal Zoning Ordinance to conform with the provisions of State law, and evaluate the deferment of processing fees (excluding EIRs), reduction of development standards, and improvement fees (e.g., Park, Flood Control, Sheriff, Fire, Water Service and Sanitation) for qualified affordable housing.

(11) By March 31, 2010 (statutory due date of the 2010 Annual Report), if the County of Ventura has not approved farmworker housing complex projects or other *lower-income* housing projects totaling at least 102 *lower-income* dwelling units and the County is not meeting its *lower-income* housing objectives as set forth in goal 3.3.1-5(2), the Planning Division will pursue the following actions to increase the supply of unincorporated vacant land zoned for a minimum of 20 dwelling units per acre, subject to inclusionary housing policies for *extremely low-income, very low-income*, and *low-income* households:

- Inventory, assess and propose to the Board of Supervisors a list of potential parcels suitable for residential development of 16 or more dwelling units with a minimum density of 20 dwelling units per acre (June 2010).
- Prepare an EIR covering the development impacts of the Board-selected parcels (FY 2010-2011).

- Process amendments to a) the General Plan and Area Plans to increase density on selected parcels and incorporate inclusionary housing policies, b) Non-Coastal Zoning Ordinance Code text to allow ministerial residential permits on selected parcels (e.g., overlay zone, commercial/residential mixed-use) and c) change the zoning of the selected parcels (FY2011-2012).

(12) During FY 2009-2010, the Planning Division will prepare and process an amendment to the Non-Coastal and Coastal Zoning Ordinances to require that residential development projects of 10 or more dwelling units provide *lower-income* residential units.

(13) The Planning Division will continue to monitor State legislation regarding housing, and will submit budgetary proposals to the Board of Supervisors as necessary to amend the County General Plan and Zoning Ordinance to ensure consistency with State law (ongoing).

6. **Housing Equality Programs**:

(1) The County will continue to fund, along with the cities, the Fair Housing Program to provide counseling and referral, affirmative action, and publications relative to fair housing laws, and tenant-landlord rights (ongoing).

(2) Community Action of Ventura County's legal department should continue to advise, or refer for legal counseling, constituents regarding tenant-landlord rights (ongoing).

7. **Population and Housing Section Update Programs**:

(1) The Planning Division, with the help of other public and private organizations, will continue to monitor Countywide construction and demolitions and estimate population trends, and periodically assess the progress in attaining County's housing *goals, policies,* and *programs.* Housing factors that should be monitored/estimated include:

- Housing construction and demolition by dwelling unit type and affordability category.
- Housing *tenure* and vacancy rates.
- Population increases and distribution.
- Employment generation and housing demand of proposed projects.
- *Number of homeless persons and their distribution.
- Land available for the construction of *lower-* and *moderate-income* housing and farmworker housing.
- Evaluation of General Plan housing *goals, policies* and *programs* annually as required by the Government Code.

(2) The Planning Division will periodically prepare an update to the Population and Housing Section of the General Plan as appropriate, but not less than that required by State law, to reflect the results of the periodic reassessment of the County's housing needs, objectives, and implementation *programs*.

3.4 Employment and Commerce/Industry

Commerce and industry are the principal means by which County residents are employed and are the financial foundation upon which our communities are based.

Commercial and industrial uses are generally considered to be urban land uses that require public services and facilities. Commercial uses are located in cities and unincorporated urban centers or Existing Communities, and serve the needs of the residents and visitors of the respective city, urban center or Existing Community. Similarly, industrial uses are principally located in cities and unincorporated urban centers and Existing Communities, and they serve as the foundation of the local economy and are an integral part of the regional and global economies.

The following goals, policies, and programs govern commercial and industrial uses and development:

3.4.1 Goals

1. Encourage adequate commercial uses to develop within the incorporated cities, unincorporated urban centers and designated Existing Communities to meet the shopping, service and entertainment needs of area residents and visitors.
2. Encourage adequate industrial uses to develop within the incorporated cities, unincorporated urban centers and designated industrial Existing Communities, to meet the manufacturing, processing, fabrication and service needs of the local, regional and global economy, and to meet the employment needs of County residents.
3. Ensure that commercial and industrial uses develop in a manner compatible with neighboring residential and agricultural land uses, and natural resources.
4. Ensure that new commercial and industrial development does not adversely impact existing public facilities and services.
5. Ensure that commercial and industrial uses are developed to high standards of urban design and environmental quality.
6. Provide for the orderly distribution of employment opportunities within the County commensurate with housing opportunities.

3.4.2 Policies

1. Commercial and industrial *development* shall be located within cities, existing unincorporated urban centers or designated Existing Communities which provide maximum access to the public and where appropriate public facilities and services can be provided to serve such *development*.
2. All applications for commercial and industrial *development* located within a city's Sphere of Influence shall be referred to the city for possible annexation.
3. Commercial and industrial *developments* shall be designed to be generally compact, grouped and consolidated into functional units providing for sufficient off-street parking and loading facilities, maximizing pedestrian and vehicle safety and minimizing the impacts on traffic congestion.
4. Commercial and industrial *developments* shall be designed to provide adequate buffering (e.g., walls, landscaping, setbacks), and on-site activities (e.g., hours of operation, scheduling of deliveries) shall be regulated to minimize adverse impacts (e.g., noise, glare, odors) on adjoining residential areas.
5. Retail sales and service type commercial and office facilities should locate in shopping centers or established commercial areas.
6. Industrial *development* shall be located within city or existing unincorporated area industrial parks that have the necessary public facilities and services to support most industrial *development*.
7. Commercial and industrial uses shall be designed and conducted in a manner that is compatible with surrounding land uses such that potential impacts are mitigated to less than significant levels, or, where no feasible mitigation measures are available, a statement of overriding considerations shall be adopted.
8. As Area Plans are prepared or updated, planned industrial and commercial areas shall be evaluated to assess the impact on jobs/housing balance within the community and region.
9. Employment generating discretionary development resulting in 30 or more new full-time and full-time-equivalent employees shall be evaluated to assess the project's impact on lower-income housing demand within the community in which the project is located or within a 15-minute commute distance of the project, whichever is more appropriate. At such time as program 3.4.3-3 is completed, this policy shall no longer apply.

3.4.3 Programs

1. As necessary, the County Planning Division shall review, amend and enforce performance standards contained within zoning regulations.
2. *The Planning Division will initiate a *program* to monitor commercial and industrial *development* and to estimate current employment levels.
3. During FY 2008-2009, the Planning Division will develop and process a Housing Impact Mitigation Fee ordinance for Board of Supervisors consideration. Any fees imposed on agricultural related development should be set aside for only farmworker housing.

Figure 3.1a
General Land Use Map (North Half)
(separate document)

[Click above to go to map]

Figure 3.1b
General Land Use Map (South Half)
(separate document)

[Click above to go to map]

Figure 3.2a
Zoning Compatibility Matrix
- Non-Coastal Zones

General Plan Map Land Use Designations	OS (10 Ac min.)	AE (40 Ac min.)	RA (1 Ac min.)	RE (10,000 S.F. min.)	RO (20,000 S.F. Min.)	R1 (6,000 S.F. Min.)	R2 (3,500 S.F. /DU)	RPD	SP	TP	CO	C1	CPD	M1	M2	M3
Open Space (10 Ac Min.)	○	○								○						
Agriculture (40 Ac Min.)		○								○						
Rural (2 Ac Min.)			2 Ac	2 Ac	2 Ac											
Existing Community			○	○	○	○	○	○			○	○	○	○	○	○
Urban	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
State/Federal Facility	40 Ac															

OPEN SPACE INTERPRETATIONS – Open Space Interpretations granted prior to May 17, 1983, and permitting parcel sizes less than those specified in this Plan, shall be considered consistent with this Plan. Furthermore, zoning which is consistent with the purpose and intent of these Open Space Interpretations shall be considered consistent with this Plan.

Legend:

- Not compatible with plan
- ○ Compatible with plan
- X U — Compatible only with zone suffix equal to or more restrictive than that shown in circle
- X Ac — X acre minimum lot size
- X — X thousand square feet min. lot size
- X U — X units per acre maximum

Figure 3.2b
Zoning Compatibility Matrix
- Coastal Zones

General Plan Map Land Use Designations	COS (10 Ac min.)	CA (40 Ac min.)	CR (1 Ac min.)	CRE (20,000 S.F. min.)	CR-1 (7,000 S.F. min.)	CR-2 (3,500 S.F. min.)	RB (3,000 S.F. min.)	RBH*	CR-PD	CC	CM
Open Space (10 Ac Min.)	○	○									
Agriculture (40 Ac Min.)		○									
Rural (2 Ac Min.)			2 Ac	2 Ac							
Existing Community			○	○	○	○	○	○	○	○	○
Urban			○	○	○	○	○	○	○	○	○
State/Federal Facility	40 Ac										

*1,750 S.F. per single-family dwelling/3,000 S.F. per two-family dwelling.

Legend

- Not compatible with plan
- ○ Compatible with plan
- X U — Compatible only with zone suffix equal to or more restrictive than that shown in circle
- X Ac — X acre minimum lot size
- X — X thousand square feet min. lot size
- X U — X units per acre maximum

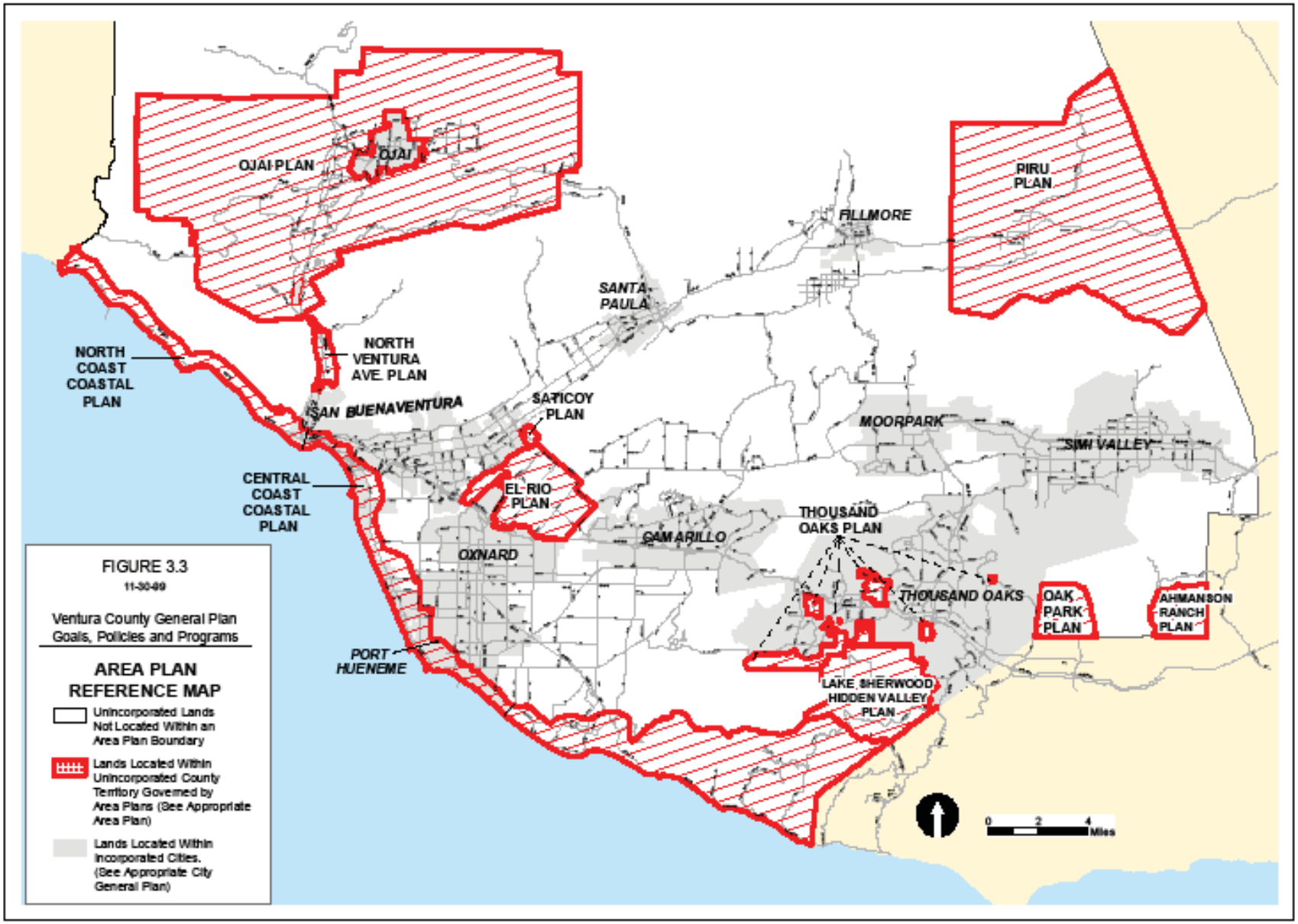

OJAI PLAN
OJAI
PIRU PLAN
FILLMORE
SANTA PAULA
NORTH COAST COASTAL PLAN
NORTH VENTURA AVE. PLAN
SAN BUENAVENTURA
SATICOY PLAN
MOORPARK
SIMI VALLEY
CENTRAL COAST COASTAL PLAN
EL RIO PLAN
THOUSAND OAKS PLAN
CAMARILLO
OXNARD
THOUSAND OAKS
OAK PARK PLAN
AHMANSON RANCH PLAN
PORT HUENEME
LAKE SHERWOOD HIDDEN VALLEY PLAN
FIGURE 3.3
11-30-89
Ventura County General Plan Goals, Policies and Programs
AREA PLAN REFERENCE MAP
Unincorporated Lands Not Located Within an Area Plan Boundary
Lands Located Within Unincorporated County Territory Governed by Area Plans (See Appropriate Area Plan)
Lands Located Within Incorporated Cities. (See Appropriate City General Plan)
0 2 4 Miles

Figure 3.4
General Residential Building Intensity Standards/Population Density Range Table

Designation-	Rural	Open Space	Agriculture
1. Acres[1]	3,878	205,122	80,519
2. Low Range DU's/Ac[2]	1 DU/5Ac	1 DU/80Ac	1 DU/160Ac
3. High Range DU's/Ac[2] (Policy Standard)	1 DU/2Ac	1 DU/10Ac	1 DU/40Ac
4. Low Range DU's (Line 1 times Line 2)	776	2,564	503
5. High Range DU's (Line 1 times Line 3)	1,939	20,512	2,013
6. Average Pop/DU (Year 2020 Forecast for Unincorporated Area)	2.82	2.82	2.82
7. Low Range Population (Line 4 times Line 6)	2,188	7,230	1,418
8. High Range Population (Line 5 times Line 6)	5,468	57,844	5,677
9. Low Range Pop/Acre (Line 7 divided by Line 1)	0.564	0.035	0.176
10. High Range Pop/Acre (Line 8 divided by Line 1)	1.410	0.282	0.071
11. Maximum Building Coverage[3] (Percent of Lot Area)	25%[4]	5%[5]	5%[5]

Footnotes

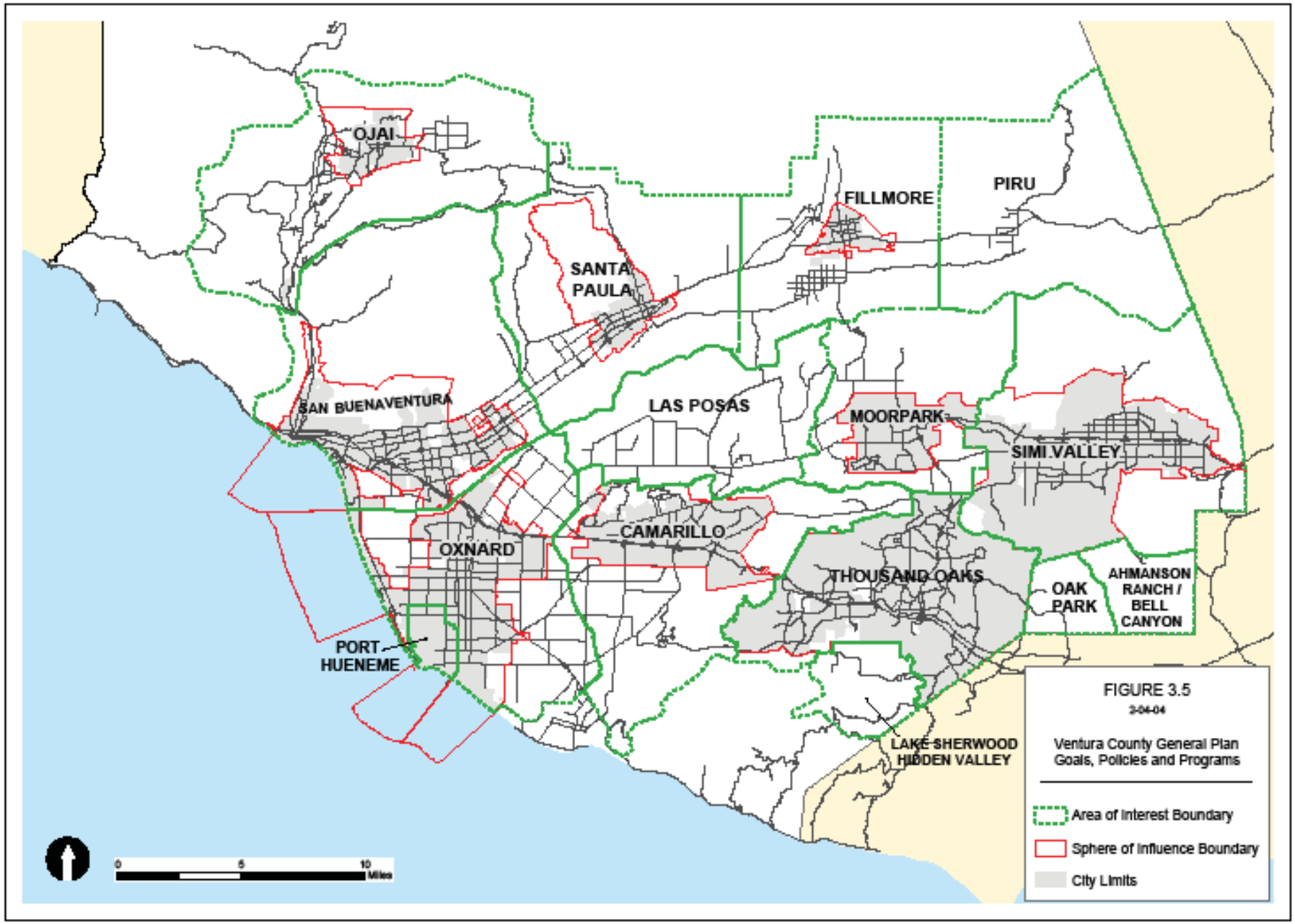
1 Excludes acreage from Area Plans and land owned by public agencies.

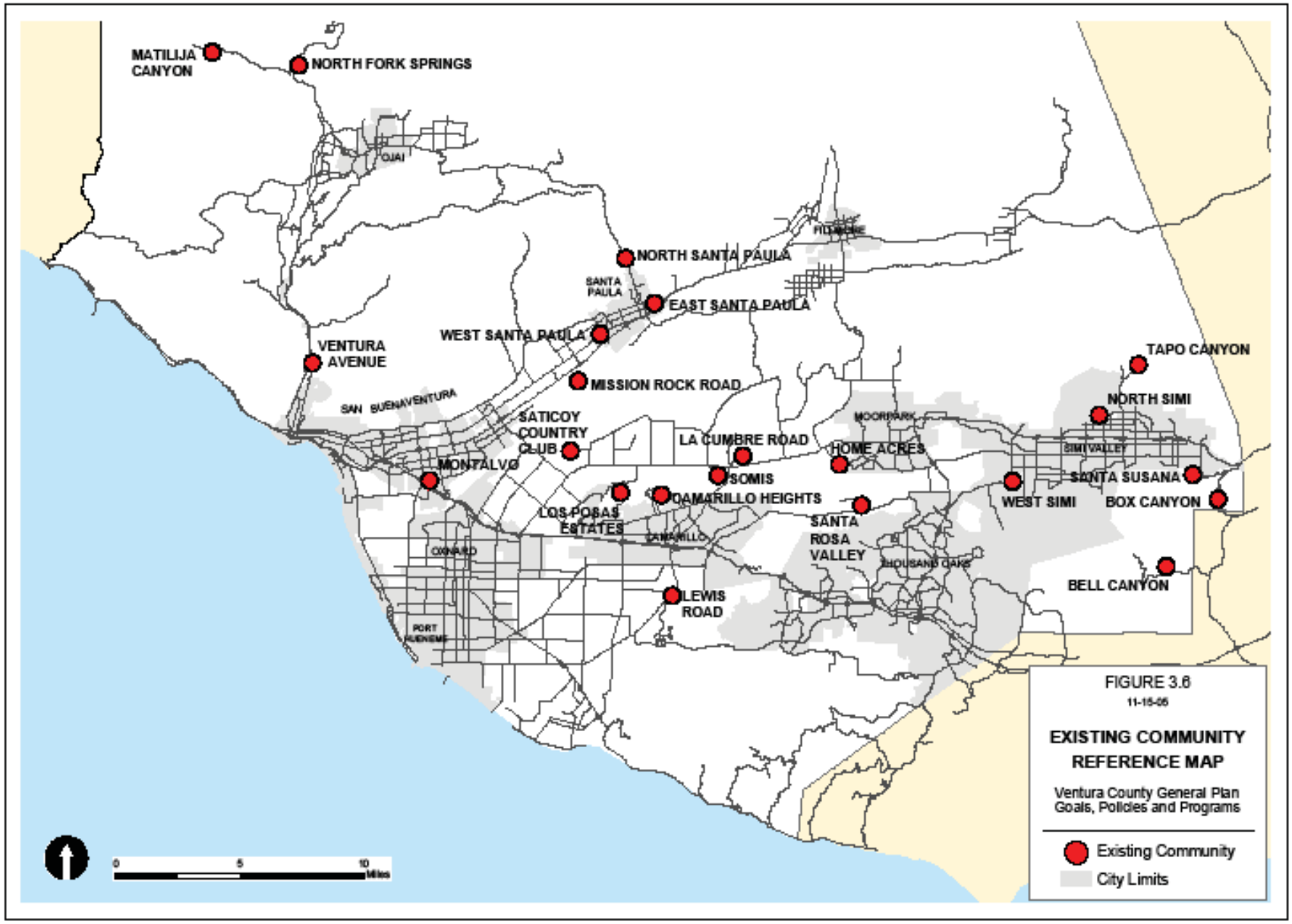
2 Excludes second dwelling units (in accordance with State Government Code Section 65852.2) and farmworker dwellings.

3 Excludes structures used for growing plants such as greenhouses, hothouses, and agricultural shade/mist structures. This exclusion does not include structures used for preliminary packing, storage and preservation of produce and similar structures. Additionally, greater building coverage may be allowed under discretionary permits for Farmworker Housing Complexes.

4 For nonconforming lots of less than one acre in area, maximum *building coverage* shall be 2,500 square feet, plus 1 square foot of building area for each 4.596 square feet of lot area over 5,000 square feet.

5 For nonconforming lots of less than 10 acres in area, maximum *building coverage* shall be 2,500 square feet, plus 1 square foot for each 22.334 square feet of lot area over 5,000 square feet. Greater building coverage may be allowed under discretionary permits for Farmworker Housing Complexes and existing uses listed in the Non-Coastal Zoning Ordinance under the heading of “Crop and Orchard Production”.


OJAI
FILLMORE
PIRU
SANTA PAULA
SAN BUENAVENTURA
LAS POSAS
MOORPARK
SIMI VALLEY
CAMARILLO
OXNARD
THOUSAND OAKS
OAK PARK
AHMANSON RANCH / BELL CANYON
PORT HUENEME
LAKE SHERWOOD HIDDEN VALLEY
0
5
10
Miles
FIGURE 3.5
2-04-04
Ventura County General Plan
Goals, Policies and Programs
Area of Interest Boundary
Sphere of Influence Boundary
City Limits


MATILIJA CANYON
NORTH FORK SPRINGS
OJAI
NORTH SANTA PAULA
SANTA PAULA
EAST SANTA PAULA
WEST SANTA PAULA
VENTURA AVENUE
MISSION ROCK ROAD
SAN BUENAVENTURA
SATICOY COUNTRY CLUB
MONTALVO
LA CUMBRE ROAD
SOMIS
HOME ACRES
MOORPARK
SIMI VALLEY
TAPO CANYON
NORTH SIMI
SANTA SUSANA
WEST SIMI
BOX CANYON
BELL CANYON
CAMARILLO HEIGHTS
LOS POSAS ESTATES
CAMARILLO
SANTA ROSA VALLEY
THOUSAND OAKS
OXNARD
LEWIS ROAD
PORT HUENEME
0
5
10
Miles
FIGURE 3.6
11-15-05
EXISTING COMMUNITY REFERENCE MAP
Ventura County General Plan Goals, Policies and Programs
Existing Community
City Limits

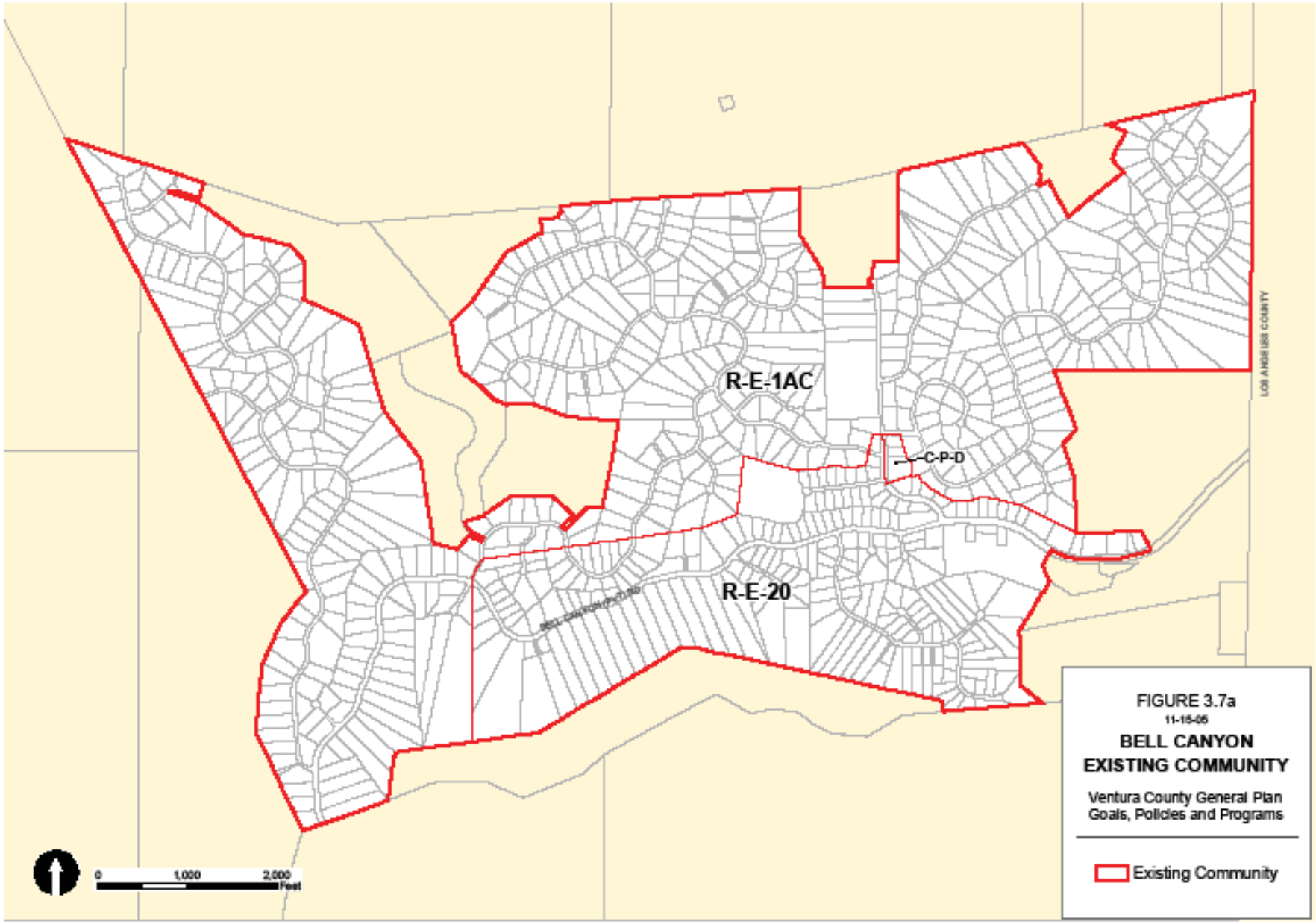


FIGURE 3.7a
11-15-05
BELL CANYON EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs

Existing Community

Figure 3.7b
Building Intensity/Population Density Table - Bell Canyon Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-1Ac	865.47	25%	1.00	865	2.69	2,326	2.69
RE-20	265.76	29%	2.18	579	2.69	1,557	5.86
Total	1,131.23			1,444		3,883	
Commercial/Industrial							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)**	**Projected Floor Area (x1000 SF)**	**Average Employees/ 1000 SF**	**Employees**	**Average Employees/ Acre**	
CPD	2.05	60%	13.4	2.0	26	12.68	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Oak Park Non-Growth Area.

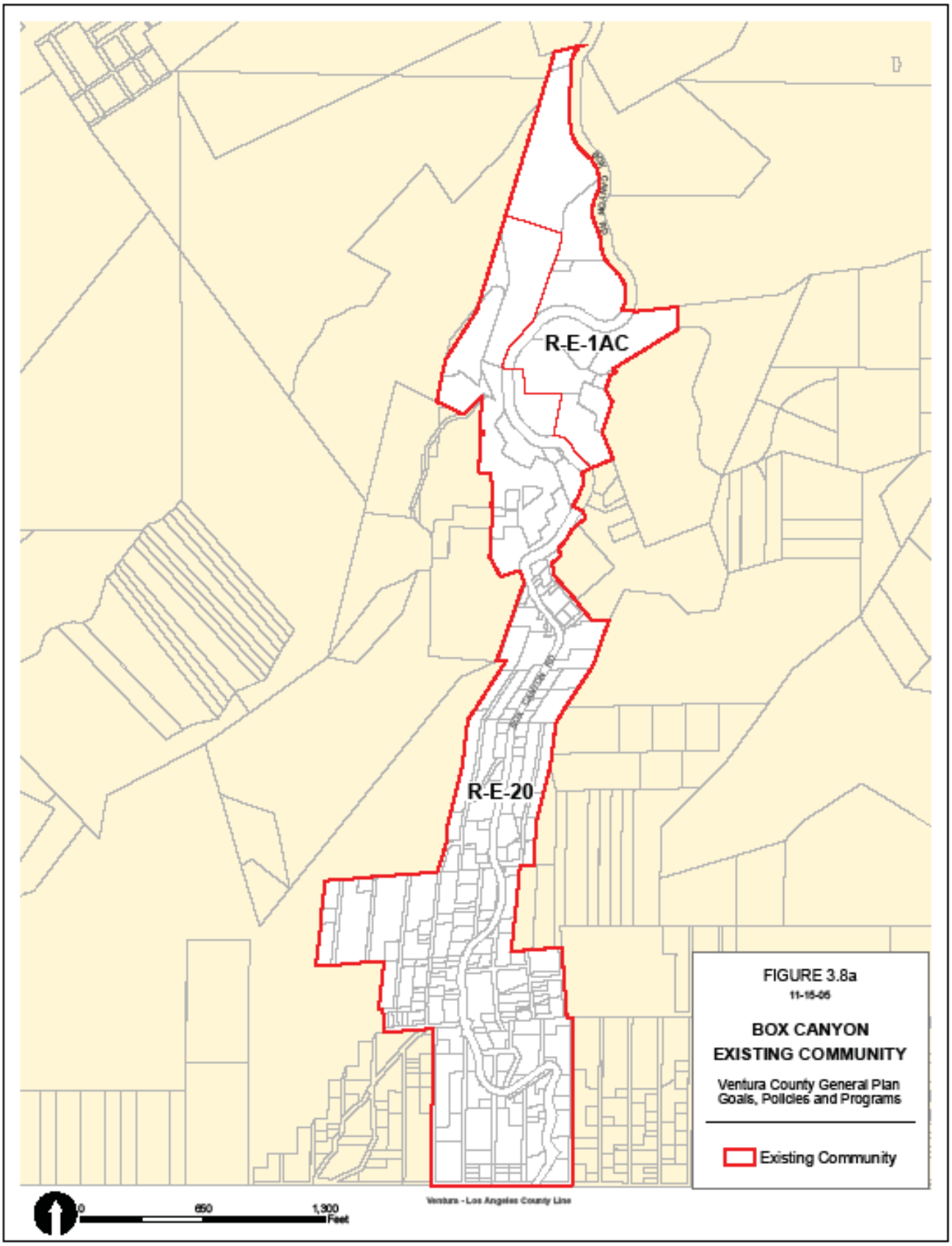

R-E-1AC
R-E-20
FIGURE 3.8a
11-15-06
BOX CANYON
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
Ventura - Los Angeles County Line
0
650
1,300
Feet

Figure 3.8b
Building Intensity/Population Density Table - Box Canyon Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**AveragePop/ DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-1Ac	12.0	25%	1.00	12	2.31	27	2.25
RE-20	56.0	29%	2.18	122	2.31	281	5.02
Total	68.0			134		308	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Simi Valley Non-Growth Area.

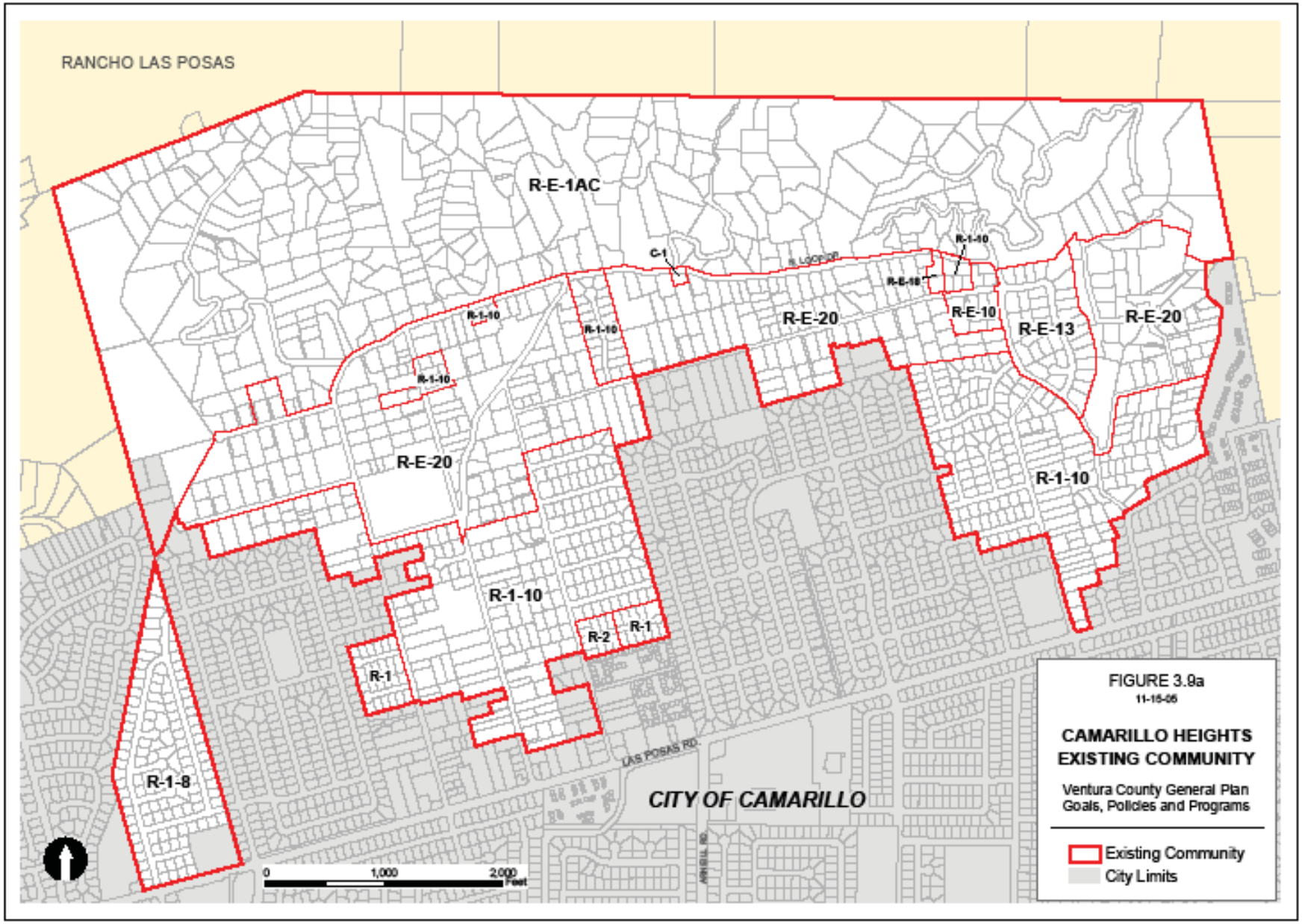

RANCHO LAS POSAS
R-E-1AC
C-1
R-1-10
R-E-10
R-E-20
R-E-13
R-E-20
R-1-10
R-1-10
R-1-10
R-1-10
R-E-20
R-1-10
R-1-10
R-2
R-1
R-1
R-1-8
LAS POSAS RD
CITY OF CAMARILLO
0
1,000
2,000
Feet
FIGURE 3.9a
11-15-06
CAMARILLO HEIGHTS
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.9b
Building Intensity/Population Density Table - Camarillo Heights Existing Community

Residential							
Designation	Acres	Max. Bldg. Coverage (% of Lot Area)[1]	Maximum Intensity (DU/Ac)[2]	Dwelling Units	Average Pop/DU[3]	Population	Average Pop. Density (Pop/Acre)
RE-1Ac	362.02	25%	1.00	362	2.52	912	2.52
RE-20	187.66	29%	2.18	408	2.52	1,028	5.48
RE-18	0.90	30%	2.43	2	2.52	5	5.55
RE-13	13.00	33%	3.35	43	2.52	108	8.31
RE-10	1.30	36%	4.36	5	2.52	12	9.23
R1-10	167.21	36%	4.36	729	2.52	1,837	10.98
R1-8	27.12	39%	5.45	147	2.52	370	13.64
R1	7.06	45%	7.26	51	2.52	128	18.13
R2	1.93	50%	12.45	24	2.52	60	31.34
Total	768.20			1,771		4,460	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Camarillo Growth Area.

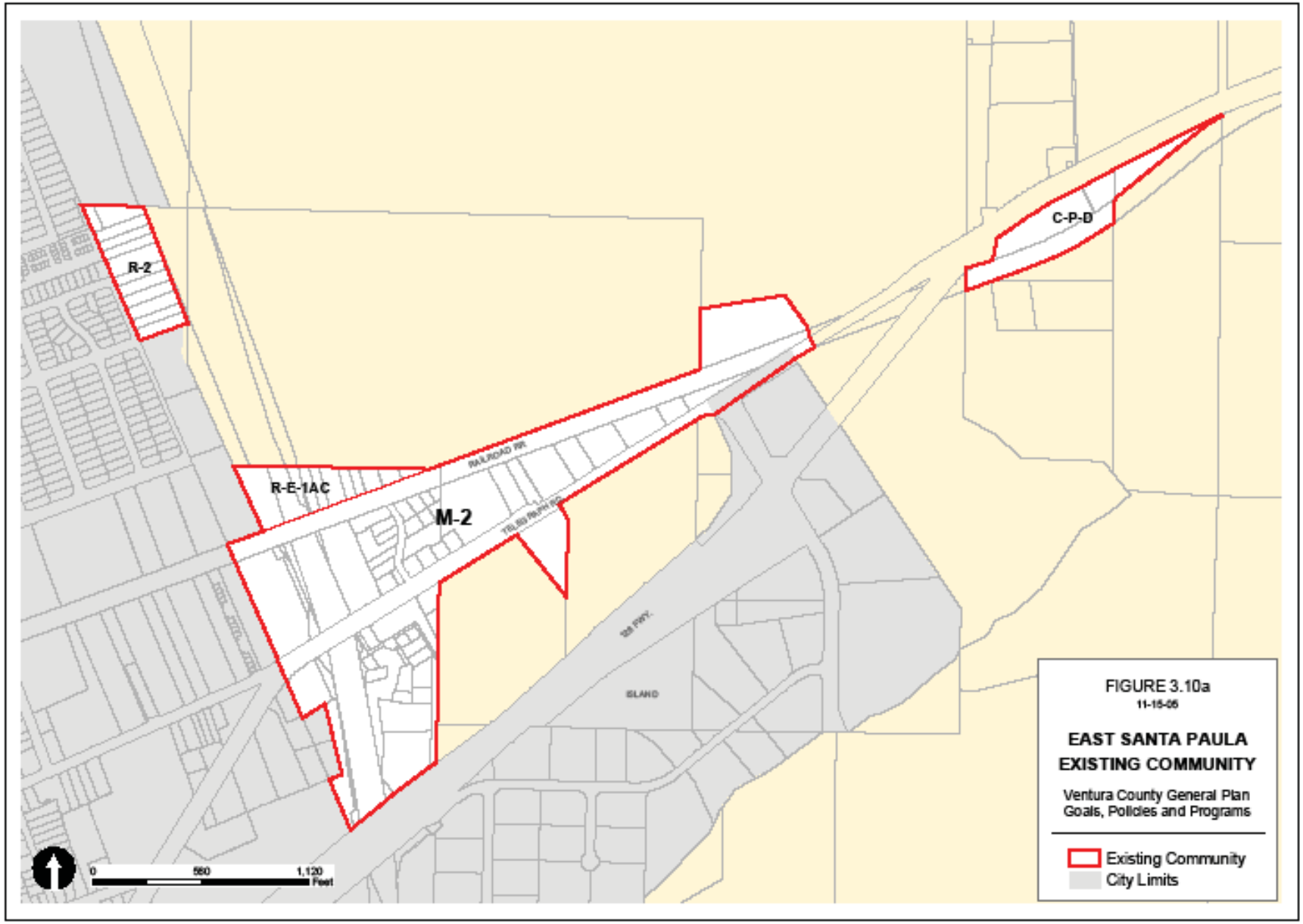

R-2
R-E-1AC
M-2
C-P-D
RAILROAD RR
TELEGRAPH RD
SR PWY.
ISLAND
0
560
1,120
Feet
FIGURE 3.10a
11-15-06
EAST SANTA PAULA
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.10b
Building Intensity/Population Density Table - East Santa Paula Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-1Ac	3.84	25%	1.00	3	2.65	7	1.82
R2	4.24	50%	12.45	52	2.65	413	97.41
Total	8.08			55		420	
Commercial/Industrial							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)**	**Projected Floor Area (x1000 SF)**	**Average Employees/ 1000 SF**	**Employees**	**Average Employees /Acres**	
CPD	2.42	60%	15.8	2.0	31	12.81	
M2	40.49	50%	352.7	2.0	705	17.41	
Total	42.91		368.5		736		

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Santa Paula Growth Area.

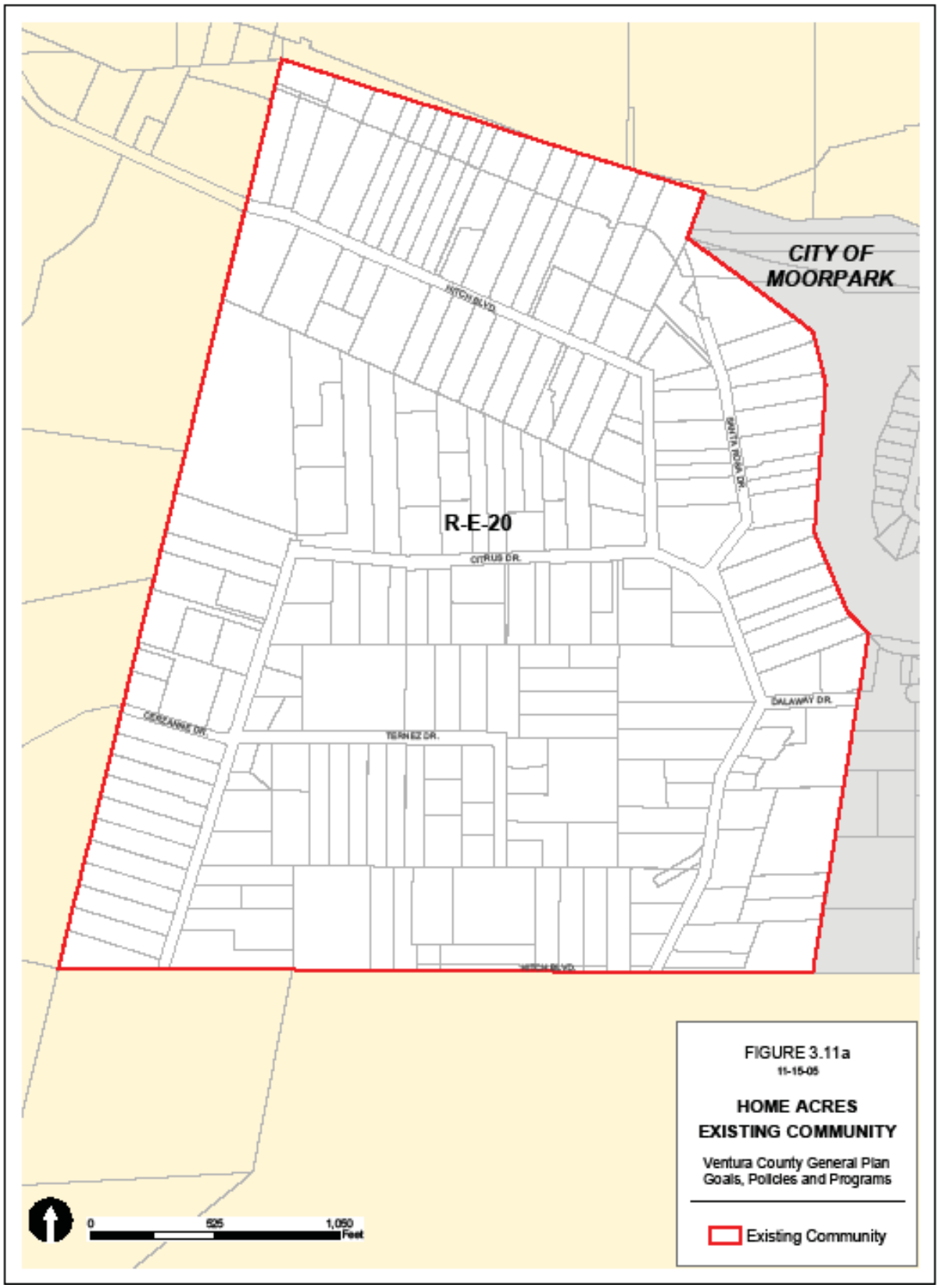

CITY OF
MOORPARK
R-E-20
CITRUS DR.
TERRIEZ DR.
0
525
1,050
Feet
FIGURE 3.11a
11-15-05
HOME ACRES
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community

Figure 3.11b
Building Intensity/Population Density Table - Home Acres Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-20	207	29%	2.18	451	2.91	1,312	6.34

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Moorpark Growth Area.

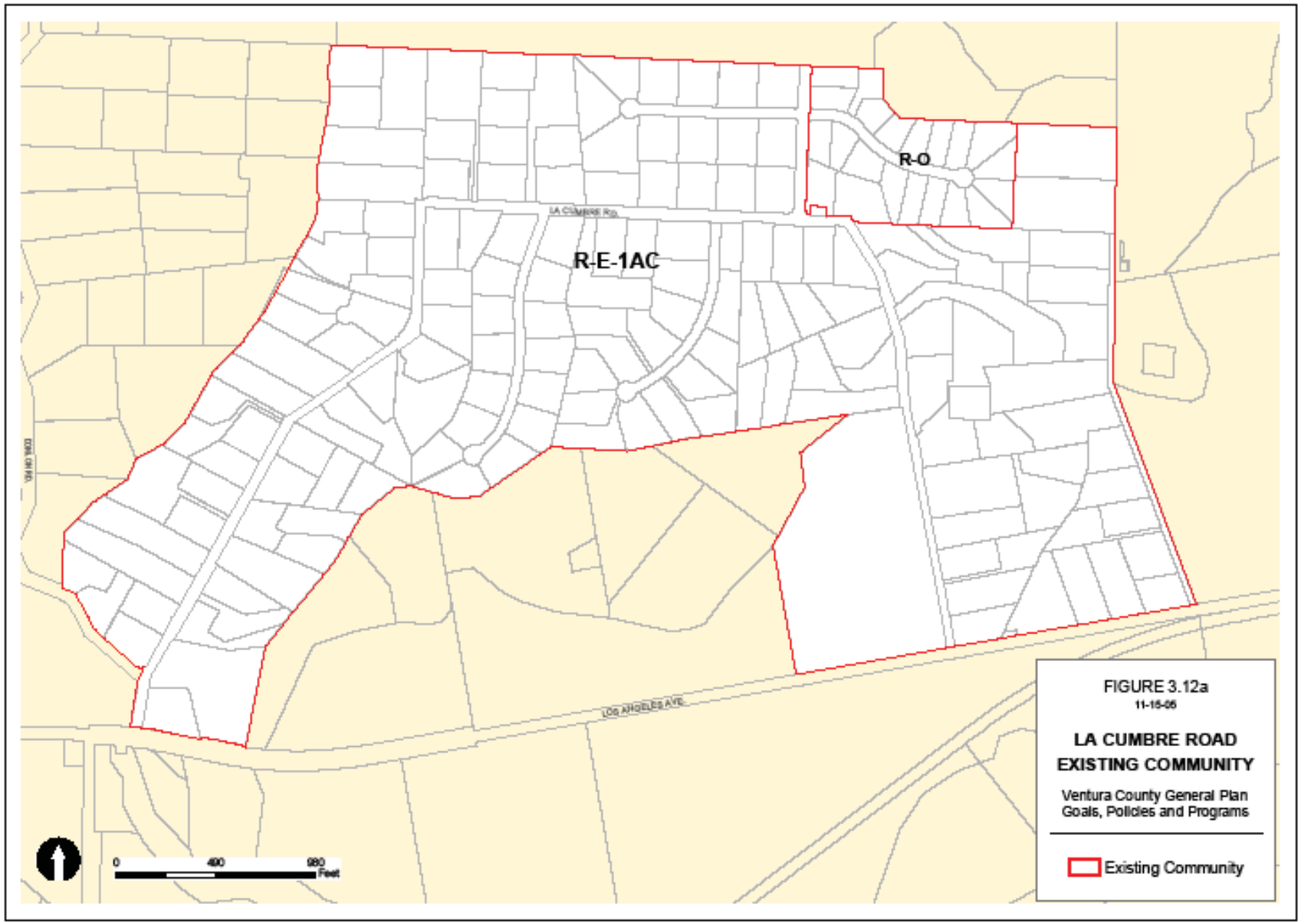

R-O
LA CUMBRE RD
R-E-1AC
LOS ANGELES AVE
0
400
800
Feet
FIGURE 3.12a
11-15-05
LA CUMBRE ROAD
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community

Figure 3.12b
Building Intensity/Population Density Table - La Cumbre Road Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-1Ac	216.64	25%	1.00	216	3.24	699	3.23
RO	18.72	29%	2.18	40	3.24	129	6.89
Total	235.36			256		828	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Las Posas Non-Growth Area.

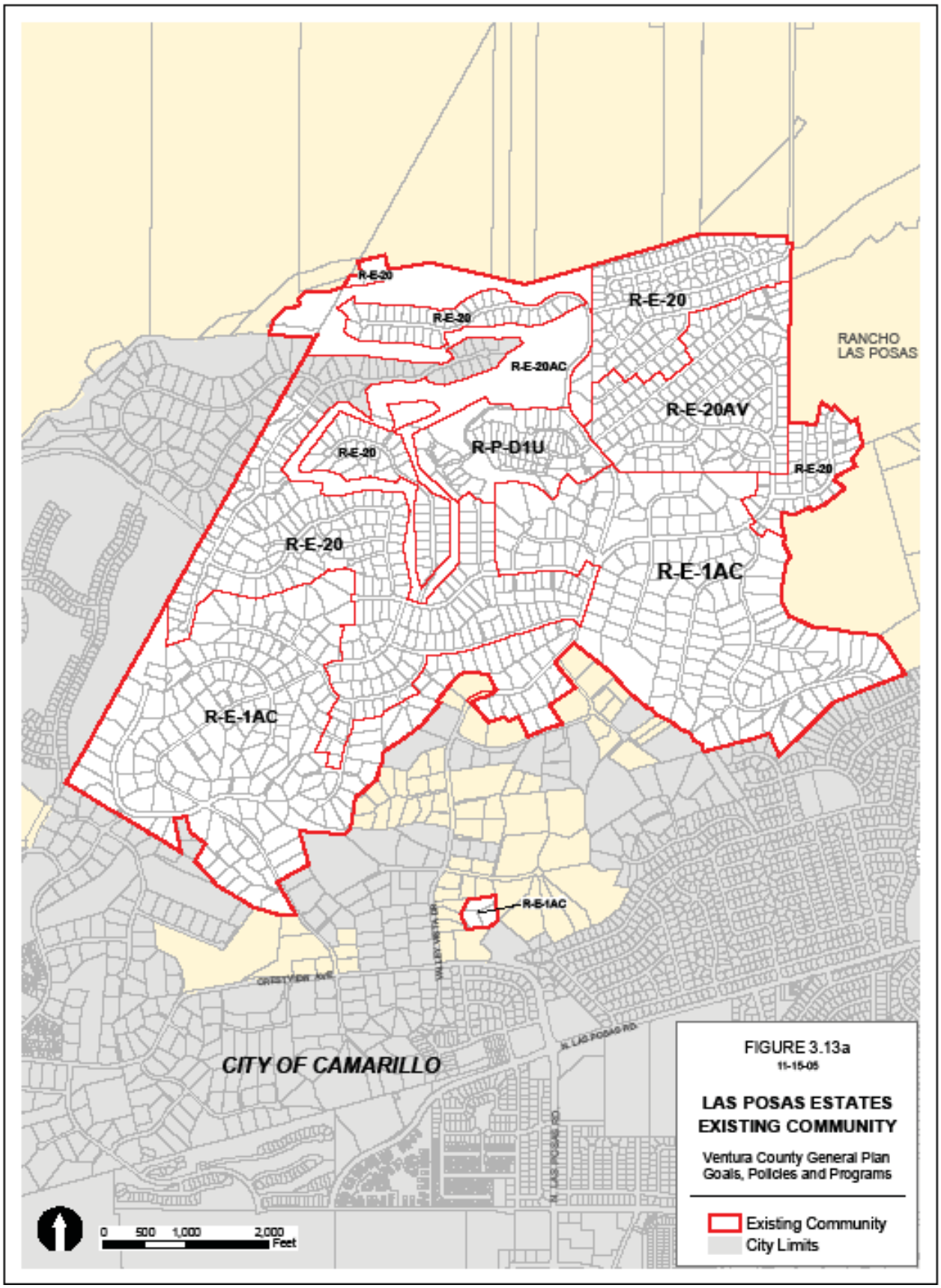

R-E-20
R-E-20
R-E-20
R-E-20AC
R-E-20
R-E-20AV
RANCHO
LAS POSAS
R-P-D1U
R-E-20
R-E-20
R-E-20
R-E-1AC
R-E-1AC
R-E-1AC
CITY OF CAMARILLO
0 500 1,000 2,000
Feet
FIGURE 3.13a
11-15-05
LAS POSAS ESTATES
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.13b
Building Intensity/Population Density Table - Las Posas Estates Existing Community

Residential							
Designation	Acres	Max. Bldg. Coverage (% of Lot Area)[1]	Maximum Intensity (DU/Ac)[2]	Dwelling Units	Average Pop/DU[3]	Population	Average Pop. Density (Pop/Acre)
RE-20Ac	90.30	5%[4]	0.05	4	2.52	10	0.11
RA	5.10	25%	1.00	5	2.52	12	2.35
RE-1Ac	329.52	25%	1.00	329	2.52	829	2.52
RPD 1U	27.36	25%	1.00	27	2.52	68	2.49
RE-20	251.67	29%	2.18	548	2.52	1,380	5.48
RE-20 AV	77.22	29%	2.18	168	2.52	423	5.48
Total	781.17			1,081		2,722	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Camarillo Growth Area.

[4]Excludes greenhouses, hothouses, and the like.

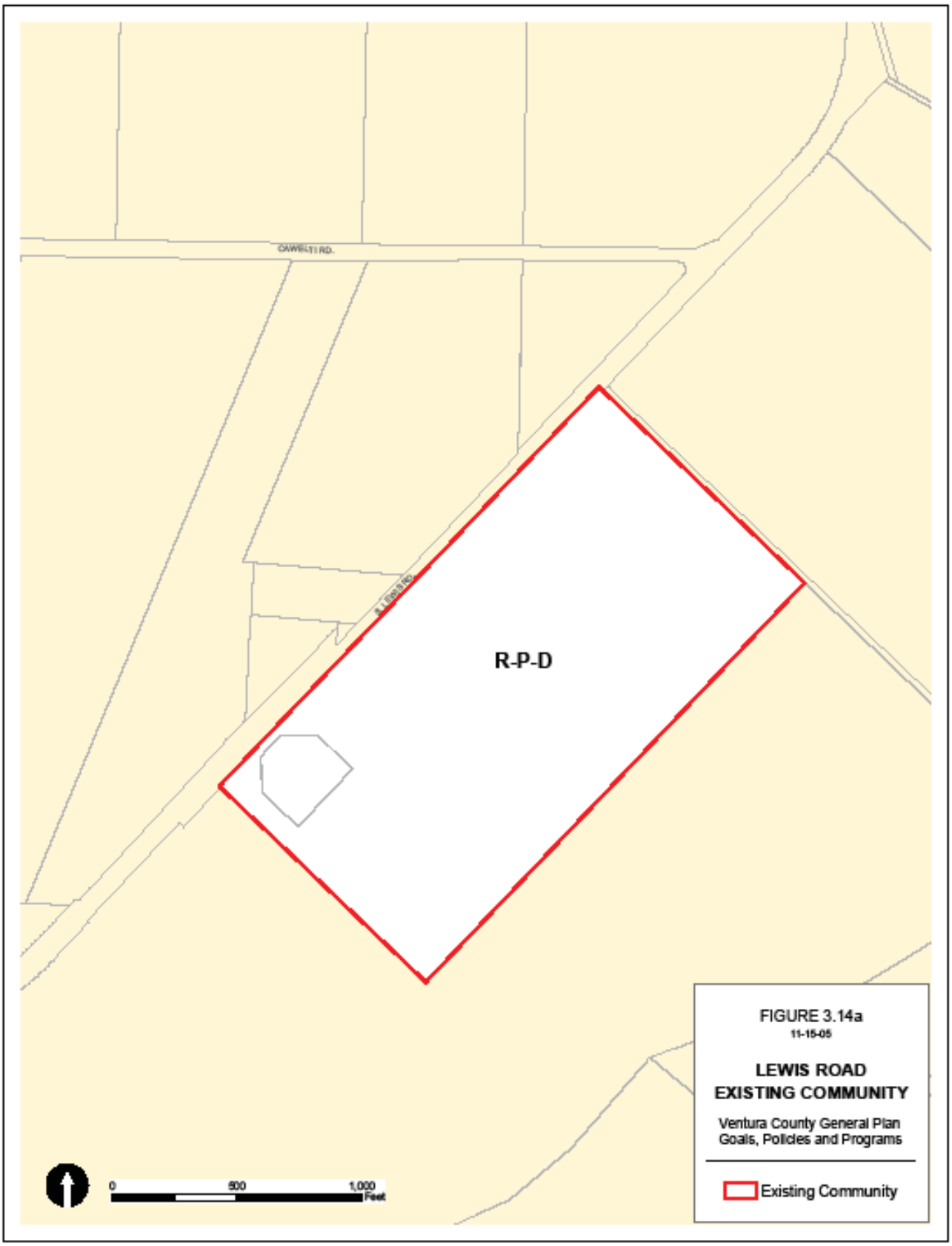

OAWELTI RD.
R-P-D
0
500
1,000
Feet
FIGURE 3.14a
11-15-05
LEWIS ROAD
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community

Figure 3.14b
Building Intensity/Population Density Table - Lewis Road Existing Community

Residential							
Designation	Acres	Max. Bldg. Coverage (% of Lot Area)	Maximum Intensity (DU/Ac) [1]	Dwelling Units	Average Pop/DU[2]	Population	Average Pop. Density (Pop/Acre)
RPD	57.65	60%	30	1,729	3.11	5,377	93.27

[1]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[2]Year 2000 Forecast for Camarillo Non-Growth Area.

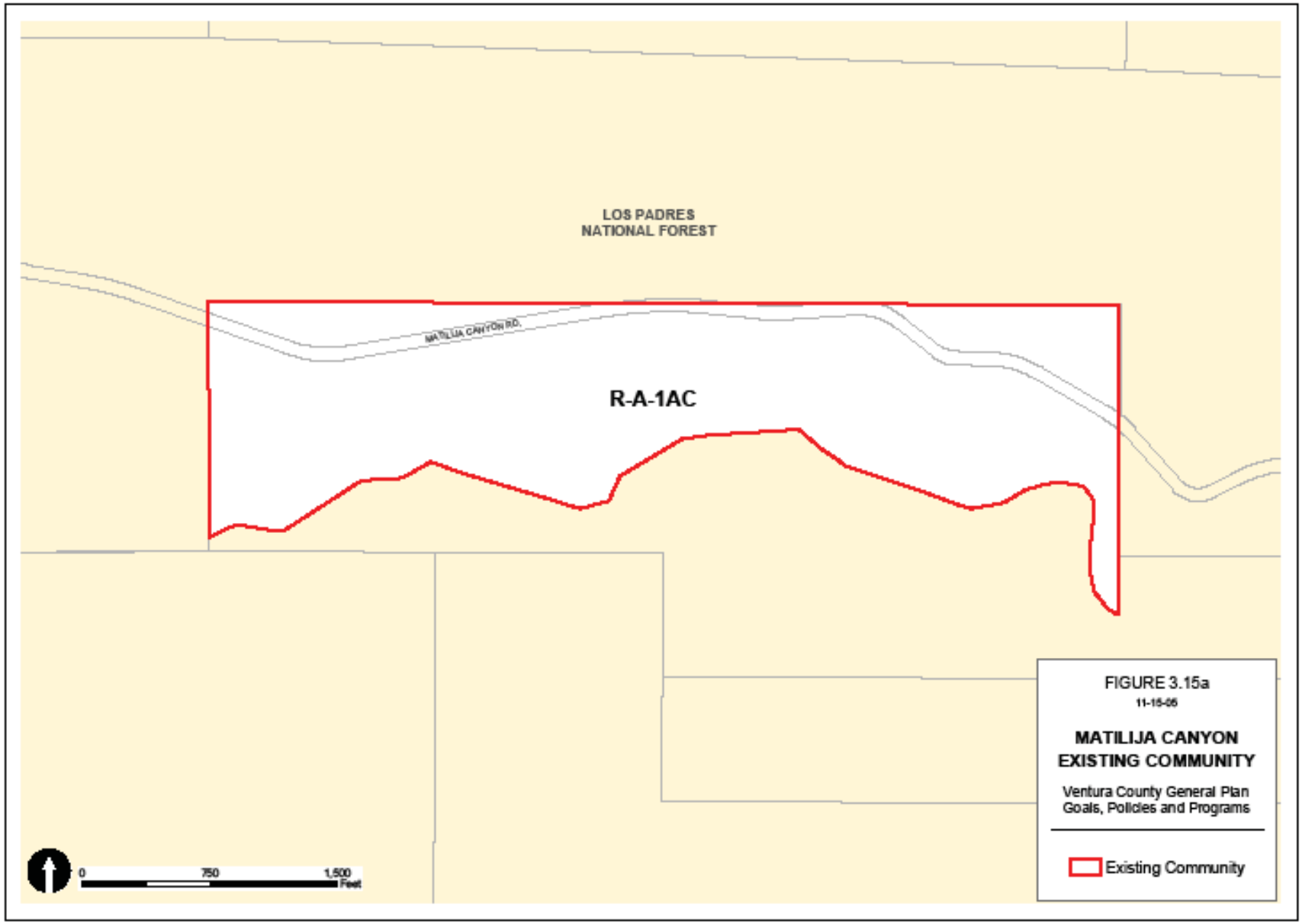

LOS PADRES
NATIONAL FOREST
MATILIJA CANYON RD.
R-A-1AC
0
750
1,500
Feet
FIGURE 3.15a
11-15-06
MATILIJA CANYON
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community

Figure 3.15b
Building Intensity/Population Density Table - Matilija Canyon Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RA-1Ac	131.64	25%	1.00	131	1.63	213	1.62

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for North Half Non-Growth Area.

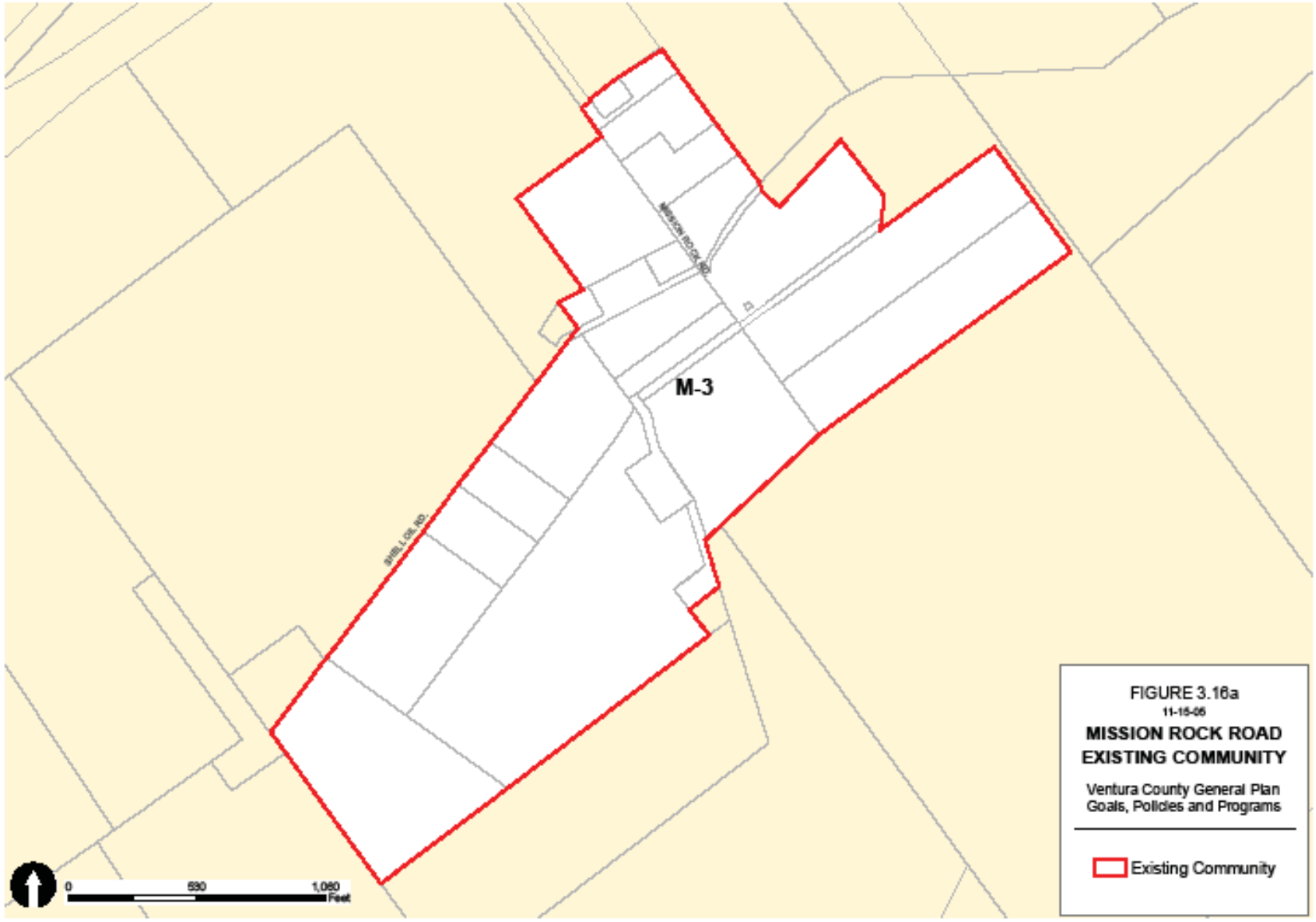


FIGURE 3.16a
11-15-06
MISSION ROCK ROAD EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs

Existing Community

Figure 3.16b
Building Intensity/Employment Density Table - Mission Rock Road Existing Community

Commercial/Industrial						
Designation	Acres	Max. Bldg. Coverage (% of Lot Area)	Projected Floor Area (x1000 SF)	Average Employees/ 1000 SF	Employees	Average Employees /Acres
M3	91.1	40%	258	2.0	516	5.66

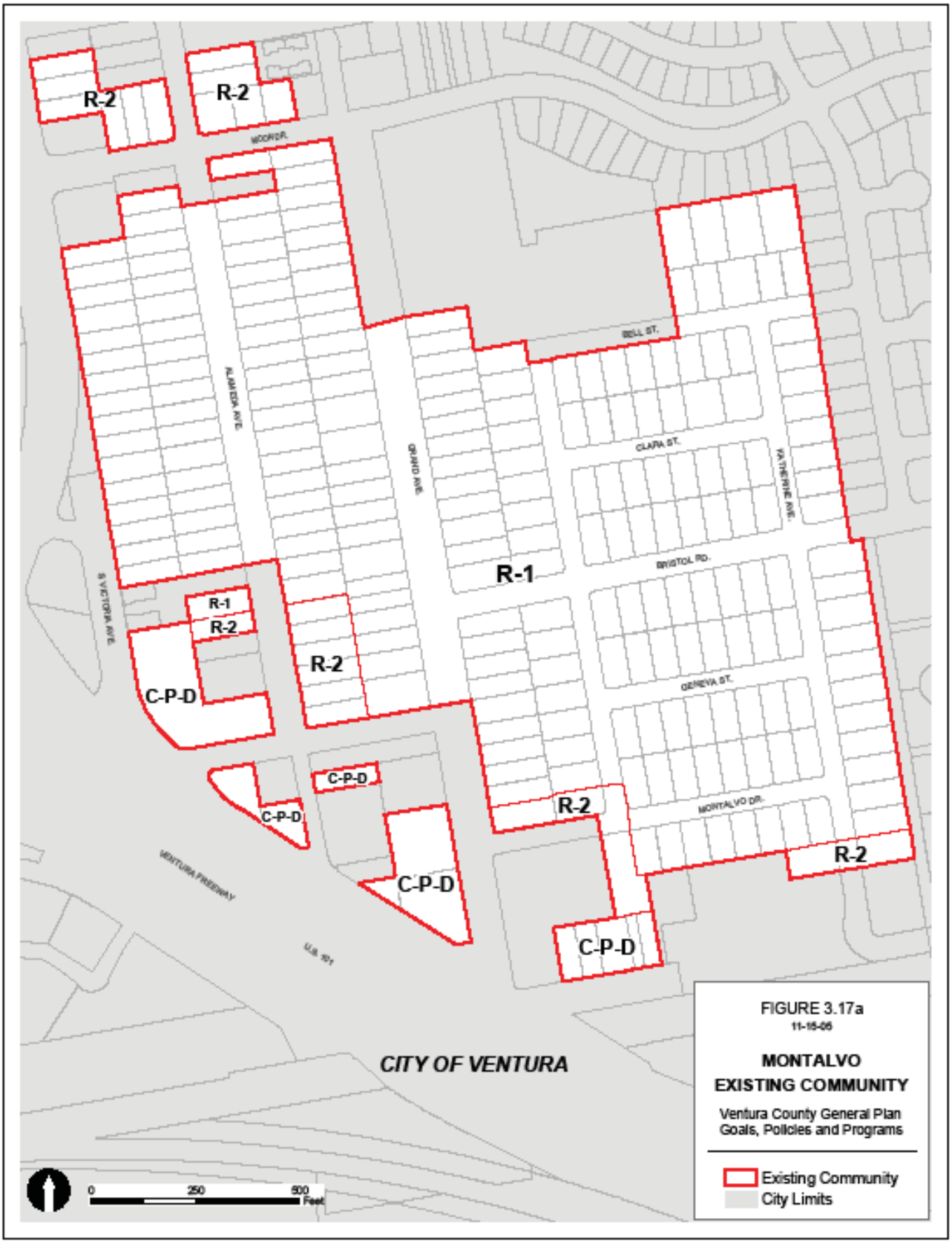

R-2
R-2
HOOVER
BELL ST.
ALAMEDA AVE.
GRAND AVE.
CLARA ST.
KATHERINE AVE.
BRISTOL RD.
R-1
S VICTORIA AVE.
R-1
R-2
R-2
C-P-D
GENEVA ST.
C-P-D
C-P-D
R-2
MONTALVO DR.
R-2
VENTURA FREEWAY
C-P-D
U.S. 101
C-P-D
CITY OF VENTURA
0
250
500
Feet
FIGURE 3.17a
11-15-06
MONTALVO
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.17b
Building Intensity/Population Density Table - Montalvo Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
R1	30.0	45%	7.26	217	2.34	507	16.90
R2	16.0	50%	12.45	199	2.34	466	29.13
Total	46.0			416		973	
Commercial/Industrial							
Designation	**Acres**	**Max. Bldg Coverage (% of Lot Area)**	**Projected Floor Area (x1000 SF)**	**Average Employees/ 1000 SF**	**Employees**	**Average Employee /Acre**	
CPD	2.9	60%	19.0	2.0	38	13.10	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Ventura Growth Area.

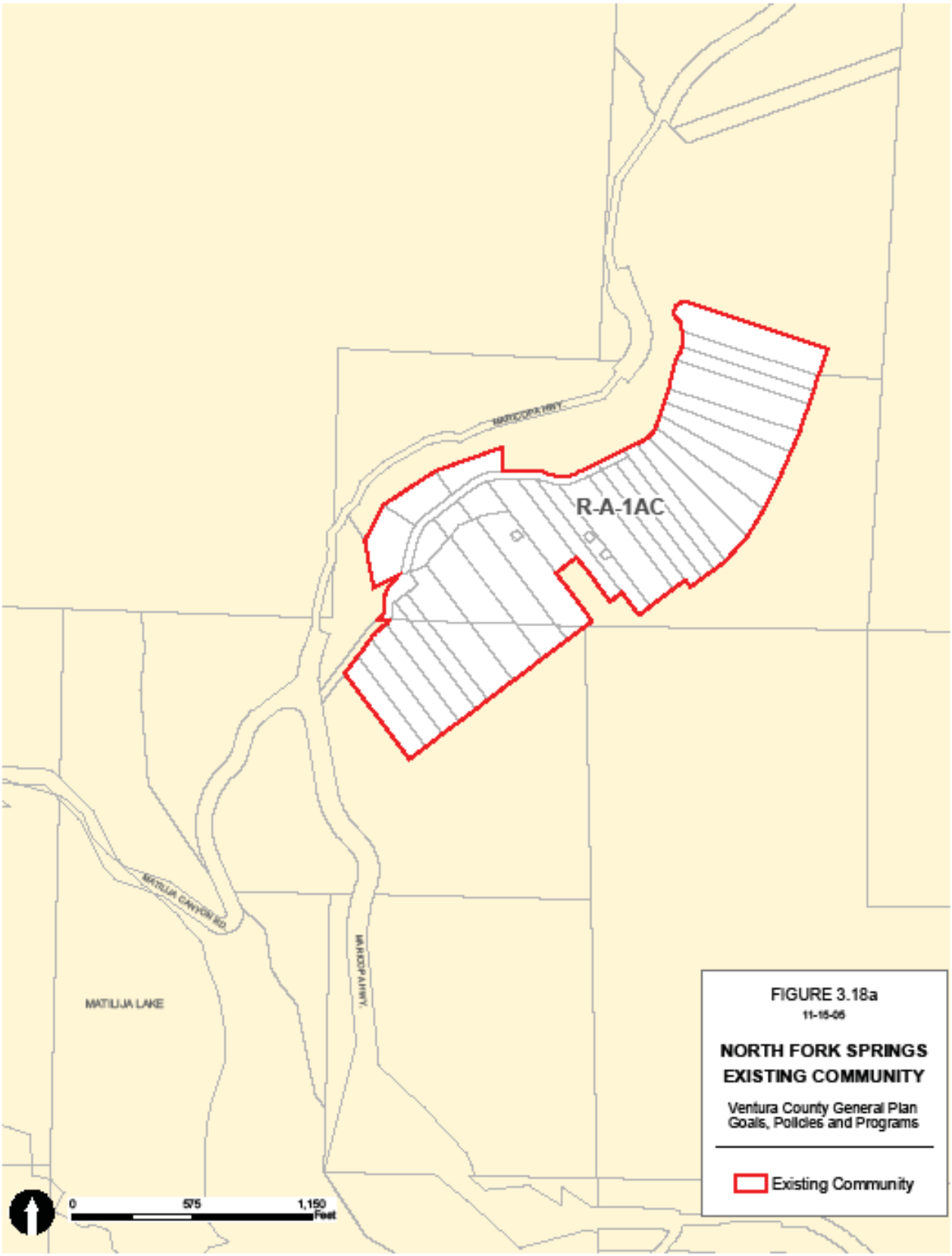

R-A-1AC
MATILIJA LAKE
0
575
1,150
Feet
FIGURE 3.18a
11-15-06
NORTH FORK SPRINGS
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community

Figure 3.18b
Building Intensity/Population Density Table - North Fork Springs Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RA-1Ac	46.44	25%	1.00	46	1.63	28	0.60

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for North Half Non-Growth Area.

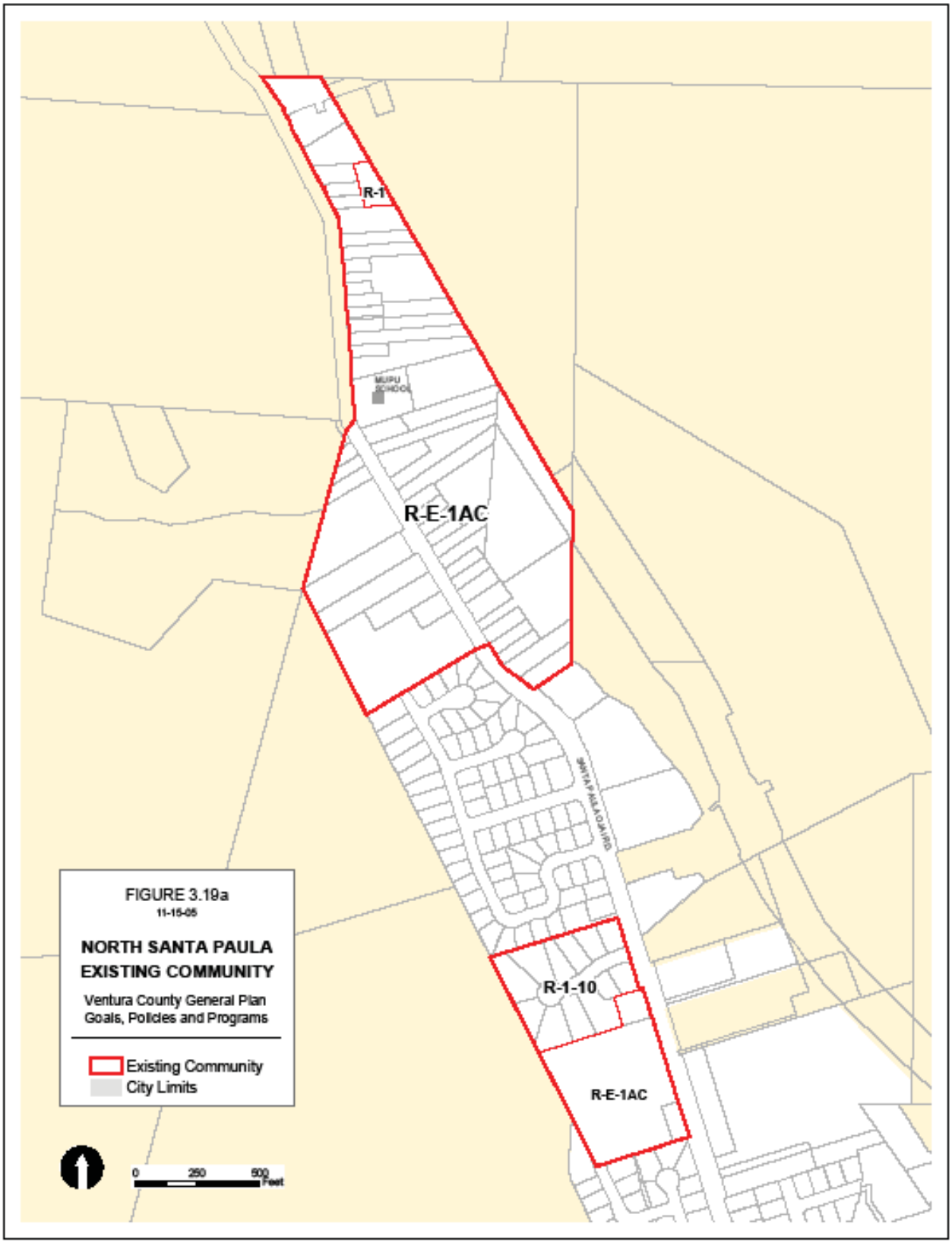

R-1
MUPU SCHOOL
R-E-1AC
SANTA PAULA OJAI RD
R-1-10
R-E-1AC
FIGURE 3.19a
11-15-05
NORTH SANTA PAULA
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits
0
250
500
Feet

Figure 3.19b
Building Intensity/Population Density Table - North Santa Paula Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-1Ac	38.55	25%	1.00	38	2.65	100	2.59
R1	0.38	45%	7.26	2	2.65	5	13.16
	38.93			40		105	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Santa Paula Growth Area.

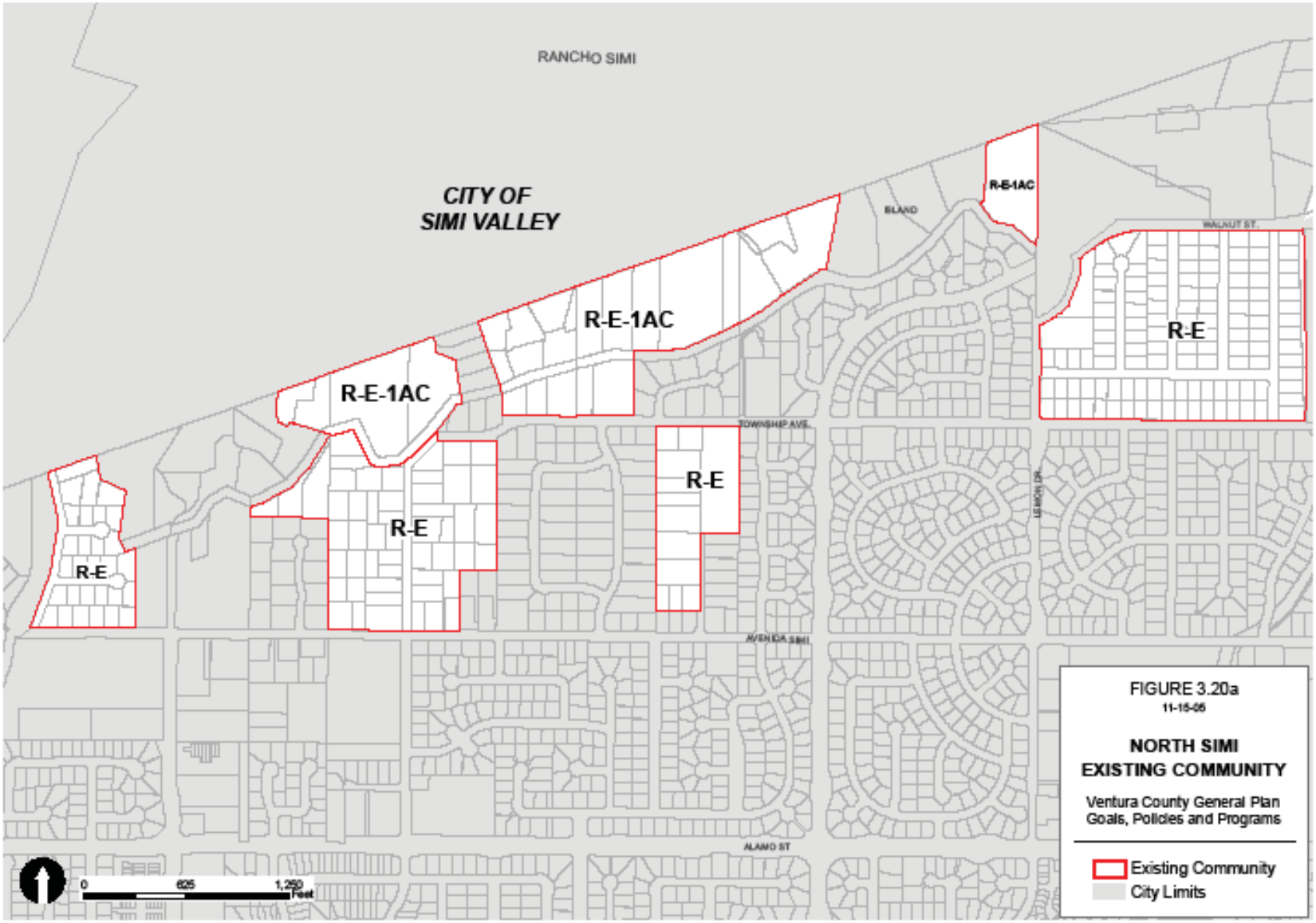

RANCHO SIMI
CITY OF
SIMI VALLEY
R-E-1AC
R-E-1AC
R-E-1AC
R-E
R-E
R-E
R-E
BLAND
WALNUT ST.
TOWNSHIP AVE.
LE MON DR.
AVENIDA SIMI
ALAMO ST
0
625
1,250
Feet
FIGURE 3.20a
11-15-05
NORTH SIMI
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.20b
Building Intensity/Population Density Table - North Simi Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
R-E-1Ac	45.84	25%	1.00	45	3.03	136	2.97
R-E	75.00	36%	4.36	327	3.03	990	13.19
	120.84			372		1,126	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Simi Valley Growth Area.

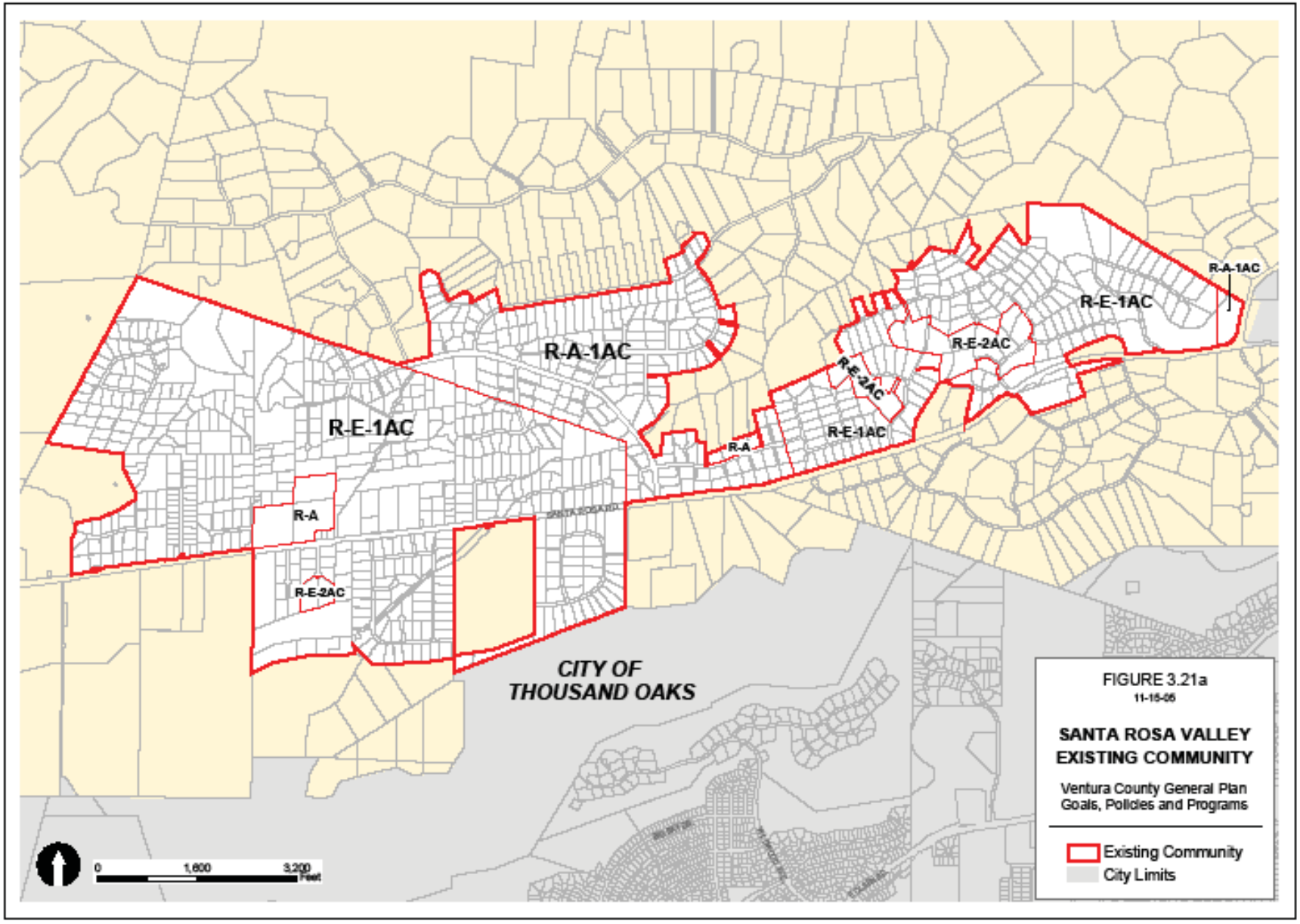

R-A-1AC
R-E-1AC
R-A-1AC
R-E-2AC
R-E-2AC
R-E-1AC
R-A
R-E-1AC
R-A
R-E-2AC
CITY OF
THOUSAND OAKS
0
1,600
3,200
Feet
FIGURE 3.21a
11-15-05
SANTA ROSA VALLEY
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.21b
Building Intensity/Population Density Table - Santa Rosa Valley Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-2Ac	51.90	25%	0.50	25	3.11	78	1.50
RE-1Ac	910.88	25%	1.00	910	3.11	2,830	3.11
RA and RA-1Ac	228.77	25%	1.00	228	3.11	709	3.10
Total	1,191.55			1,163		3,617	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Camarillo Non-Growth Area.

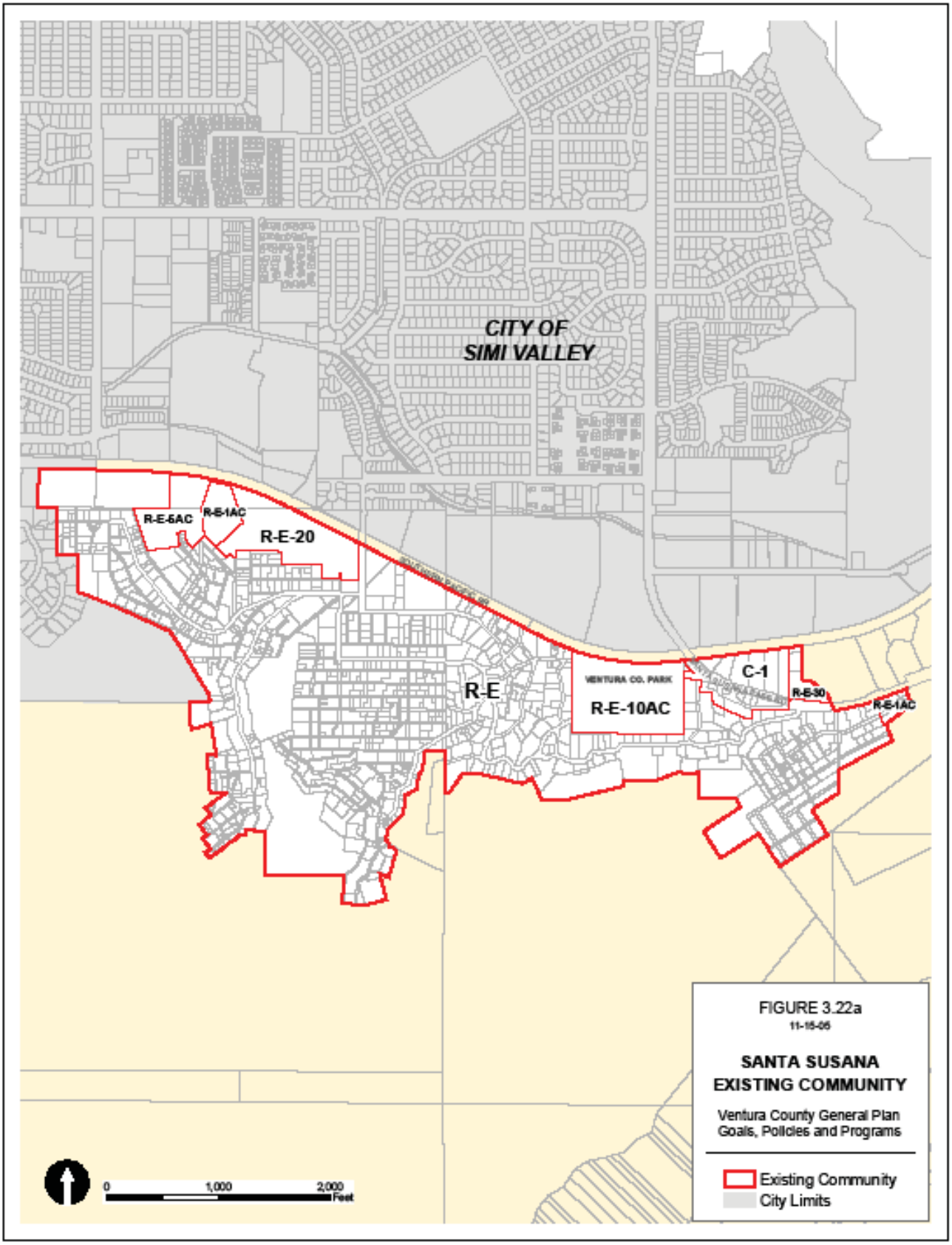

CITY OF
SIMI VALLEY
R-E-5AC
R-E-1AC
R-E-20
R-E
VENTURA CO. PARK
R-E-10AC
C-1
R-E-30
R-E-1AC
0
1,000
2,000
Feet
FIGURE 3.22a
11-15-06
SANTA SUSANA
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.22b
Building Intensity/Population Density Table - Santa Susana Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-10Ac	16.1	5%	0.10[4]	1	3.03	3	0.19
RE-5Ac	5.3	25%	0.20	1	3.03	3	0.57
RE-1Ac	3.7	25%	1.00	3	3.03	9	2.43
RE-30	1.4	26%	1.45	2	3.03	6	4.29
RE-20	14.6	29%	2.18	31	3.03	93	6.37
RE	180.0	36%	4.36	784	3.03	2,375	13.19
Total	221.1			822		2,489	
Commercial/Industrial							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)**	**Projected Floor Area (x1000 SF)**	**Average Employees/ 1000 SF**	**Employees**	**Average Employees /Acres**	
C1	8.2	60%	53.3	2.0	106	12.93	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Simi Valley Growth Area.

[4]Excludes greenhouses, hothouses and the like.

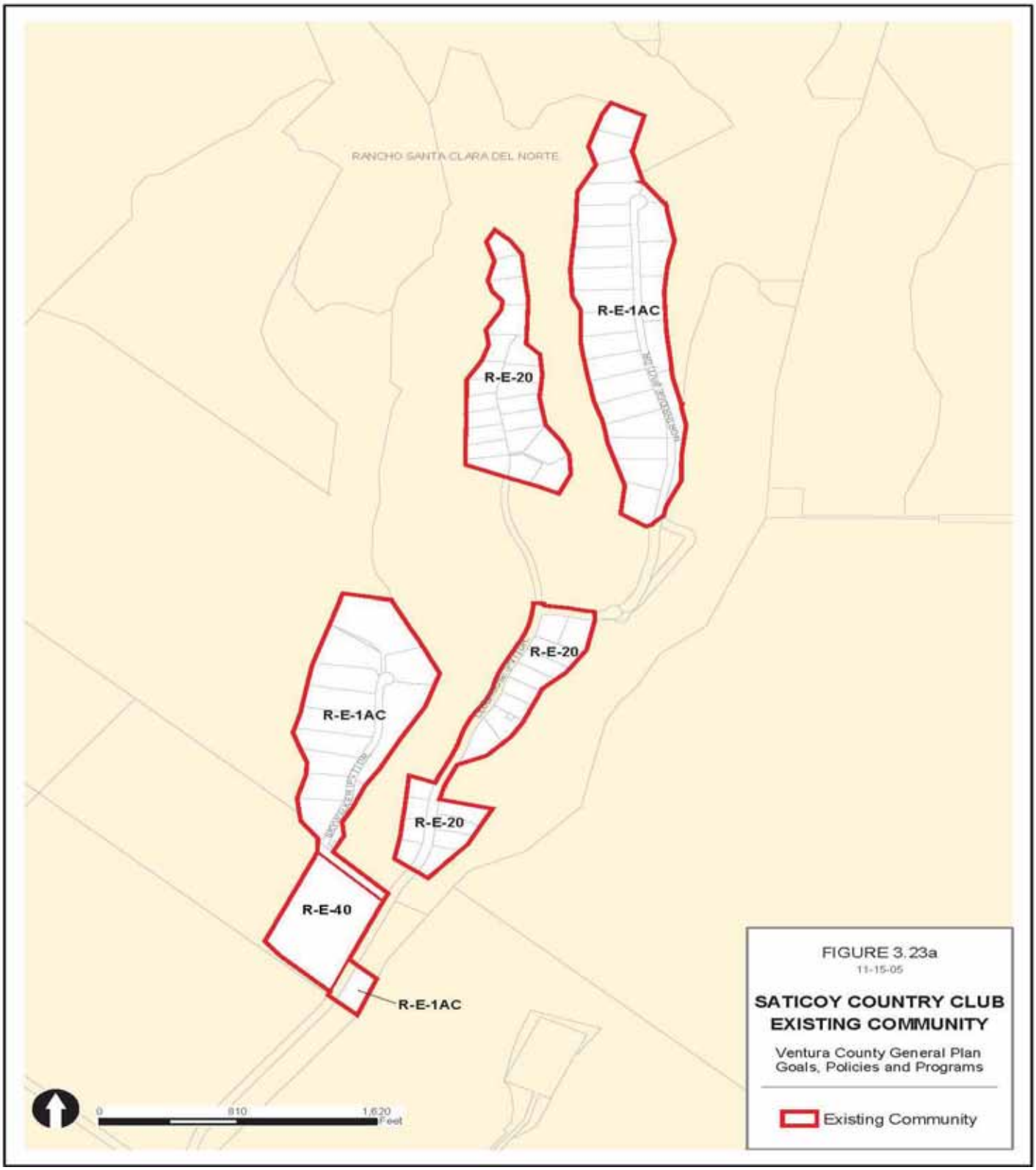

RANCHO SANTA CLARA DEL NORTE
R-E-1AC
R-E-20
R-E-20
R-E-1AC
R-E-20
R-E-40
R-E-1AC
0
810
1,620
Feet
FIGURE 3.23a
11-15-05
SATICOY COUNTRY CLUB
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community

Figure 3.23b
Building Intensity/Population Density Table - Saticoy Country Club Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-1Ac	45.12	25%	1.00	45	3.24	145	3.21
RE-20	24.11	29%	2.18	52	3.24	168	6.97
Total	69.23			97		313	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Las Posas Non-Growth Area.

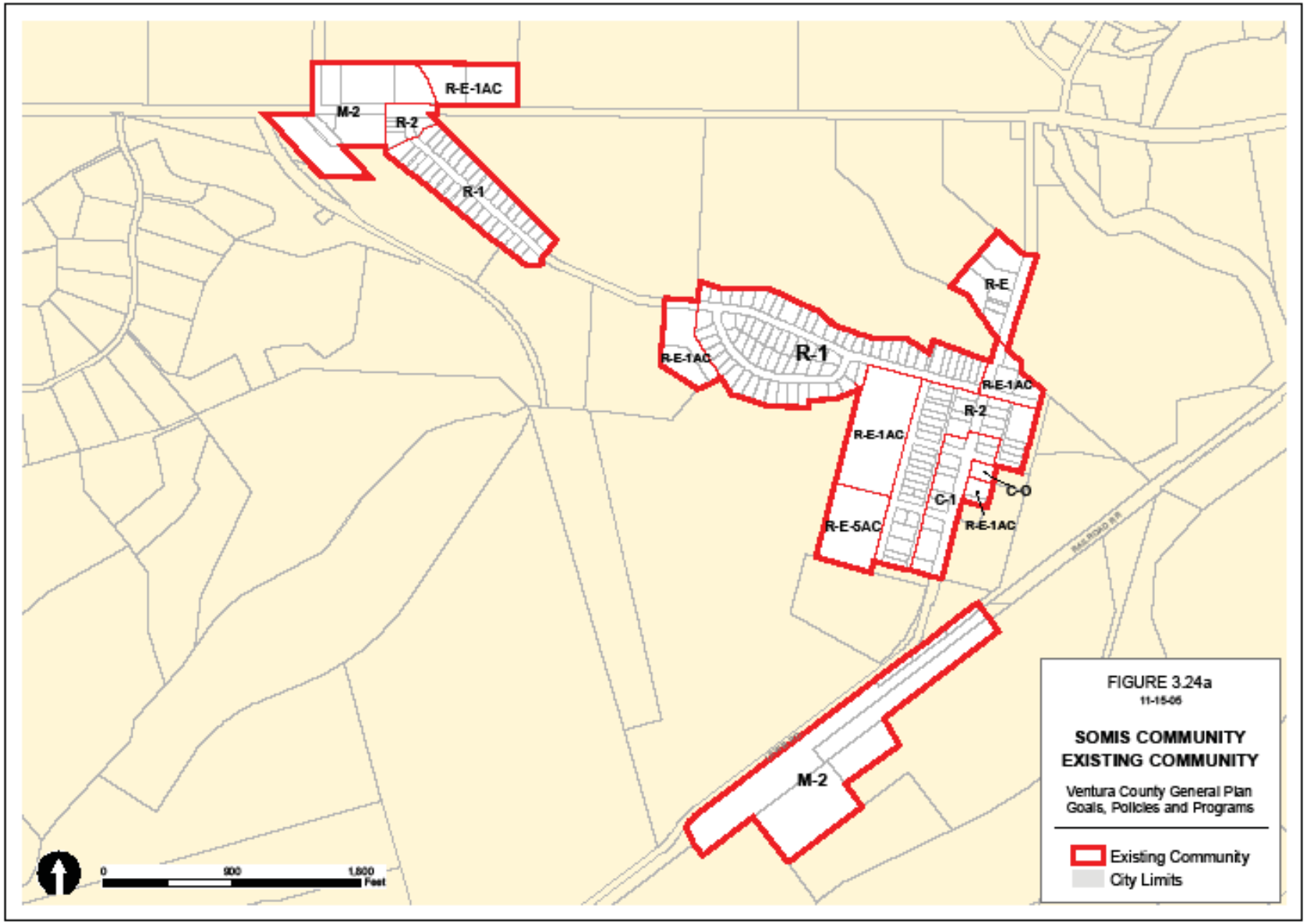

R-E-1AC
M-2
R-2
R-1
R-E
R-E-1AC
R-1
R-E-1AC
R-2
R-E-1AC
C-O
C-1
R-E-1AC
R-E-5AC
M-2
0
900
1,800
Feet
FIGURE 3.24a
11-15-06
SOMIS COMMUNITY
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.24b
Building Intensity/Population Density Table - Somis Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-5Ac	5.0	25%	0.20	1	3.24	3	0.60
RE-1Ac	15.0	25%	1.00	15	3.24	48	3.20
RE	4.0	36%	4.36	17	3.24	55	13.75
R1	25.0	45%	7.26	181	3.24	586	23.44
R2	5.0	50%	12.45	62	3.24	200	40.00
Total	54.0			276		892	
Commercial/Industrial							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)**	**Projected Floor Area (x1000 SF)**	**Average Employees/ 1000 SF**	**Employees**	**Average Employees /Acres**	
CO	4.1	50%	62.5	4.0	250	61.0	
C1	2.2	60%	14.4	2.0	29	13.2	
M2	35.7	50%	311.0	2.0	622	17.4	
Total	42.0		387.9		901		

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Las Posas Non-Growth Area.

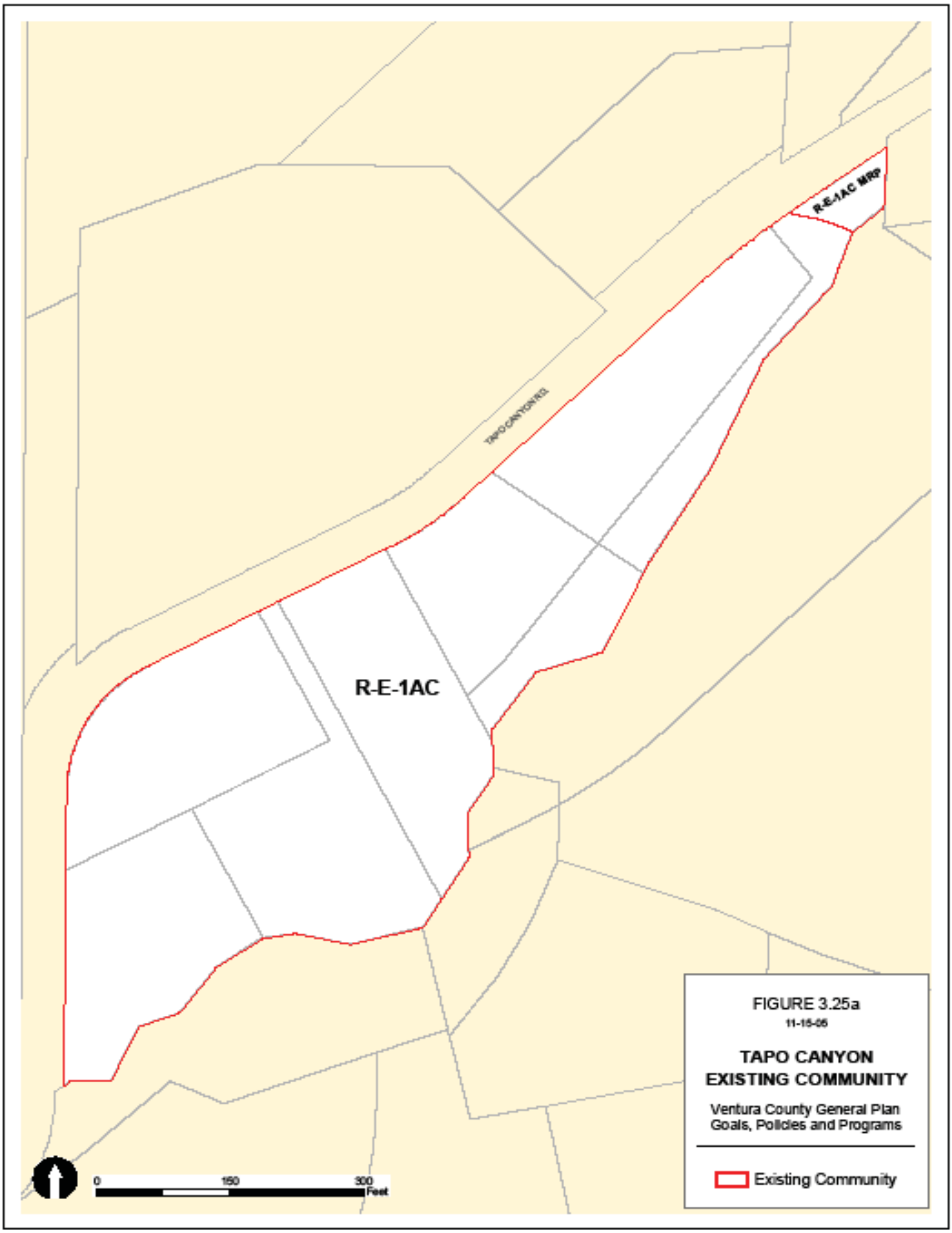

R-E-1AC MRP
TAPO CANYON RD
R-E-1AC
0
150
300
Feet
FIGURE 3.25a
11-15-05
TAPO CANYON
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community

Figure 3.25b
Building Intensity/Population Density Table - Tapo Canyon Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
RE-1Ac/MRP and RE-1Ac	6.93	25%	1.00	6	3.31	13	1.88

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Simi Valley Non-Growth Area.

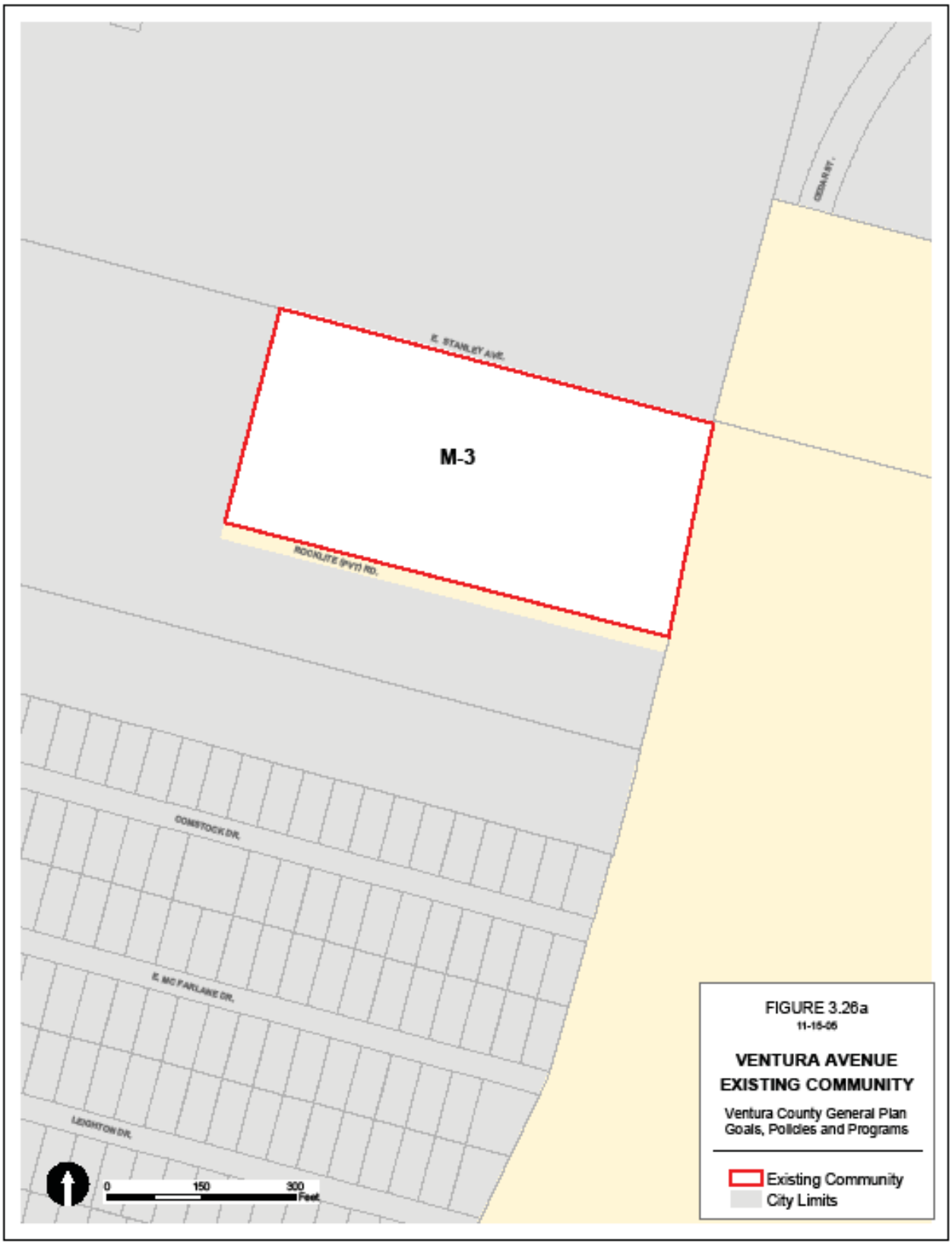

E. STANLEY AVE.
M-3
ROCKLITE (PVT) RD.
COMSTOCK DR.
E. MC FARLANE DR.
LEIGHTON DR.
0
150
300
Feet
FIGURE 3.26a
11-15-05
VENTURA AVENUE
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits

Figure 3.26b
Building Intensity/Population Density Table - Ventura Avenue Existing Community

Commercial/Industrial							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)**	**Projected Floor Area (x1000 SF)**	**Average Employees/ 1000 SF**	**Employees**	**Average Employees /Acres**	
M3	6.5	40%	57	2.0	113	17.38	

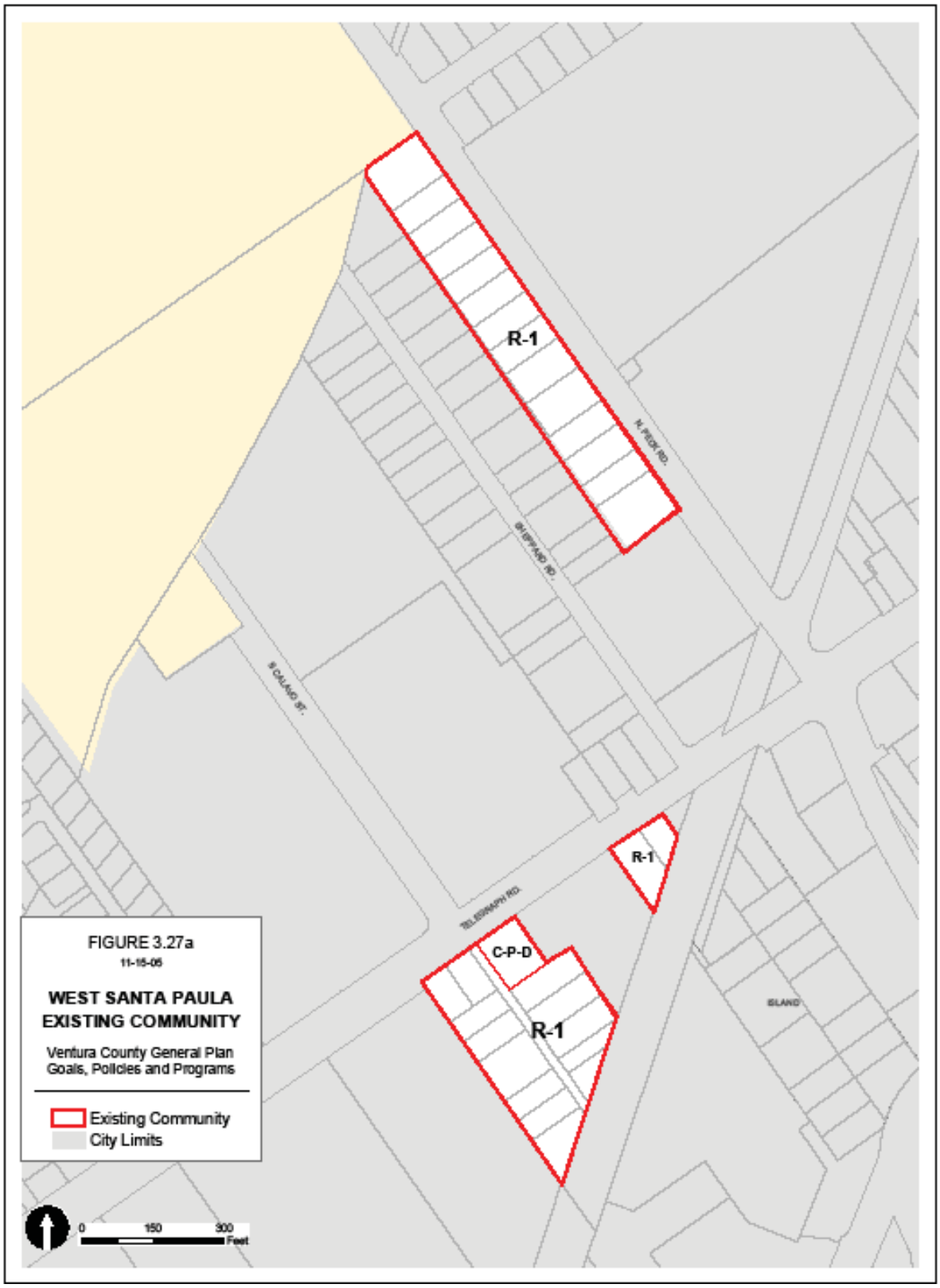

R-1
R-1
C-P-D
R-1
FIGURE 3.27a
11-15-06
WEST SANTA PAULA
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits
0
150
300
Feet

Figure 3.27b
Building Intensity/Population Density Table - West Santa Paula Existing Community

Residential							
Designation	**Acres**	**Max. Bldg. Coverage (% of Lot Area)[1]**	**Maximum Intensity (DU/Ac)[2]**	**Dwelling Units**	**Average Pop/DU[3]**	**Population**	**Average Pop. Density (Pop/Acre)**
R1	3.18	45%	5.35	17	2.65	45	14.17

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Santa Paula Growth Area.

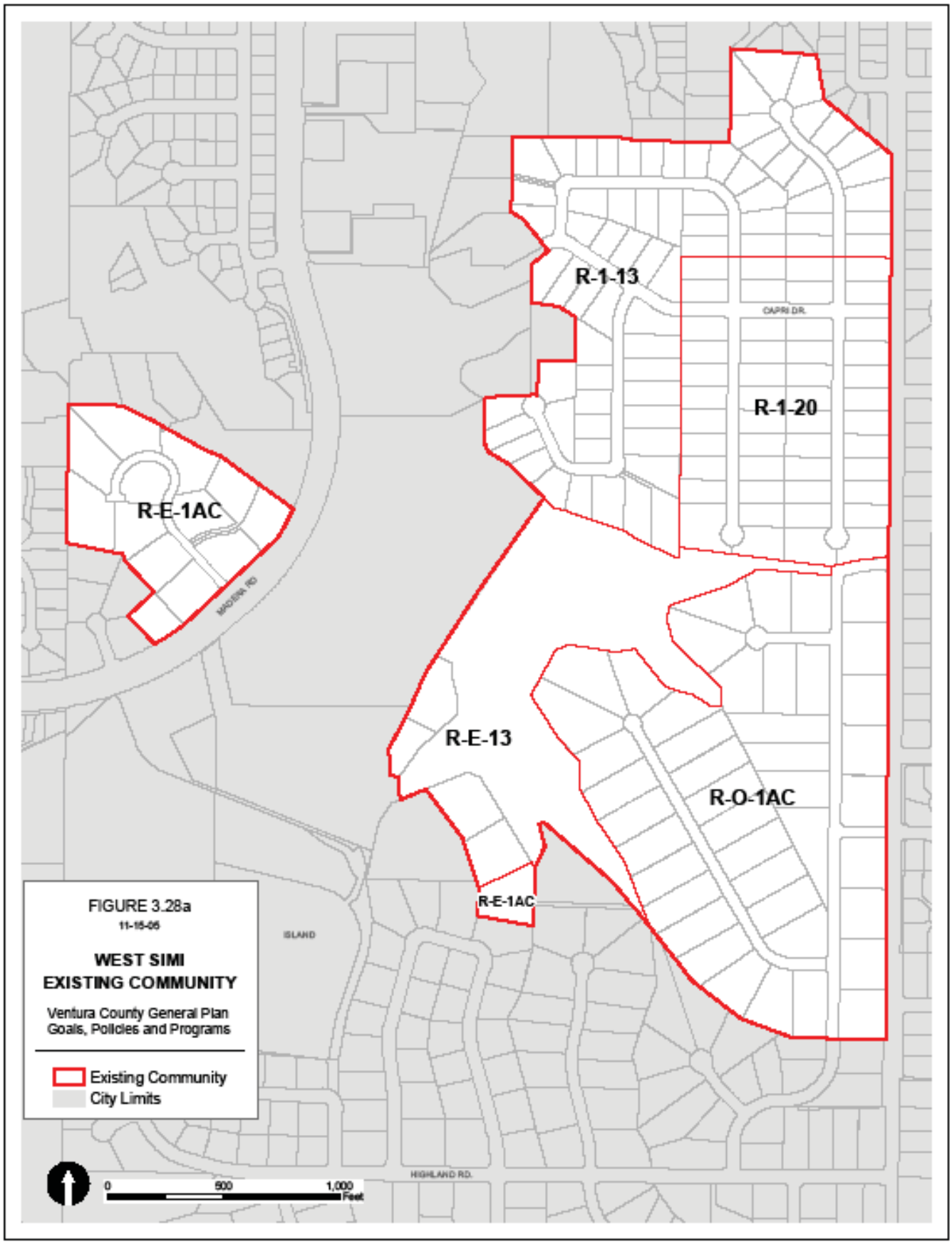

R-1-13
R-1-20
R-E-1AC
R-E-13
R-O-1AC
R-E-1AC
CAPRI DR.
MADERA RD
ISLAND
HIGHLAND RD.
FIGURE 3.28a
11-15-06
WEST SIMI
EXISTING COMMUNITY
Ventura County General Plan
Goals, Policies and Programs
Existing Community
City Limits
0
500
1,000
Feet

Figure 3.28b
Building Intensity/Population Density Table - West Simi Existing Community

Residential							
Designation	Acres	Max. Bldg. Coverage (% of Lot Area)[1]	Maximum Intensity (DU/Ac)[2]	Dwelling Units	Average Pop/DU[3]	Population	Average Pop. Density (Pop/Acre)
RE-1Ac	13.38	25%	1.00	13	3.03	39	2.91
RO-1Ac	44.81	25%	1.00	44	3.03	133	2.97
R1-20	22.22	29%	2.18	48	3.03	145	6.53
RE-13	33.96	33%	3.35	113	3.03	342	10.07
R1-13	26.41	33%	3.35	88	3.03	266	10.07
Total	140.78			306		925	

[1]The maximum *building coverage* for lots of less than one acre in area shall be as specified, or 2,500 square feet plus 1 square foot for each 4.596 square feet of lot area over 5,000 square feet, whichever is greater.

[2]Excludes second dwelling units per Section 65852.2 of the State Government Code.

[3]Year 2000 Forecast for Simi Valley Growth Area.

Figure 3.29
2000 – 2020 Population Forecast

Area	Census 4/1/2000	Forecast 2005	Forecast 2010	Forecast 2015	Forecast 2020
Camarillo Area	67,042	82,809	89,084	93,014	96,949
(Camarillo City)	(57,077)	(66,958)	(72,220)	(76,060)	(79,186)
Fillmore Area	15,145	16,534	18,068	20,628	23,038
(Fillmore City)	(13,643)	(14,689)	(16,187)	(18,619)	(20,964)
Las Posas Area	3,232	3,666	3,788	3,911	4,034
Moorpark Area	32,566	31,777	32,561	33,346	42,108
(Moorpark City)	(31,415)	(30,355)	(31,018)	(31,684)	(40,322)
North Half Area	752	1,072	1,140	1,207	1,274
Oak Park Area	14,215	13,541	13,541	13,541	13,541
Ojai Area	29,617	32,106	32,901	33,866	34,190
(Ojai City)	(7,862)	(8,251)	(8,490)	(8,719)	(9,006)
Oxnard Area	186,118	175,076	183,819	194,392	205,301
(Oxnard City)	(170,358)	(159,301)	(168,025)	(176,413)	(186,901)
Piru Area	2,380	2,360	2,596	4,152	4,388
Port Hueneme Area	23,097	23,512	23,512	23,512	23,512
(Port Hueneme City)	(21,845)	(23,176)	(23,176)	(23,176)	(23,176)
Santa Paula Area	31,554	34,724	37,515	40,625	43,443
(Santa Paula City)	(28,598)	(30,135)	(32,730)	(35,325)	(37,920)
Simi Valley Area	115,787	131,099	135,621	140,994	145,700
(Simi Valley City)	(111,351)	(126,582)	(131,205)	(135,826)	(140,452)
Thousand Oaks Area	125,082	129,550	135,736	138,619	139,213
(Thousand Oaks City)	(117,005)	(125,000)	(129,000)	(131,000)	(131,500)
Ventura Area	106,197	114,193	119,652	125,454	130,696
(Ventura City)	(100,916)	(108,397)	(113,397)	(118,397)	(123,397)
Ahmanson Ranch Area	410	410	410	410	410
(Incorporated Total)	(660,070)	(692,844)	(725,448)	(755,219)	(792,824)
Unincorporated Total	93,124	99,585	104,496	112,452	114,973
Countywide Total	753,194	792,429	829,944	867,671	907,797

(Numbers in Parentheses) = City numbers

Source: VCOG September, 2000.

Figure 3.30
2000 – 2020 Dwelling Unit Forecast

Area	Census 4/1/2000	Forecast 2005	Forecast 2010	Forecast 2015	Forecast 2020
Camarillo Area	25,443	28,006	30,110	31,444	32,779
(Camarillo City)	(21,946)	(23,179)	(24,999)	(26,199)	(27,400)
Fillmore Area	4,387	4,897	5,389	6,212	7,009
(Fillmore City)	(3,852)	(4,295)	(4,775)	(5,558)	(6,342)
Las Posas Area	1,072	1,194	1,234	1,274	1,314
Moorpark Area	9,458	9,779	10,020	10,262	12,958
(Moorpark City)	(9,094)	(9,340)	(9,544)	(9,749)	(12,407)
North Half Area	563	383	407	431	455
Oak Park Area	5,123	5,665	5,665	5,665	5,665
Ojai Area	11,289	12,433	12,998	13,563	14,128
(Ojai City)	(3,229)	(3,395)	(3,596)	(3,801)	(4,062)
Oxnard Area	49,766	51,568	55,121	59,368	64,077
(Oxnard City)	(45,166)	(46,689)	(50,113)	(53,605)	(58,066)
Piru Area	651	805	885	1,325	1,405
Port Hueneme Area	8,173	8,397	8,397	8,397	8,397
(Port Hueneme City)	(7,908)	(8,277)	(8,277)	(8,277)	(8,277)
Santa Paula Area	9,101	10,558	11,388	12,287	13,124
(Santa Paula City)	(8,341)	(9,644)	(10,452)	(11,260)	(12,068)
Simi Valley Area	38,858	43,905	46,825	48,680	50,304
(Simi Valley City)	(37,272)	(42,194)	(45,088)	(46,675)	(48,265)
Thousand Oaks Area	45,906	46,666	49,238	49,929	50,148
(Thousand Oaks City)	(42,958)	(44,845)	(46,598)	(47,010)	(47,216)
Ventura Area	41,786	43,721	45,131	46,797	48,221
(Ventura City)	(39,803)	(41,362)	(42,699)	(44,044)	(45,389)
Ahmanson Ranch Area	134	134	134	134	134
(Incorporated Total)	(219,569)	(233,220)	(246,141)	(256,178)	(269,492)
Unincorporated Total	32,141	34,891	36,801	39,590	40,626
Countywide Total	251,710	268,111	282,942	295,768	310,118

(Numbers in Parentheses) = City numbers

Source: VCOG September, 2000.

Figure 3.31
2000 – 2020 Employment Forecast

Area	Estimate 2000	Forecast 2005	Forecast 2010	Forecast 2015	Forecast 2020
Camarillo Area	35,808	36,870	38,041	39,213	40,384
(Camarillo City)	(31,414)	(32,198)	(32,982)	(34,433)	(36,117)
Fillmore Area	4,387	5,033	5,678	6,324	6,969
(Fillmore City)	(3,624)	(4,213)	(4,800)	(5,410)	(6,117)
Las Posas Area	1,320	1,325	1,330	1,335	1,340
Moorpark Area	7,949	9,500	11,720	13,604	13,673
(Moorpark City)	(7,513)	(9,044)	(11,219)	(13,035)	(13,035)
North Half Area	37	43	49	54	60
Oak Park Area	840	880	920	960	1,000
Ojai Area	6,686	6,790	6,894	6,998	7,102
(Ojai City)	(3,620)	(3,802)	(4,015)	(4,179)	(4,368)
Oxnard Area	71,716	74,965	76,762	82,274	88,915
(Oxnard City)	(51,951)	(55,093)	(56,831)	(62,162)	(68,350)
Piru Area	427	470	512	577	619
Port Hueneme Area	16,870	17,154	17,438	17,721	18,005
(Port Hueneme City)	(16,496)	(16,710)	(16,924)	(17,138)	(17,352)
Santa Paula Area	9,394	10,497	11,599	12,702	13,821
(Santa Paula City)	(6,829)	(7,802)	(8,775)	(9,748)	(10,720)
Simi Valley Area	34,128	41,668	49,211	56,754	64,333
(Simi Valley City)	(33,944)	(41,444)	(48,944)	(56,444)	(63,944)
Thousand Oaks Area	71,320	76,288	80,610	84,592	89,213
(Thousand Oaks City)	(69,810)	(74,646)	(78,849)	(82,718)	(87,208)
Ventura Area	60,965	64,931	67,097	71,560	76,827
(Ventura City)	(57,604)	(61,343)	(63,381)	(67,590)	(72,474)
Ahmanson Ranch Area	0	0	0	0	0
(Incorporated Total)	(282,805)	(306,295)	(326,720)	(352,857)	(379,685)
Unincorporated Total	39,042	40,119	41,141	41,811	42,576
Countywide Total	321,847	346,414	367,861	394,668	422,261

(Numbers in Parentheses) = City numbers

Source: VCOG September, 2000.

4. Public Facilities and Services

The Public Facilities and Services Chapter of the General Plan identifies *goals, policies* and *programs* applicable to public facilities and services throughout Ventura County at both a local and regional level. The specific goals, policies and programs are listed under the major headings of General Goals, Policies and Programs, Transportation/Circulation, Water Supply, Waste Disposal Facilities, Utilities, Flood Control and Drainage, Law Enforcement and Emergency Services, Fire Protection, Education, Parks and Recreation, and Other Public Buildings and Grounds. In some instances, facilities and services are owned and/or operated by the County of Ventura, or may be provided by an agency governed by the Board of Supervisors. In other cases, facilities and services are owned and operated by independent governmental entities or private companies. The headings listed above are the types of public facilities and services most directly related to the physical development of the County.

Tables, maps, and narrative in the Public Facilities and Services Appendix provide the background information and analysis necessary to establish the goals, policies and programs which are part of the Public Facilities and Services Chapter of the County of Ventura General Plan, with the overall goal of providing necessary public facilities and services to the residents of Ventura County.

The following general goals, policies and programs apply to public facilities and services:

4.1 General Goals, Policies and Programs

4.1.1 Goals

1. Plan for public facilities and services which will adequately serve the existing and future residents of the County.
2. Promote the cost effective operation, equitable distribution, and funding and development of public facilities and services to meet the County's existing and future needs.
3. Ensure that public facilities and services are consistent with the land use and development goals, policies and programs of the County General Plan.

4.1.2 Policies

1. *Discretionary development* shall be conditioned to contribute land, improvements or funds toward the cost of needed public improvements and services related to the proposed development.
2. *Development* shall only be permitted in those locations where adequate public services are available (functional), under physical construction or will be available in the near future.
3. The location, design and operation of public facilities in the unincorporated area of the County shall be consistent with the Ventura County General Plan.
4. Within a City's Sphere of Influence, annexation to the City is preferable to formation of new or expansion of existing County Service Areas.
5. Within a City's Sphere of Influence, public facility requirements imposed by the County for new or expanding developments, should not be less than those imposed by the City.
6. Within a City's Area of Interest, but outside that City's Sphere of Influence, unincorporated Existing Communities should financially support County-administered urban services which are comparable to those services provided by cities.

4.1.3 Programs

1. All public facility improvements and projects proposed to be located in the unincorporated area of the County shall be included in a comprehensive five year Capital Improvement Program. The Capital Improvement Program shall be updated annually and reviewed by the County Planning Division for conformity to the County General Plan.

2. The General Services Agency, along with the Building and Safety Division of the Resource Management Agency, will continue the ongoing program to inventory all County owned and County occupied (leased) buildings for compliance with State and Federal Handicapped Accessibility laws, including the Federal Americans with Disabilities Act (ADA) of 1990, as required by HUD for Block Grant Funds.
3. The Planning Division with the technical support of other appropriate agencies, will periodically review the Public Facilities and Services Chapters' goals, policies and programs as well as the Public Facilities and Services Appendix to identify what information needs to be updated and, when appropriate, will submit a budget request to the Board of Supervisors.

4.2 Transportation/Circulation

The Transportation/Circulation section identifies *goals, policies* and *programs* related to: roads and highways, transit, rail service, airports and pipelines.

Roads and Highways

The *Regional Road Network*, together with the *Local Road Network,* provides the principal means for the movement of persons and goods within Ventura County.

In order to accommodate projected traffic resulting from the implementation of the land use policies of the General Plan, improvements to the *Regional Road Network* and the *Local Road Network* will be necessary. The Regional Road Network anticipated for the year 2020, shown on Public Facilities Map (Figure 4), will function at an acceptable *Level of Service (LOS)* in the unincorporated area of the County if development occurs in accordance with the General Land Use Map (Figure 3.1) at the projected rate of development. In addition to automobiles, trucks, buses and bicycles use some roads in the Regional Road Network and require accommodation where feasible.

Transit

There are several public transportation systems available in Ventura County. These include: South Coast Area Transit (SCAT), Ventura Intercity Service Transit Authority (VISTA), Camarillo Area Transit (CAT), Moorpark Transit, the City of Ojai trolley, Simi Valley Transit and Thousand Oaks Transit (TOT).

Private transit operators include: Greyhound Bus Lines, which provides regular long distance travel service with stops at three cities in Ventura County: Oxnard, Thousand Oaks and Ventura, and Great American Stageline, an airport bus company that makes trips to Los Angeles International Airport and provides intercity service to Ventura, Oxnard, Camarillo, Thousand Oaks, Westlake and Woodland Hills.

The Senior Survivalmobile serves senior citizens Countywide during medical emergencies, with the help of volunteers. In addition, every Ventura County community has a program to transport senior citizens to meal sites and meals to seniors.

Rail Service

Freight rail service is provided by Union Pacific Transportation Company and the local Ventura County Railroad Company, headquartered in Port Hueneme.

Union Pacific Transportation Company provides intra-state and trans-continental rail freight service from its main coast line which runs from the Santa Barbara County line along the coast south through Ventura to Oxnard and then east through Camarillo, Moorpark, and Simi Valley to the Los Angeles County line. A branch line travels along the Santa Clara River Valley from Montalvo in a northeasterly direction through Santa Paula and Fillmore to Piru.

The Ventura County Railroad Company is a short line local railroad connecting the Union Pacific tracks in Oxnard with the Navy Base Ventura County (U.S. Naval Construction Battalion Center) and the deep seaport in Port Hueneme, including industrial parks in Oxnard, south of Fifth Street.

Passenger rail service includes Amtrak and Metrolink. Amtrak's Coast Starlight rail service is provided once a day, north and south, between Los Angeles and Portland, Oregon. The Coast Starlight stops in Oxnard and Simi Valley. Amtrak's San Diegan passenger rail service provides several round trips

per day between San Diego and San Luis Obispo. The San Diegan stops in Ventura County at Simi Valley, Moorpark, Camarillo, Oxnard and Ventura. Metrolink Commuter Rail operates Monday through Friday between Montalvo and Los Angeles and connects to five counties in Southern California. Currently, there are eight round trips daily to Simi Valley and Moorpark, with two of these trips also stopping in Camarillo, Oxnard and Montalvo.

Airports

There are four airports in Ventura County, which include County owned and operated airports at Camarillo and Oxnard, a private airport at Santa Paula and the Federally operated Navy Base Ventura County, formerly known as Point Mugu Naval Air Weapons Station (NAWS), including its runway at San Nicholas Island. The California Air National Guard operates from a facility adjacent to and utilizes the runways at Navy Base Ventura County Point Mugu. In addition, there are a few privately owned landing strips scattered throughout the County.

Harbors

The Port of Hueneme is the County's only deepwater harbor. It is located entirely within the City of Port Hueneme, about seven miles southeast of the mouth of the Santa Clara River. Serving as California's only deepwater port between Los Angeles and San Francisco, the Port of Hueneme's area of influence extends far into the southwestern United States and Western Canada. The Port is administered by the Oxnard Harbor District, which has jurisdiction over approximately 120 acres of onshore area and 10 acres of waterway; the remainder of the harbor is under U.S. Navy jurisdiction. Ventura and Channel Islands harbors provide facilities for recreational boating and commercial fishing.

Pipelines

Major pipelines within Ventura County carry crude oil and natural gas, generally along highways and railroad lines. ARCO, Chevron, Mobil, Shell, Texaco and Union Oil own the major crude oil and natural gas pipelines traversing Ventura County, and such ownership is transferred from time to time. Most oil companies, which have operations in Ventura County, have pipelines located within their oil/gas lease areas, but do not operate major transporting pipelines. Four Corners Pipeline Company, a subsidiary of ARCO, is a private pipeline company regulated by the Public Utilities Commission that transports crude oil through their own lines and connects to other pipelines as needed. There is an existing Southern California Edison fuel line originating within the Oxnard Harbor District which connects to the Ormond Beach Generating Station. Four Corners Pipeline Company operates only their own pipeline facilities, and does not own any crude oil.

The goals, policies and programs that apply to transportation/circulation are as follows:

4.2.1 Goals

1. Facilitate the safe and efficient movement of persons and goods by encouraging the design, construction, and maintenance of an integrated transportation and circulation system consisting of regional and local roads, bus transit, bike paths, ridesharing, rail transit and freight service, airports and harbors.
2. Facilitate the safe and efficient movement of persons and goods by designing, constructing, and maintaining a *Regional Road Network* and *Local Road Network* that is consistent with the County road standards and that will function at an acceptable *Level of Service (LOS).*
3. Ensure that the design, sequencing and timing of road widening projects are consistent with the goals, policies and programs of the General Plan, and that County road widening projects have adequate public review.
4. Ensure that as *discretionary development* creates the need, existing roads within the *Regional Road Network* and *Local Road Network* are improved, and additional roads needed to complement the *Regional Road Network* and *Local Road Network* are constructed, so as to keep all such roads safe and functioning at an acceptable *LOS*.
5. Ensure that *development* which would contribute to the cumulative need for improvements or additions to the *Regional Road Network* bears its pro-rata share of the costs of all such improvements or additions.

6. Promote measures to reduce vehicle miles traveled and disperse peak traffic to better utilize the existing transportation infrastructure.
7. Promote the expansion of a safe, efficient, convenient, integrated and economical community, intercommunity and countywide bus transit system.
8. Encourage transit providers and the Ventura County Transportation Commission to increase ridership and meet the needs of the commuting public and the special transportation needs of the elderly, school children, low income, physically handicapped, other low mobility groups, and bicyclists.
9. Encourage the use of bicycling and ridesharing (e.g., carpooling, vanpooling, and bus pooling) as a percentage of total employee commute trips throughout the County in order to reduce vehicular trips and miles traveled and consequently vehicular emissions, traffic congestion, energy usage, and ambient noise levels.
10. In cooperation with the ten cities and the Ventura County Transportation Commission, plan a system of bicycle lanes and trails linking all county cities, unincorporated communities, and CSUCI.
11. Support the continued expanded operation and use of a rail system that offers efficient, safe, convenient and economical transport of people and commodities throughout the region.
12. Encourage the Union Pacific Transportation Company and the Ventura County Railroad Company to continue to improve their railroad grade crossing surfaces with such improvements as the installation of concrete railroad grade crossing surface panels.
13. Provide facilities at Oxnard and Camarillo Airports to meet the general aviation and commuter service needs of the citizens of Ventura County.
14. Strive to minimize adverse environmental and safety effects of County Airports on the surrounding communities.

4.2.2 Policies

1. *County thoroughfares* and County maintained *local roads* shall be designed and constructed in accordance with County road standards or better and should primarily serve in-county transportation needs. County roads should not be widened for the purpose of relieving congestion on Federal or State highways or accommodate interregional traffic that is more appropriately served by the Federal and State highway systems.
2. The County road standards, five-year capital improvement programs, and road-improvement design, sequencing and timing shall be consistent with the goals, policies and programs of the General Plan. County road improvement design for safety and level-of-service capacity should, if possible, avoid increasing the number of travel lanes, and the improvements should not be constructed before the need has been demonstrated based on evaluation of current and projected traffic conditions.
3. The minimum acceptable *Level of Service (LOS)* for road segments and intersections within the *Regional Road Network* and *Local Road Network* shall be as follows:
   (a) *LOS-'D'* for all *County thoroughfares* and *Federal highways* and *State highways* in the unincorporated area of the County, except as otherwise provided in subparagraph (b);
   (b) *LOS-'E'* for State Route 33 between the northerly end of the Ojai Freeway and the City of Ojai, Santa Rosa Road, Moorpark Road north of Santa Rosa Road, State Route 34 north of the City of Camarillo and State Route 118 between Santa Clara Avenue and the City of Moorpark;
   (c) *LOS-'C'* for all County-maintained *local roads*; and
   (d) The *LOS* prescribed by the applicable city for all *Federal highways, State highways, city thoroughfares* and city-maintained *local roads* located within that city, if the city has formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County (similar to Policies 4.2.2-3 through 4.2.2-6) respecting *development* in the city that

would individually or cumulatively affect the *LOS* of *Federal highways, State highways, County thoroughfares* and County-maintained *local roads* in the unincorporated area of the County.

At any intersection between two roads, each of which has a prescribed minimum acceptable *LOS*, the lower *LOS* of the two shall be the minimum acceptable *LOS* for that intersection.

4. Except as otherwise provided in the Ojai Area Plan, County General Plan land use designation changes and zone changes shall be evaluated for their individual and cumulative impacts, and *discretionary development* shall be evaluated for its individual impact, on existing and future roads, with special emphasis on the following:

   (a) Whether the project would cause existing roads within the *Regional Road Network* or *Local Road Network* that are currently functioning at an acceptable *LOS* to function below an acceptable *LOS*;

   (b) Whether the project would add traffic to existing roads within the *Regional Road Network* or the *Local Road Network* that are currently functioning below an acceptable *LOS*; and

   (c) Whether the project could cause future roads planned for addition to the *Regional Road Network* or the *Local Road Network* to function below an acceptable *LOS*.

5. Except as otherwise provided in the Ojai Area Plan and below, County General Plan land use designation changes and zone changes that would cumulatively cause any of the impacts identified in subparagraphs (a) through (c) of Policy 4.2.2-4 shall be prohibited unless the Board of Supervisors adopts a Statement of Overriding Considerations. County General Plan land use designation changes, zone changes and *discretionary development* that would individually cause any of the impacts identified in subparagraphs (a) through (c) of Policy 4.2.2-4 shall be prohibited unless feasible mitigation measures are adopted that would ensure that the impact does not occur or unless a project completion schedule and full funding commitment for road improvements are adopted which ensure that the impact will be eliminated within a reasonable period of time. This policy does not apply to *city thoroughfares*, city-maintained *local roads*, or *Federal or State highways* located within a city unless the applicable city has formally adopted General Plan *policies*, ordinances, or a reciprocal agreement with the County (similar to Policies 4.2.2-3 through 4.2.2-6) respecting *development* in the city that would affect the *LOS* of *County thoroughfares*, County-maintained *local roads*, and *Federal and State highways* located within the unincorporated area of the County. If a Specific Plan for a project has been determined to be consistent with this policy, any subsequent development that is consistent with the Specific Plan will also be determined to be consistent with this policy. Exceptions to the prohibitions of this policy include the following:

   (a) Farmworker Housing Complexes, Affordable Housing development per Article 16 of the Non-Coastal Zoning Ordinance, and other housing exclusively for *lower-income* households, where such developments are served by roads that are currently operating at LOS ”E” or better.

   (b) Additional dwellings and lots on Cultural Heritage Sites as permitted in the Non-Coastal Zoning Ordinance.

   (c) Agriculture and Agricultural Operations as permitted in the Coastal and Non-Coastal Zoning Ordinances, where such developments are served by roads that are currently operating at LOS ”E” or better.

6. Development that would generate additional traffic shall pay its pro rata share of the costs of necessary improvements to the *Regional Road Network* per the County’s Traffic Impact Mitigation Fee Ordinance as amended time to time.

7. The County shall oppose *discretionary development* within cities, and annexation to cities for the purposes of *development*, where such *development* would individually or cumulatively cause:

(a) Any existing road within the *Regional Road Network*, or any existing County-maintained *local road*, that is currently functioning at an acceptable *LOS* to function below an acceptable *LOS*;

(b) Any existing road within the *Regional Road Network*, or any existing County-maintained *local road*, that is currently operating below an acceptable *LOS* to have a worsening of traffic conditions; or

(c) Any future road planned for addition to the *Regional Road Network*, or any planned future County-maintained *local road*, to function below an acceptable *LOS*.

This policy does not apply to those cities which have formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County similar to Policies 4.2.2-3 through 4.2.2-6.

8. *Discretionary development* shall be conditioned, where feasible, to minimize traffic impacts by incorporating pedestrian and bicycle pathways, bicycle racks and lockers, ridesharing programs, transit improvements (bus turnouts, shelters, benches), and/or transit subsidies for employees or residents of the proposed *development*.

9. In the event that any railroad right-of-way within Ventura County is abandoned in the future, the County Public Works Agency and the General Services Agency shall evaluate the feasibility of acquiring such land for public use such as transit, bicycle and equestrian paths.

10. *Discretionary development* that would endanger the efficient, safe operation of an airport or would result in significant land use incompatibility with an airport shall be prohibited.

11. The Ventura County General Plan shall remain consistent with the Ventura County Transportation Commission's Airport Comprehensive Land Use Plan for Ventura County.

4.2.3 Programs

1. The County Planning Division will periodically recommend updates to the County General Plan's Transportation/Circulation Section and the Public Facilities Map. This effort will be coordinated with the PWA Transportation Department and the Ventura County Transportation Commission which provides the Congestion Management Program.

2. The County Public Works Agency (PWA) will coordinate with the County Planning Division, cities in Ventura and Los Angeles Counties and CalTrans to develop a program to fund needed improvements to the *Regional Road Network* that includes all sources of funding available to both the County and the cities for inter-city road-building purposes. The program would include a mechanism to determine the total amount required to construct the needed improvements and could include a trip rate fee structure to collect the required funds. Roads which are impacted by new *development* should have the needed improvements financed by *development* fees and developer contributions. Roads not impacted by new *development* should have needed improvements financed by revenue sources dedicated for transportation purposes, such as State and Federal gasoline taxes, Transportation Development Act funds, etc. Where these funding sources prove inadequate to meet projected needs, they should be augmented by other sources such as special assessment districts, area of benefit funds, etc.

3. The Public Works Agency will submit the project scope for all road-improvement projects that increase the number of travel lanes to the Board of Supervisors for their concurrence at a noticed public hearing prior to proceeding with preparation of environmental review documents or engineering plans and specifications.

4. The County Public Works Agency will continue to review environmental documents for *development* projects within cities and adjoining counties to ensure that all individual and cumulative adverse impacts to the *Regional Road Network* and County-maintained *local roads* have been adequately evaluated and mitigated to insignificant levels. If it appears potential impacts are identified, PWA will bring this information to the attention of the Board of Supervisors.

5. The County's Legislative Analyst, with the support of the Public Works Agency, will continue to lobby for passage of Federal and State legislation/appropriations which would improve the *Regional Road Network* consistent with the County General Plan.
6. The Ventura County Transportation Commission (VCTC) is the agency responsible for transit operation and planning in the County of Ventura. The County, Public Works Agency, Transportation Department, will assist and coordinate as necessary to ensure that transit needs in the unincorporated area are considered and implemented.
7. The Public Works Agency, General Services Agency and Planning Division, will participate in and support the Ventura County Transportation Commission in its development of a countywide Bicycle Path and Trail Master Plan, which will link all county cities, unincorporated communities, and CSUCI.
8. The County Department of Airports will periodically update the Camarillo and Oxnard Airport Master Plans.
9. The Public Works Agency will continue to coordinate with the Port of Hueneme-Oxnard Harbor District, the cities of Port Hueneme and Oxnard, and CalTrans to ensure an adequate road network is available to accommodate projected harbor related commerce.
10. The County Sheriff's Department Office of Emergency Services will annually review and revise the Major Transportation Accidents Contingency section of the County Multihazard Functional Plan.

4.3 Water Supply Facilities

Ventura County's water supplies are primarily obtained from three major sources: groundwater, surface water, and imported water. A small amount of reclaimed water also is used when and where available.

There are three major water wholesalers that supply the various retail water purveyors throughout Ventura County. The Casitas Municipal Water District delivers wholesale water from Lake Casitas to many small local purveyors in the Ventura River and Ojai Valley areas. The United Water Conservation District is responsible for collection and distribution of wholesale water throughout most of the Santa Clara River Valley and the Oxnard Plain. Water stored in United's Lake Piru reservoir is periodically released into the Santa Clara River via Piru Creek. Downstream, the water is diverted into several percolation ponds or groundwater recharge basins near Saticoy and El Rio in order to recharge the underlying aquifers for subsequent pumping to urban and agricultural users. The Calleguas Municipal Water District is one of the 14 member agencies of the Metropolitan Water District of Southern California (MWD), and is responsible for providing imported water from the Sacramento-San Joaquin delta area to retail water purveyors in the southeastern portions of Ventura County.

There are presently 178 water purveyors in Ventura County, which include 6 city or municipal systems, 57 privately-owned systems, 25 public or special use water purveyors, 22 special water districts, and 63 mutual water companies, or other public and private systems of varying sizes (Navy bases, Navy housing, mobile home parks, etc.).

The goals, policies and programs that apply to water supply facilities are as follows:

4.3.1 Goals

1. Ensure the provision of water in quantities sufficient to satisfy current and projected demand.
2. Encourage the employment of water conservation measures in new and existing *development*.
3. Encourage the continued cooperation among water suppliers in the County in meeting the water needs of the County as a whole.

4.3.2 Policies

1. *Development* that requires potable water shall be provided a *permanent potable water supply* of adequate quantity and quality that complies with applicable County and State water

regulations. Water systems operated by or receiving water from Casitas Municipal Water District, the Calleguas Municipal Water District or the United Water Conservation District will be considered permanent supplies unless an Urban Water Management Plan (prepared pursuant to Part 2.6 of Division 6 of the Water Code) or a water supply and demand assessment (prepared pursuant to Part 2.10 of Division 6 of the Water Code) demonstrates that there is insufficient water supply to serve cumulative development within the district's service area. When the proposed water supply is to be drawn exclusively from wells in areas where groundwater supplies have been determined by the Environmental Health Division or the Public Works Agency to be questionable or inadequate, the developer shall be required to demonstrate the availability of a permanent potable water supply for the life of the project.

2. *Discretionary development* as defined in section 10912 of the Water Code shall comply with the water supply and demand assessment requirements of Part 2.10 of Division 6 of the Water Code.
3. *Discretionary development* shall be conditioned to incorporate water *conservation* techniques and the use of drought resistant native plants pursuant to the County's Guide to Landscape Plans.

4.3.3 Programs

1. The Public Works Agency will coordinate with water districts to establish a data base on actual available supply, projected use factors for types of *development* and threshold limits for *development* within available water resources.
2. The County Public Works Agency (Water Resources and Development Department) and the three major water wholesale agencies (Casitas, Calleguas and United) will continue to pursue the use of reclaimed water as a long-term source for agricultural irrigation.
3. The County Building and Safety Division will enforce the County's Efficient Plumbing Devices Ordinance (low water use plumbing fixtures).

4.4 Waste Treatment and Disposal Facilities

The Waste Treatment and Disposal Facilities Section of the Public Facilities and Services Chapter satisfies the requirement of California Government Code Section 65302(a) for the designation of solid waste disposal facilities in the Land Use Element of the General Plan. This code requires that the land use element designate "the proposed general distribution and general location and extent of the uses of the land for solid and liquid waste disposal facilities."

Section 65302(a) also provides, in part, the means necessary for determining consistency between proposed facilities and the General Plan (required by Public Resources Code section 41702) and for determining consistency between the Countywide Siting Element of the Countywide Integrated Waste Management Plan and the General Plan (required by Public Resources Code section 41720).

With the passage of the California Integrated Waste Management Act (AB939) in 1989, local jurisdictions in California have new mandates related to solid waste that go beyond disposal. Programs to minimize and recover discarded resources are now required, and to achieve these mandates, "non-disposal" facilities, such as transfer stations, composting facilities and waste processing facilities (material recovery facilities), are necessary.

AB939 requires cities and/or counties to prepare and adopt a Countywide Integrated Waste Management Plan (CIWMP). The CIWMP must provide: a summary of the significant waste management problems facing the jurisdiction, an overview of the specific steps that local agencies will take to meet the goals of the Act and a statement of jurisdiction's goals and objectives relative to waste management. Ventura County, in cooperation with the cities and the county, prepared a CIWMP that was approved in April 2000.

The Countywide Siting Element of the CIWMP contains:

- Goals and policies for the environmentally safe transformation or disposal of solid waste that cannot be reduced, recycled or composted.

- An estimate of the total capacity that will be needed for a 15-year planning period to handle solid wastes generated within the county that cannot be reduced, recycled or composted.
- A statement of the remaining capacity of existing solid waste transformation and disposal facilities at the time that the element was prepared or revised.
- Specified siting criteria for new or expanded solid waste transformation or disposal facilities, consistent with the applicable county or city general plan.

The CIWMP and its Countywide Siting Element are Board of Supervisors' approved documents that express the intent of the Board regarding goals, policies and short-, medium- and long-range objectives, and siting criteria, for solid waste disposal or transformation facilities in Ventura County. The Public Facilities and Services Appendix of the General Plan complements the adopted policies of these documents.

In Ventura County, the private sector has traditionally serviced solid waste collection and disposal needs. Collection service providers in the unincorporated areas are privately owned. Disposal facilities are either privately owned or owned by a special district. The role of government in solid waste management is to provide planning, administration, facility approval and condition compliance. New facilities or expansions and other landfill uses require private sector initiative.

Wastes are categorized by the state into four general types: Hazardous, Designated, Municipal and Inert waste. As of 2001, only facilities for certain Designated, all Non-hazardous and Inert wastes exist in Ventura County. Hazardous wastes and certain types of Designated waste must be transported outside the county for disposal.

The following types of waste treatment and disposal facilities are included in this Section:

- **On-Site Septic Systems -** On-site septic systems, also referred to as individual sewage disposal systems (ISDS), are those liquid waste systems which dispose of sewage generated by individual residences and businesses in un-sewered areas. A conventional ISDS usually includes a septic tank and either a seepage pit or leach lines. Mound systems and subsurface sand filtration systems are two alternative ISDS that may be approved for use in areas where there are shallow soils over bedrock, high groundwater (either seasonal or permanent), or fractured bedrock. They are restricted for use only under specific conditions and guidelines in those areas of the County where community sewer systems are not available and on-site conditions preclude the use of conventional septic tank/soil absorption systems. Only domestic sewage (i.e., human waste from everyday living activities) can be discharged into a septic system.
- **Sewage Treatment Facilities** - Sewage treatment facilities collect water used for domestic, commercial and industrial purposes, treat it to remove organic and inorganic waste materials, and discharge the treated effluent to the environment. Operation of these facilities is regulated by State and Federal agencies to protect the County's surface and groundwater from biological and chemical pollutants. There are two categories of Sewage Treatment Facilities. They are as follows:

  Community Sewage Treatment Facilities are plants that treat liquid waste that is received from off of the plant site. They include public agency and privately owned facilities. These facilities are identified on the General Plan's Public Facilities Map (Figure 4).

  On-Site Wastewater Treatment Facilities are plants that treat liquid waste that is generated on the same project site where the plant is located, with both the plant and the project site under common ownership. These plants are sized and explicitly restricted to serve only the project site, and cannot serve uses off-site or under different ownership.
- **Solid Waste Disposal Sites -** Solid waste disposal sites are those facilities for the final deposition of wastes onto land. Wastes are categorized by the State into four general types: Hazardous, Designated, Municipal and Inert Waste. Currently, only certain Designated, all Nonhazardous and Inert wastes can be legally disposed of to land in Ventura County. Hazardous and certain types of Designated wastes must be transported outside of the County for disposal. Waste management units (disposal sites) for designated and nonhazardous wastes are operated pursuant to requirements and criteria established by the State Water Resources Control Board (SWRCB) and the California Integrated Waste Management Board (CIWMB) as well as many other agencies.

They are regulated and inspected by the staff of the Regional Water Quality Control Board (RWQCB), and the Ventura County Environmental Health Division, which is the Local Enforcement Agency (LEA) for the CIWMB.

- **Waste Transfer Stations -** Waste transfer stations are those facilities utilized to receive wastes from outside their permit boundaries to temporarily store and/or separate wastes or transfer the solid wastes directly from smaller to larger vehicles for transport.
- **Off-Site Waste Treatment Facilities -** Off-site waste treatment facilities are those facilities which accept wastes from outside their permit boundaries for treatment to change the physical, chemical, or biological characteristics of the waste so as to render it less harmful to the quality of the waters of the State, safer to handle, easier to contain or manage, including use as a fuel, nutrient or soil amendment.

Section 4.4 of the Public Facilities and Services Appendix describes each type of waste treatment and disposal facility by location and waste handled.

The goals, policies and programs that apply to waste treatment and disposal facilities are as follows:

4.4.1 Goals

1. Ensure the provision of adequate individual and public sewage/ waste collection, treatment and disposal facilities to meet the County's current and future needs in a manner which will protect the natural environment and ensure protection of the public's health, safety and welfare.
2. Ensure continuous waste disposal capacity to meet the County's current and projected waste disposal needs.

4.4.2 Policies

1. *Community sewage treatment facilities* and *solid waste disposal sites* shall be deemed consistent with the General Plan only if they are designated on the Public Facilities Map. *On-site septic systems* (i.e., *individual sewage disposal systems*), *on-site wastewater treatment facilities*, *waste transfer stations*, *off-site waste treatment facilities* and on-site storage facilities are consistent with the General Plan if they conform to the *goals, policies* and *programs* of the General Plan.
2. Any subdivision, or discretionary change in land use having a direct effect upon the volume of sewage, shall be required to connect to a public sewer system. Exceptions to this policy to allow the use of septic systems may be granted in accordance with County Sewer Policy. Installation and maintenance of septic systems shall be regulated by the County Environmental Health Division in accordance with the County's Sewer Policy, County Building Code, and County Service Area 32.
3. In order to reduce the need for additional wastewater treatment capacity, the County shall:
   - require new *discretionary development* to utilize water-conserving design features;
   - encourage the retrofitting of existing uses and buildings with water-conserving devices;
   - require that new wastewater lateral and trunk collection lines be designed to allow the minimum feasible amount of inflow and infiltration into the wastewater collection system.
   - periodically inspect existing lateral and trunk collection lines to identify areas subject to excessive inflow and infiltration and remedy identified problems as feasible.
4. *Discretionary development* adjacent to existing and proposed waste treatment, transfer and disposal sites, as identified in the Countywide Integrated Waste Management Plan, shall not conflict with the current and anticipated future use of these waste facilities.
5. Waste treatment and disposal operations shall be designed and conducted in a manner that is compatible with surrounding land uses such that the potential impacts are mitigated to less than significant levels, or, where no feasible mitigation measures are available, a statement of

overriding considerations consistent with CEQA shall be adopted. At the end of such operations, the site shall be restored to a use compatible with surrounding land uses.

6. Applicants for *discretionary development* shall be encouraged to employ practices that reduce the quantities of wastes generated and shall be requested to engage in recycling activities to further reduce the volume of waste disposed of in landfills.

4.4.3 Programs

1. The Public Works Agency, with the support of the Planning Division, will periodically update the County's Water Quality Management (208) Plan to incorporate revised population, land use and sewer plant capacity forecasts.
2. The County Public Works Agency will continue to work cooperatively with sanitation districts in the County toward the improvement and expansion of the existing public sewer systems consistent with the County General Plan.
3. The Environmental Health Division will continue to pursue the implementation of a *program* of regular inspection, monitoring and maintenance of *individual sewage disposal systems,* with an emphasis on public education.
4. The Solid Waste Management Department will investigate long-range solutions to solid waste management, emphasizing ecologically and environmentally sensitive solutions, including source separation, recycling, composting and the like.
5. The Solid Waste Management Department will prepare, maintain and update the Countywide Integrated Waste Management Plan as necessary.

4.5 Public Utilities

Public utilities, as addressed in this section, include electrical power, natural gas, telephone service, cable television service and communication equipment.

Electrical power to Ventura County is provided by the Southern California Edison Company, which owns and operates substations and transmission lines, and purchases electricity from a variety of different generating sources (e.g., oil and gas fired, solar, hydro-electric, geo-thermal and nuclear generators).

Southern California Gas Company supplies natural gas to all of Ventura County through a fixed transmission and distribution system.

Telephone service is provided by SBC California and Verizon Communications. Communities served by SBC include Fillmore, Moorpark, Ojai, Simi Valley, and Ventura; plus the unincorporated areas of Oak View, Piru and Saticoy. Verizon Communications is the result of a merger of GTE and Atlantic Bell telephone companies in 2000. They retained the GTE Western Regional Headquarters, which is located in Thousand Oaks. Verizon provides phone service to the cities of Camarillo, Oxnard, Port Hueneme, Santa Paula and Thousand Oaks; plus the unincorporated areas of Newbury Park, Somis and Westlake.

The television broadcast industry is in a state of flux in the early 21st Century. Satellite dish systems, with reduced dish sizes and hundreds of channels for viewing, are challenging cable television systems. Yet cable companies are expanding their cable systems to meet more communication flexibility, including computer services and “on demand” television technology.

By 2003, Adelphia Communications had taken over operations of all cable systems throughout Ventura County with the exception of the west side of the City of Ventura. That cable provider was the locally owned and operated Avenue Cable Company. By the end of 2003, both Adelphia and Avenue Cable companies had filed for bankruptcy. In mid-2005, it is unclear as to who the final owners and operators of local cable television will be, but Adelphia will continue to own and operate the majority of cable systems in the cities and the unincorporated portions of the County for the short run.

County communication equipment, operated by the County’s Information Systems Department, includes radio, microwave, and telephone switching equipment, which is located at 17 separate sites, including each of the three community colleges. In addition, there are other governmental and

privately operated communications equipment facilities (including radio and television transmitting and receiving antennas, radar stations, and microwave towers) scattered throughout the County's hilltops.

The goal and policies which apply to public utilities are as follows:

4.5.1 Goal

Promote the efficient distribution of public utility facilities and transmission lines to assure that public utilities are adequate to service existing and projected land uses, avoid hazards and are compatible with the natural and human resources.

4.5.2 Policies

1. New gas, electric, cable television and telephone utility transmission lines shall use or parallel existing utility rights-of-way where feasible and avoid scenic areas when not in conflict with the rules and regulations of the California Public Utilities Commission. When such areas cannot be avoided, transmission lines should be designed and located in a manner to minimize their visual impact.
2. All transmission lines should be located and constructed in a manner which minimizes disruption of natural vegetation and agricultural activities and avoids unnecessary grading of slopes when not in conflict with the rules and regulations of the California Public Utilities Commission.
3. *Discretionary development* shall be conditioned to place utility service lines underground wherever feasible.

4.6 Flood Control and Drainage Facilities

The Ventura County Flood Control District is a special district that was created in 1944 for the purpose of providing for the control of floods and storm waters originating within the District (County) or originating outside the District and flowing into it, to conserve such waters for beneficial use, to prevent waste or exportation of waters and to reclaim drainage, storm, and flood waters. The District includes all of Ventura County except the offshore Channel Islands of Anacapa and San Nicolas. The County is divided into four numbered flood zones: Zones 1-4. Boundaries of the first three zones generally follow the limits of the three major drainage systems of Ventura County:

Zone 1: Ventura River Watershed

Zone 2: Santa Clara River Watershed

Zone 3: Calleguas Creek Watershed

Zone 4: Includes the Cuyama River Basin and the remainder of the County.

In addition to the Ventura County Flood Control District, several other agencies responsible for providing drainage of storm waters from, or conveyance of storm waters through, the County include: (a) the various cities; (b) drainage and storm drain districts, and (c) Ventura County itself.

The Ventura County Flood Control District defines *red line channels* as channels over which the Flood Control District exercises regulatory jurisdiction. Regulatory jurisdiction does not imply ownership as some of the *red line channels* are owned by the Flood Control District and some are owned by others. These *red line channels* can either be improved or unimproved.

According to the County Flood Control District, there are a total of 486.46 miles of channels under County Flood Control regulatory jurisdiction.

The County Flood Control channels run the gamut from fully improved concrete channels to unimproved, natural channels. Fully improved channels include: rectangular, trapezoidal, box and pipe. Other channels include natural, shaped (but maintained) and pipe and wire channels.

The staff for the County Flood Control District is the Flood Control Department of the Public Works Agency. The Flood Control Department is also the responsible sponsoring local agency for Federal flood control projects throughout the County, and provides coordination for the Federal Flood

Insurance Program. In addition, the Department is coordinating with the Federal Government in studying coastal erosion and control.

Other functions include coordination of the importation of water into the County, flood fighting and disaster operations, review of land *developments* for flood hazards and effects on water quality, issuance of Watercourse Permits, and operation of a Flood Warning System.

The goal, policies and program which apply to flood control and drainage facilities are as follows:

4.6.1 Goal

Provide adequate and appropriate flood control and drainage facilities to protect life and property from damage or destruction from flood and storm waters.

4.6.2 Policies

1. All necessary flood control and drainage facilities shall be constructed to meet the minimum standards of the Public Works Agency and the County Flood Control District consistent with the *goals, policies* and *programs* of the General Plan.
2. *Discretionary development* shall be conditioned to provide flood control and drainage facilities deemed by the Public Works Agency and Flood Control District as necessary for the development, and shall be required to contribute toward flood control facilities necessitated by cumulative *development.*

4.6.3 Program

The Ventura County Flood Control District will periodically update the Comprehensive Plan for Flood Control.

4.7 Law Enforcement and Emergency Services

The Sheriff is the Chief Law Enforcement Officer for the County of Ventura and, as such, has jurisdiction over its unincorporated areas. In 1965, the Sheriff, through a contract, began to provide law enforcement services for the Cities of Thousand Oaks and Camarillo. In 1980, the City of Ojai also contracted for law enforcement services. The City of Moorpark became the fourth municipality to contract in July 1984. More recently, the City of Fillmore contracted for police services in June 1987. To accommodate the responsibilities of the Office of the Sheriff, the department is comprised of seven major divisions: Support Services, West County Patrol, East Valley Patrol, Central County Patrol, Special Services, Custody, and Court Services. The Sheriff's Department is headquartered in Ventura and maintains stations in Camarillo, Fillmore, Lockwood Valley, Moorpark, Ojai, and Thousand Oaks. A new East Valley Law Enforcement Facility located between Thousand Oaks and Simi Valley opened in 1989. As of the summer of 1996, the Sheriff's Department was staffed by 1,126 personnel; including 711 sworn officers.

Inmates in Ventura County are housed at three major facilities: the Pre-Trial Detention Facility located at the Ventura County Government Center in Ventura, the Todd Road Jail located south of Highway 126 between Ventura and Santa Paula and at the Ventura County Branch Jail-Honor Farm Facility at 370 West Baldwin Road in the Ojai Valley. The East Valley Substation at 2201 E. Olsen Road in Simi Valley has a temporary jail holding facility.

Both the Municipal Court and Superior Court are located in the Hall of Justice, located at the Ventura County Government Center Complex at 800 South Victoria Avenue, Ventura. Simi Valley also has a Municipal Court Branch located at 3855F Alamo Street, Simi Valley.

According to County Ordinance 2538, the Sheriff is Director of Disaster (Emergency) Services. Emergency Services planning in Ventura County is conducted in the Sheriff's Department, Support Services Division, Office of Emergency Services. The staff coordinates planning at each government level.

The eight major elements of the Office of Emergency Services work program includes:

1. Emergency Organization Planning and Management.
2. Direction, Control and Warning.

3. Population Protection.
4. Radioactive Contamination, Monitoring and Control.
5. Public Disaster Related Public Education and Emergency Public Information.
6. Emergency Support Services.
7. Hazard Analysis and Mitigation.
8. Multihazards Functional Planning Guidance.

The goals, policies and programs which apply to law enforcement and emergency services are as follows:

4.7.1 Goals

1. Provide for the protection of the public through effective law enforcement and emergency services.
2. Ensure that *discretionary development* provides adequate private security for the prevention of local crime.
3. The *goals* of the Sheriff's Department are to:
   - Provide optimum and efficient law enforcement services within the department's jurisdiction.
   - Provide full investigative services including major crime and crime lab services as requested Countywide.
   - Maintain and operate both pre-trial and sentenced custodial facilities and services for all adult clientele.
   - Provide court services and security for both the Superior and Municipal Courts. Provide all aspects of civil court process services.
4. The overall *goal* of the Corrections Services Agency is to provide for community protection by unifying and coordinating correctional services in Ventura County.
5. The overall *goal* of the Municipal Court is to:
   - Process all vehicular violations, and certain parking violations originating from municipal police agencies, Sheriff, Highway Patrol, and various other State and district enforcement agencies.
   - Process all filings involving small claims wherein the jurisdiction does not exceed $1,500, and civil process involving suits not exceeding $25,000.
   - Process misdemeanor offenses punishable by fine or imprisonment in County Jail, not to exceed one year. Offenses classified as infractions, and has jurisdiction over felony preliminary hearings.
6. The overall *goal* of the Superior Court is to provide trial court judicial services for all cases presented to it within its constitutionally established jurisdiction.
7. The overall *goal* of the Ventura County Sheriff's Department Office of Emergency Services is to save lives and protect property by developing *programs* and emergency operational capabilities that mitigate, prepare for, respond to, and recover from any emergency or disaster - whether peacetime or war-related.

4.7.2 Policies

1. The Sheriff's Department shall continue to review *discretionary* permits to ensure that an adequate level of law enforcement can be provided.
2. *Discretionary development* shall be conditioned to provide adequate site security during the construction phase (e.g., licensed security guard and/or fencing around the construction site,

and all construction equipment, tools, and appliances to be properly secured and serial numbers recorded for identification purposes).

3. *Discretionary development* shall be conditioned to provide adequate security lighting (e.g., parking lots to be well lighted with a minimum 1 foot candle of light at ground level, lighting devices to be protected from the elements and constructed of vandal resistant materials and located high enough to discourage anyone on the ground from tampering with them).
4. *Discretionary development* shall be conditioned to avoid landscaping which interferes with police surveillance (e.g., landscaping must not cover any exterior door or window, landscaping at entrances and exits or at any parking lot intersection must not block or screen the view of a seated driver from another moving vehicle or pedestrian, trees must not be placed underneath any overhead light fixture which would cause a loss of light at ground level).
5. The County Sheriff's Department shall maintain mutual aid agreements with incorporated cities to assure efficient service delivery and law protection to all areas of the County.

4.7.3 Programs

1. The County Sheriff's Department will continue to support efforts to organize neighborhood, rural, and industrial crime prevention programs, and conduct residential security surveys.
2. The County Sheriff's Department Office of Emergency Services will maintain and periodically update the Ventura County Multihazard Functional Plan including mitigation measures, preparedness, response, and recovery for the following ten hazard specific contingency sections (i.e. plans):
   - Major Earthquake
   - Major Hazardous Material Incident
   - Flood Hazard
   - Dam Failure
   - Nuclear Defense Emergencies (Nuclear Attack Threat Assessment)
   - Wildland Fire
   - Major Transportation Accidents
   - Landslide
   - Tsunami (& Seiche)
   - Off Shore Oil Incidents
3. The Office of Emergency Services will conduct public education *programs* for the citizens of the County on prevention and preparedness of natural and war-related hazards.

4.8 Fire Protection

The Ventura County Fire Protection District is a special district formed on May 16, 1928, and governed by the Board of Supervisors. The Ventura County Fire Protection District protects life and property by providing fire prevention, fire education, fire suppression, and rescue services. The Ventura County Fire Protection District operates 31 fire stations that serve the cities of Camarillo, Moorpark, Ojai, Port Hueneme, Simi Valley, and Thousand Oaks, and all unincorporated regions of Ventura County. The Fire Protection District, in 2004, had a staff of 554 full-time employees, including 419 uniformed employees. The Ventura County Fire Protection District is a partner in the California Master Mutual Aid system and maintains mutual aid agreements with other adjoining fire agencies. Besides the actual fighting of fires, a great deal of time is spent by the Fire Protection District on preventive measures and preparation for combating fires. Fire prevention consists of making inspections of buildings, schools, and homes, making recommendations for fire safety, and enforcing the Uniform Fire Code. Fire Prevention programs are also sponsored through the schools, service clubs, and other organizations.

The goal, policies and programs which apply to fire protection facilities and services are as follows:

4.8.1 Goal

Strive to reduce the loss of life and property by providing effective fire prevention, suppression and rescue services and facilities.

4.8.2 Policies

1. *Discretionary development* shall be permitted only if adequate water supply, access and response time for fire protection can be made available.
2. Fire stations shall be sited in locations central to the area served and on or near arterial highways so as to minimize call response time.

4.8.3 Programs

1. The Fire Protection District Bureau of Fire Prevention will continue to review all new *development* to ensure that an adequate level of fire protection can be provided.
2. The Fire Protection District will continue to retain mutual aid-agreements with all adjacent cities, and counties, incorporated cities within the County, military installations and other appropriate Federal agencies such as the U.S. Forest Service. The Ventura County Fire Protection District is a partner in the California Master Mutual Aid system.
3. The Fire Protection District will continue to participate in coordinating efforts of other Federal, State and local agencies to accomplish joint arson investigation and resource sharing.

4.9 Education and Library Facilities and Services

There are 20 public school districts serving the elementary and secondary school needs in Ventura County:

- Conejo Valley Unified School District (Thousand Oaks, Newbury Park and Westlake)
- Fillmore Unified School District (Fillmore, Bardsdale, Piru and Northeast portion of the County)
- Moorpark Unified School District (Moorpark)
- Oak Park Unified School District (Oak Park and Agoura)
- Ojai Unified School District (Ojai Valley)
- Simi Valley Unified School District (Simi Valley)
- Ventura Unified School District (Ventura, Montalvo, Oak View and Saticoy)
- Hueneme Elementary School District (Oxnard, Port Hueneme, and Hollywood Beach)
- Ocean View Elementary School District (Southern portion of Ventura County including Santa Monica Mountains Area)
- Oxnard Elementary School District (Oxnard and beach areas)
- Rio Elementary School District (El Rio and Oxnard areas)
- Mesa Union Elementary School District (rural area between Saticoy and Somis)
- Pleasant Valley Elementary School District (Camarillo, Camarillo Heights and Las Posas)
- Somis Union Elementary (Somis)
- Briggs Elementary School District (West rural Santa Paula)
- Mupu Elementary School District (North rural Santa Paula)
- Santa Clara Elementary School District (East rural Santa Paula)
- Santa Paula Elementary School District (Incorporated Santa Paula)
- Oxnard Union High School District (Oxnard, Port Hueneme and Camarillo area)
- Santa Paula Union High School District (Santa Paula area)

The primary function of the County Superintendent of Schools is to act as an intermediary agency between the Federal and State Government and the local school districts and private schools. In this capacity, the office assists school districts and private schools with administrative, business and fiscal, and educational affairs through the implementation of special programs, services, and legislative mandates.

The Ventura County Superintendent of Schools also provides a special education program, occupational training program and the Gateway Community Schools and Court School.

California State University Channel Islands opened its Camarillo campus in fall 2002. The state funded university will serve residents in Ventura, western Los Angeles, and southeastern Santa Barbara counties.

Ventura County Community College District is responsible for providing public community college education in Ventura County. The Community College District operates three colleges: Ventura College, Moorpark College, and Oxnard College. These colleges serve all communities in the County, except for an area to the northwest of the County that is served by the Kern Community College District.

Ventura County is served by four independent public library jurisdictions: the Ventura County Library, the City of Oxnard, Blanchard-Santa Paula Public Library and the City of Thousand Oaks.

The Ventura County Library operates 15 community, and special libraries. The County Library administrative office is located at 646 County Square Drive, Suite 150, Ventura. The ordering, automation, and cataloging facility is located at 196 South Fir Street, Ventura. Community and special libraries are located as follows:

- Avenue Library (Ventura)
- Camarillo
- Albert H. Soliz
- Fillmore
- E. P. Foster (Ventura)
- Historical Museum Library (Ventura)
- Meiners Oaks
- Moorpark
- Oak Park
- Oak View
- Ojai
- Piru
- R. D. Prueter (Port Hueneme)
- Saticoy
- Simi Valley
- H.P. Wright Library (Ventura)

The goals, policies and programs which apply to education and library facilities and services are as follows:

4.9.1 Goals

1. Promote quality public education services and educational facilities in order to achieve maximum opportunity for the education of residents of all ages and socioeconomic levels.
2. Goals of the Office of the County Superintendent of Schools are:
   - To provide leadership and direction in the development and implementation of the best possible educational programs throughout Ventura County.
   - To provide services, programs, and support for the purpose of maintaining the efficient and effective operation of district and County educational programs.
   - To operate Countywide educational programs for students when it is not feasible or practical for local districts to do so.
   - To maintain a public information program on educational matters.
   - To assist school district implementation of educational programs or procedures as mandated, requested or recommended by the State Department of Education.
3. The overall goal of the Ventura County Community College District is to meet the educational needs of all eligible students by offering comprehensive programs and services.
4. The goal of the California State University System is to provide eligible California students with high-quality, affordable access to higher education.
5. The goal of the Ventura County Library is to provide to all individuals free access to books, other materials, and services to support their informational, recreational, cultural and self-education needs.

4.9.2 Policies

1. School sites should be integrated with parks wherever possible.

2. School facilities should be available for community activities when feasible.
3. Community library facilities shall be sited in central locations of the community to be served. Site selection criteria shall consider:
   - Convenient access, preferably on or near the Community's major vehicular and pedestrian traffic routes.
   - Adequate off-street parking.

4.9.3 Programs

1. The Planning Division will continue to work with the County Superintendent of Schools Office and the various school districts in the County concerning school site dedications and fee assessments.
2. The County Planning Division will continue to coordinate an exchange of information with local school districts regarding school facilities needs and site planning for new schools in conjunction with new residential *developments*.
3. The Building and Safety Division will continue to collect the duly authorized *development* fees for school district projects prior to issuance of building permits.
4. School districts should continue to pursue conversion of those facilities that are no longer needed for public education to community uses such as parks, recreation center or private schools.
5. The Library Services Agency will continue to work with cities served in the development of financial partnerships to expand or replace existing facilities.

4.10 Parks and Recreation

In Ventura County the abundance of natural recreation resources has given rise to establishment of many recreation facilities. A wide variety of agencies provide these facilities. At the Federal level, Ventura County contains the Los Padres National Forest, the Santa Monica Mountains National Recreation Area and the Channel Islands National Monument. State parks and open space lands are located along the coast, within the Santa Monica Mountains area and at Hungry Valley State Recreation Area. The above facilities attract patronage from a much greater area than Ventura County alone. The Casitas Municipal Water District and United Water Conservation District provide facilities at Lake Casitas and Lake Piru respectively. At the local level, facilities are provided by the County, the cities and three recreation and park districts.

Recreation facilities can be divided into two main categories: regional and local. A *regional recreation area* is an extent of land which, by its unique natural character or unusual or extensive development, offers recreation opportunities that attract patronage from beyond the local vicinity without regard to physical, political or municipal boundaries. *Local parks* provide facilities to serve the daily needs of a neighborhood or group of neighborhoods within an urban community. The specific facilities should be determined by assessing the needs of the community. Recreation areas can also serve the ancillary purposes of preserving open space, providing water resources, buffering urban land uses and preserving biological, cultural and scenic resources.

The majority of County residents receive local park service from a local city or recreation and park district. The Pleasant Valley Recreation and Park District provides local park facilities in the Camarillo area. The Rancho Simi Recreation and Park District serves the Simi Area and the Rancho Conejo Recreation and Park District provides local and some regional facilities and an extensive trail system in the Thousand Oaks vicinity. The above District's service areas extend into unincorporated territory outside the principal cities. Other incorporated cities provide recreation services through their own recreation departments. Some cities also operate regional recreation facilities. The Public Facilities and Services Appendix contains a more extensive listing of recreation facilities.

The County of Ventura provides recreation services through the General Services Agency, Recreation Services. The primary focus of the County is to provide regional recreation facilities. The County also provides local park facilities in unincorporated areas of the County not served by other agencies. The County operates community recreation centers in Oak View, Casitas Springs, El Rio, Saticoy and Piru.

Trails are another category of recreation facility. The Los Padres National Forest and Santa Monica Mountains National Recreational Area contain extensive trail systems. Local trails exist in many areas of the County. The County, and many other public and private organizations, have been attempting to establish an interconnected trail network throughout the County. Trails can be established on public lands and easements or by obtaining easements through private lands.

Funding limitations on recreation services are a perennial problem. Decreasing availability of Federal and State revenues together with local funding shortages threaten the ability of the County to keep pace with service demand. Innovative utilization of donations, grant sources, volunteer labor and public-private joint ventures can fill the revenue gap. The County has adopted local parkland dedication requirements, (Quimby Ordinance), pursuant to the State Subdivision Map Act to fund the development and renovation of neighborhood and community recreation facilities.

The goals, policies and programs which apply to recreation facilities are as follows:

4.10.1 Goals

1. Acquire, develop and operate a system of recreation facilities to meet the recreation needs of County residents.
2. Pursue an equitable, independent, and reliable method of financing the planning, acquisition, *development*, operation and maintenance of recreation facilities.
3. Promote a coordinated effort by all government entities to assure the provision of a complete range of recreational opportunities for all ages and interests in all areas of Ventura County.
4. Promote the multi-use of existing physical resources through coordination with other public and quasi-public agencies (i.e., utility easements, flood control easements, school district facilities, etc.).
5. Establish or assist in the establishment of a Countywide network of trails which will meet the needs of equestrians, bicyclists, hikers and other trail user groups.
6. Provide, or encourage the provision of, *local park* and recreation facilities and *programs* to serve the residents of the unincorporated territory of Ventura County where an equitable financing plan can be established with minimal use of County General Fund revenues.
7. Ensure compatibility between recreation facilities and adjoining land uses.

4.10.2 Policies

1. The County shall maintain and enforce the local parkland dedication requirements (Quimby Ordinance), to acquire and develop neighborhood and community recreation facilities. Parkland dedication shall be based on a standard of five acres of local parkland per thousand population, including neighborhood and community parks.
2. *Discretionary development* which would obstruct or adversely impact access to a public recreation resource shall be conditioned to provide public access as appropriate.
3. Developers shall be encouraged to make unused open space available for recreation.
4. The County shall require reservation of land for public purchase, pursuant to the County Subdivision Ordinance, where requested by a recreation agency.
5. County facilities (e.g., flood control channels and easements) shall be made available for recreational use as appropriate.
6. New recreation facilities shall be consistent with the General Plan and Zoning Ordinance.

4.10.3 Programs

1. The General Services Agency will prepare and update a County Recreation Plan to evaluate demand, establish facility needs, and prioritize proposed facility development.
2. The General Services Agency will develop, implement and maintain an ordinance to collect development fees to provide for regional recreation facility development.

3. The General Services Agency will coordinate the location, planning, and functional use of all County recreation facilities with affected local governmental entities and, where feasible, promote joint acquisition and/or development to assure effective coverage of all needs.
4. The General Services Agency and Planning Division will review discretionary entitlement requests for impact to recreation opportunities and resources.
5. The General Services Agency shall prepare, for consideration by the Board of Supervisors, a Regional Recreation Facilities Fee Ordinance to fund regional recreational facilities. The proposed funds would finance acquisition of land and construction of a variety of facilities along the regional trails within the General Services Agency's jurisdiction, including equestrian, hiking and backpacking trailheads.

4.11 Other Public Buildings and Grounds

Federal installations, facilities and lands include defense installations (Point Mugu Pacific Missile Test Center and Naval Air Weapons Station and Port Hueneme's Naval Construction Battalion Center) and recreation and conservation oriented facilities and lands, including Los Padres National Forest. San Nicolas Island is part of the Navy's Pacific Missile Test Center Sea Test Range and is also one of the State's key wildlife and environmental preservation areas. Other Federal lands and facilities, including the Santa Monica Mountains National Recreation Area, Anacapa Island and the Channel Islands National Park Visitor Center, are discussed in the Public Facilities and Services Appendix (Section 4.10 on Parks and Recreation).

- Point Mugu Pacific Missile Test Center and Naval Air Weapons Station: The 4,500 acre Point Mugu facility is located at the western end of the agricultural lands of the Oxnard Plain, six miles southeast of Oxnard and 7½ miles southwest of Camarillo. Approximately 8,000 military and civilian personnel work at Point Mugu with an additional 3,000 dependents living in the area near the base. The main base complex houses extensive test laboratory and support facilities, and two runways capable of handling all modern aircraft types.
- Naval Construction Battalion Center Port Hueneme: Another Federal defense installation located in Ventura County is the U.S. Naval Construction Battalion Center located within the City of Port Hueneme. The center is home of the Navy's famous Seabees. This base covers more than 1,600 acres, has more than 40 miles of roads and streets and 26 miles of railroad tracks.
- Los Padres National Forest: The Los Padres National Forest covers 555,618 acres or 868.15 square miles of the 1,884 square mile area of Ventura County (approximately 46% of the land area of the County). Facilities within Los Padres National Forest include roads, trails, campgrounds, dams and buildings.
- San Nicolas Island: The 14,000 acre (21.875 square miles) island is located approximately 60 miles off the coast of Point Mugu. San Nicolas Island is part of the Navy's Pacific Missile Test Center Sea Test Range. Approximately 350 employees, including military and civilian, staff the outlying landing field and the Naval Facility at San Nicolas Island. San Nicolas Island is also one of the California's key wildlife and environmental preservation areas.

State public facilities and lands include the Camarillo State Hospital and California State Youth Authority (Ventura School). Hungry Valley State Vehicular Recreation Area and the various State parks and beaches are discussed in Section 4.10 of the Public Facilities and Services Appendix.

- Camarillo State Hospital: Camarillo State Hospital, built in 1932, is located 4 miles southeast of Camarillo on a 976 acre site, with the farm portion of 435 acres leased out. The State Hospital is licensed for 1,503 beds for the mentally disabled and developmentally disabled.
- California State Youth Authority (CYA) - Ventura School: CYA is located on a 110 acre site at the southwest corner of Wright Road and Beardsley Road, Camarillo, approximately 3 miles northwest of Camarillo City Hall. This site was formerly a Youth Authority institution for female offenders only. It presently a co-ed institution for youthful offenders ages 17-25.

Ventura County owns or leases a multitude of buildings and facilities. Most of these have been addressed in previous section of the Public Facilities and Services Chapter and in the Public Facilities and Services Appendix.

Ventura County buildings and facilities not previously discussed in earlier portions of the Public Facilities and Services Chapter are owned or leased by the following County agencies and/or departments:

- Agricultural Department (Agricultural Commissioner)
- Animal Regulation Department
- General Services Agency (GSA)
- Health Care Agency (HCA)
- Personnel Department
- Public Social Services Agency (PSSA)
- Public Works Agency (PWA)
- Resource Management Agency (RMA)

The goals, policy and programs which apply to other public buildings and grounds are as follows:

4.11.1 Goals

1. Ensure a continuing, cooperative planning and working relationship between the County of Ventura and the respective State and Federal Government Agencies in sharing information relative to existing and proposed State and Federal facilities.
2. Ensure that Federal and State facility planners are adequately informed of applicable County regulations, standards and land use *policies* in order to minimize conflicts with the County Planning Program.
3. Ensure that the location and design of new County buildings and grounds are consistent with the *goals, policies* and *programs* of the General Plan.

4.11.2 Policy

Proposed County buildings and grounds in the unincorporated area of the County shall be consistent with the *goals, policies* and *programs* of the County General Plan.

4.11.3 Programs

1. The County will continue to provide input on environmental documents for proposed modifications to Federal and State facilities to ensure all adverse consequences are adequately identified and mitigated as feasible.
2. The County will cooperatively work together with Federal and State Government Agencies to ensure that new expansions to existing State and Federal facilities or new facilities are compatible with the County General Plan and meet the needs of the County residents.
3. County agencies and departments will encourage Federal and State agencies to fully comply with the County General Plan and other County adopted regulations, standards and policies.

Figure 4
Public Facilities Map
(separate document)

[Click above to go to map]

Glossary

An attempt has been made to define all technical words contained in the text. If a technical word is not defined, often the word can be found in a standard dictionary. In using the glossary, the reader will note that many technical words appear within the definitions themselves. Definitions of these words can also be found in this glossary.

Acre-foot: A unit of volume of water equal to 325,900 gallons (43,560 cubic feet).

Active Fault: See *Fault*.

***Active Fault Zone*:** See *Fault*:: *Fault Zone.*

Airport: Any area of land or water which is used, or intended for use, for the landing and take-off of aircraft, and any appurtenant areas which are used, or intended for use, for airport buildings or other airport facilities or rights of way, and all airport buildings and facilities located thereon.

Archaeological Resources: The material remains (artifacts, structures, refuse, etc.) produced purposely or accidentally by human beings.

Attainment Area: An area which is shown by monitorial data or which is calculated by air quality modeling to be in compliance with any national ambient air quality standard.

***Average Daily Traffic (ADT)*:** The year-round daily average number of vehicle movements, combined for both directions, past a given point.

Bikeway: Means all facilities that provide primarily for bicycle travel. The following categories of bikeways are defined in Section 2373 of the Streets and Highways Code:

> ***Class I Bikeway****:* A bike path or trail within a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with cross flows by motorists minimized.
>
> ***Class II Bikeway***: A bike lane within a restricted road right-of-way designated for the exclusive or semi-exclusive use of bicycles with thorough travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross flows by pedestrians and motorists permitted.
>
> ***Class III Bikeway***: A bike route within a road right-of-way designated by signs or permanent markings and shared with pedestrians or motorists.

Biological Resources: Includes plant and animal species and their habitats, plant communities and ecosystems.

Building Coverage: The ratio of the area of land covered by buildings to total lot area, expressed as percent coverage. For purposes of this definition, "building" is any structure having a roof supported by columns or walls, and "building area" is the area included within the surrounding exterior walls or columns of a building, exclusive of courts.

Catastrophic Earthquake: An earthquake having a magnitude (M) of 8.3 or greater.

Candidate Species: Any species that is under consideration for a Federal designation by the Secretary of the Interior, but has not yet received that designation and is designated "candidate" by the U.S. Fish and Wildlife Service.

City Thoroughfare: A *thoroughfare* located within and maintained by a city.

Coastal Habitat: Environmentally sensitive habitat areas in the Coastal Zone which support plant or animal life, including coastal waters, intertidal areas, estuaries, lakes, wetlands and sand dunes.

Community Sewage Treatment Facilities: Plants that treat liquid waste that is received from off of the plant site. They include public agency and privately owned facilities. See *On-Site Wastewater Treatment Facilities*.

Conservation: The management of natural resources to prevent waste, destruction, or neglect.

County thoroughfare: A *thoroughfare* located within the unincorporated area and maintained by the County.

Cultural Resources: Is most frequently identified with prehistoric or historic items. These include prehistoric districts, sites, structures, artifacts and other evidence of human use considered to be of importance to a culture, subculture, or a community for traditional, religious, scientific or other reasons.

Dam: Any artificial barrier, together with appurtenant works, which impounds or may impound or divert water, and which either:

(a) is or will be 25 feet or more in height from the natural bed of the stream or watercourse at the downstream toe of the barrier, as determined by the State Department of Water Resources, or from the lowest elevation of the outside limit of the barrier, as determined by the State Department of Water Resources, if it is not across a stream channel or watercourse, to the maximum possible water storage elevation, or

(b) has or will have an impounding capacity of 50 acre-feet or more.

Dam Inundation: The flooding that occurs as the result of structural failure of a dam.

Development: The subdivision of land; construction or alteration of structures, roads, utilities, and other facilities; installation of septic systems; grading activities; depositing of refuse; disposal of any material; dredging or mineral extraction, debris or fill materials; and the clearing of natural vegetation with the exception of agricultural activities. Routine repair and maintenance activities are not included.

Discretionary Development: Any development proposal, project or permit which requires the exercise of judgment, deliberation, or decision on the part of the decision-making authority in the process of approving or disapproving a particular activity, as distinguished from situations where the decision-making authority merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations.

Disposal Site: The location where any final abandonment, discard, or deposition of waste occurs.

Drilling Mud: A dense colloidal slurry or gel used in oil and gas drilling, and circulated through the well bore to facilitate the drilling process. Drilling mud is generally composed of bentonite clay, fresh water or saturated salt mixtures, and barite or naturally occurring barium sulphate ore. Oil-based drilling muds are considered hazardous wastes because they usually contain heavy metals or other toxic substances.

Earthquake Fault Hazard Zone(s): Zones delineated by the California State Geologist to encompass *active faults*. The Alquist-Priolo Earthquake Fault Zoning Act is intended to provide policies and criteria to assist local and state agencies in regulating development near active faults so as to mitigate the hazard of surface fault rupture. Note: The Act was amended resulting in a name change from "Alquist-Priolo Special Studies Zone Act " to "Alquist-Priolo Earthquake Fault Zoning Act."

Endangered Species: A species listed as Endangered by the State or U.S. Fish and Wildlife Service. Generally, any native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range other than a species of the Class Insecta determined by the Secretary of the Interior or Commerce to constitute a pest whose protection under the provisions of this Chapter 35 of Title 16 of the U.S. Code would present an overwhelming and overriding risk to man.

Environmentally Sensitive Biological Resource Area: Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Essential Facilities: Structures or buildings that must be safe and usable for emergency purposes after a natural or human-induced disaster in order to preserve the health and safety of the general public. Such facilities, as defined in the California Building Code, are:

- Hospitals and other medical facilities having surgery or emergency treatment areas.
- Fire, police, and sheriff stations.
- Tanks or other structures containing, housing or supporting water or other fire-suppression materials or equipment required for protection of essential or hazardous materials facilities or special occupancy structures.

- Emergency vehicle shelters and garages.
- Structures and equipment in emergency-preparedness centers.
- Stand-by power generating equipment for essential facilities.
- Structures and equipment in government communication centers and other facilities required for emergency response.

  (see Special Occupancy Structure)

Expansive Soils: Soils that expand or swell (increase in volume) when wet and contract or shrink (decrease in volume) when dried.

Expressways: Roadways similar to freeways except that they do not have grade separated interchanges.

Extinct: Ceased to exist. No longer living.

Farmland of Local Importance: A category of the Important Farmlands Inventory. Generally includes lands of importance to the local agricultural economy, as determined by each County. Such lands support a crop that is crucial key to the local economy. This farmland is not irrigated and includes such dry land crops as beans or grain.

Farmland of Statewide Importance: A category of the Important Farmlands Inventory. Generally includes lands with a good combination of physical and chemical features for the production of agricultural crops. The criterion is basically like that of prime farmland but there is no minimum soil depth limitation and no permeability restriction. They have broader water holding capacity and moderate erosion hazard.

Fault: A fracture in the earth's crust accompanied by displacement of one side of the fracture with respect to the other side. This term is used in the following contexts:

> ***Active Fault***: A *fault* that has had surface displacement within the last 11,000 years (Holocene Time). Faults that lack evidence for Holocene displacement at a particular locality may be determined to be active based on data from another locality.
>
> ***Fault Hazard Area***: Land within about 660 feet of *active faults*. These areas generally require the evaluation of the fault hazard prior to any planned development for human occupancy.
>
> ***Fault Trace***: The line formed by the intersection of a *fault* with the earth's surface.
>
> ***Fault Zone***: A fault that is exposed as a zone of numerous fractures or breaks.
>
> ***Inactive Fault***: A fault that shows no evidence of movement in the last 1.6 million years.
>
> ***Potentially Active Fault***: A fault known to have been active in the Pleistocene Epoch (last 1.6 million years), but cannot be shown to be inactive in the Holocene Period, or a fault that has a high potential for surface rupture and is well defined as a physical surface feature.

Federal Highway: A numbered federal route (i.e., U.S. 101 - Ventura Freeway).

Fire Break: A natural or artificial barrier where vegetation has been removed for fire control purposes. (see *Fuel Break*)

Fire Hazard Area: An area where, due to slope, fuel, weather, or other fire-related conditions, the potential loss of life and property from fire necessitates special fire protection measures and planning before development occurs.

Flood Plain: A plain bordering a river or stream subject to flooding. The flood plain is divided into two hazard areas:

> ***Floodway***: The portion of the flood plain that carries the deep and fast-moving water (usually defined as the area needed to contain a 100-year storm flow).
>
> ***Flood Fringe Area***: The remainder of the flood plain, subject to shallow, slow moving water.

Flowage Easement: An easement that is utilized to define an area subject to flooding and which allows an agency to inundate the land with flood water and prevent obstruction of flow.

Freeways: Roadways that primarily carry intercity and regional traffic via controlled access divided roads with grade-separated interchanges and no access to adjacent properties.

Fuel Break: Wide strips of land on which plants have been thinned, trimmed or pruned, or have been changed to types, which burn with lower intensity so that fires can be more easily extinguished. (see *Fire Break*)

Fuel Modification Zone: See *Fuel Break*.

Gas Scrubber Sludge: The liquid or slushy waste remaining after wet gas is put through a water or chemical wash to remove impurities and debris such as silt and clay. This waste can be considered hazardous because of Sulphur and hydrocarbon content.

Goal: The ultimate purpose of an effort stated in a way that is general in nature.

Grazing Land: Lands on which the existing vegetation is suited to the grazing of livestock.

Greenbelt Agreement: A joint resolution between interested cities and/or the County to protect open space and agricultural lands and to reassure property owners located within these areas that lands will not be prematurely converted to agriculturally incompatible uses.

Guidelines for Orderly Development: A policy document adopted by the County, cities and LAFCO. The intent of the Guidelines is to clarify the roles and responsibilities of the cities, the County and LAFCO regarding urban development within the Spheres of Influence of the various cities and Areas of Interest.

Habitable Structure: A building or structure suitable for living, sleeping, eating or cooking.

Hazardous Building: A substandard, unsafe or dangerous building as defined in the codes adopted by reference in the Ventura County Building Code.

Hazardous Materials Storage Facilities: Structures, as defined in the Building Code, for housing, supporting or containing sufficient quantities of toxic or explosive substances to be dangerous to the safety of the general public if released.

Hazardous Material: Any material that because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include hazardous substances, *hazardous waste*, and any material which a handler or the administration agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (California Health and Safety Code section 25501). Such material may be classified as poisons, corrosive chemicals, flammable material, explosives and oxidizers and reactive materials or substances when tested in accordance with the criteria in California Code of Regulations, Title 22.

Hazardous Waste: Any waste or combination of wastes, which because of its quantity, concentration, physical or chemical, or infectious characteristics, (a) may either cause or significantly contribute to serious illness or death or an increase in serious irreversible or incapacitating reversible, illness (Hazardous Waste Control Act), or (b) may pose a substantial present or potential threat to human health or the environment when improperly managed. These substances may be poisons, corrosive chemicals, flammable materials, explosives and oxidizers and reactive materials or substances when tested in accordance with the criteria in California Code of Regulations, Title 22.

Hazardous Waste Site: The location where hazardous waste is handled, stored, treated or disposed.

High Fire Hazard Area: An area in the unincorporated territory of the County designated by the County Fire Protection District as an area of uncultivated brush, grass, or forest-covered land, and land within 500 feet of such area, wherein authorized representatives of said District deem a potential fire hazard to exist due to the presence of such flammable material.

Historical Resources: The material and nonmaterial expressions of human adaptations that characterized the post-contact or historic period. These resources include historic event or activity

sites, historic archaeological sites, standing architecture and other significant properties and documents and other sources of historical information, objects of material culture, and secondarily, the more nonmaterial cultural qualities such as folklore, social organization, and value systems which are associated with these properties.

Inactive Fault: See *Fault*.

Incident: Any occurrence that causes the use of emergency resources.

Income Categories: Various categories of income as defined by the U.S. Department of Housing and Urban Development (HUD):

Upper-Income: Greater than 120% of County median income.

Moderate-Income: Less than 120%, but greater than 80% of County median income.

Lower-income: Category of income comprised of low-income, very low-income, and extremely low-income.

Low-income: Less than 80%, but greater than 50% of County median income.

Very low-income: Less than 50%, but greater than 30% of County median income.

Extremely low-income: Less than 30% of County median income.

Individual Sewage Disposal System (ISDS): See *On Site Septic Systems*.

Landslide/Mudslide: The movement of a mass of rock, soil, or mixture of both (debris/mud flow) down a slope. Landslides can be classified in two ways: the first describes the material and the second describes the type of movement (e.g. rock fall, mudflow). The type of material is usually one of three; rock, debris, soil. The movement is grouped into one of five types: falls, topples, slides, spreads, and flows.

Landslide/Mudslide Hazard Area: An area with a high potential for landsliding, such as landslide deposits, very steep slopes, areas within or adjacent to fault zones, areas with adverse geological formations which are susceptible to failure and areas where the availability of water influences the strength of the slope forming materials.

Lanes: The number of through traffic lanes exclusive of merging and acceleration/deceleration lanes.

Leachate: Contaminants such as fertilizer residues, industrial chemicals and landfill wastes percolate through soil by the action of a liquid, such as water.

Level of Service (LOS): The traffic condition of a road/intersection based on a six-step hierarchy outlined as follows:

LOS	Traffic Conditions
"A"	Free uninterrupted low volume flow at high speeds with no restriction on maneuverability (lane changing) and with little or no delays.
"B"	Stable flow with some restrictions to operating speed occurring.
"C"	Stable flow but with speed and maneuverability restricted by higher traffic volumes. Satisfactory operating speed for urban locations with some delays at signals.
"D"	Approaching unstable flow with tolerable operating speeds subject to considerable and sudden variation, little freedom to maneuver and with major delays at signals.
"E"	Unstable flow with volume at or near capacity, lower operating speeds and major delays and stoppages.

"F" Forced flow operation with low speeds and stoppages for long periods due to downstream congestion. Volumes below capacity.

Liquefaction: A process by which water-saturated granular soils change from a solid to a liquid state, usually as a result of ground shaking.

Liquefaction Hazard Area: An area with a potential for liquefaction.

Littoral Cell: A section of shoreline where the flow of sand begins at a major sediment source and terminates at a major sediment sink, such as a submarine canyon.

Locally Important Community: A plant or animal community that is considered by qualified biologists to be a quality example characteristic of or unique to the County or region.

Locally Important Species: A plant or animal species that is not an endangered, threatened or rare species, but which is considered by qualified biologists to be a quality example or unique species within the County or region. This term includes any species that is under consideration for a designation of "endangered", "threatened" or "rare".

Local Park: Is a facility that provides recreation opportunities, including programmed activities and/or passive leisure facilities to serve the daily needs of a neighborhood or group of neighborhoods within an urban community.

Local Road Network: The road system in Ventura County consisting of County and city maintained *local streets/roads.*

Local Streets/Roads: Roads not depicted on the Public Facilities Map (Ventura County General Plan Goals, Policies and Programs – Figure 4). Most such roads are intended primarily to provide direct access to adjacent properties and do not convey substantial volumes of through traffic.

LOS: See *Level of Service*.

Major Collectors: County or city *thoroughfares* that carry traffic between local streets/roads and arterials and have access to adjacent properties.

Mineral Resource Development: The exploration for or extraction of surface or subterranean compounds and materials; this includes oil and gas exploration and production, and the mining of metallic and nonmetallic minerals, sand, gravel and rock.

Mineral Resource Zones (MRZ's): The County's aggregate resources are classified by the State as one of several different mineral resource zone categories (MRZ-1, MRZ-2, MRZ-3, MRZ-3(a) and MRZ-4). These classifications are generally based upon the relative knowledge concerning the resource's presence and the quality of the material. The State-adopted definitions of each classification follow:

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. This zone shall be applied where well developed lines of reasoning, based upon economic geologic principles and adequate data, demonstrate that likelihood for occurrence of significant mineral deposits is nil or slight.

MRZ-2: Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.

MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

MRZ-3(a): Areas, judged on the basis of the limited available geologic data and fieldwork, to have higher potential as sources of aggregate material suitable for Portland cement concrete than other deposits classified MRZ-3.

MRZ-4: Areas where available information is inadequate for assignment to any other MRZ zone.

Mining: A form of mineral resource development involving the extraction and removal of more than 1,000 cubic yards of material from the same site, through such activities and uses as borrow areas, sand, gravel and rock quarries, etc. Mining does not include extraction and removal of material from construction sites or following floods, landslides or natural disasters where the land is being restored to its prior condition.

Minor Collectors: Roads which are similar to major collectors but do not function as thoroughfares (not shown on the Regional Road Network maps).

***Multihazard Functional Plan*:** A State mandated planning document prepared and maintained by the Sheriff's Office of Emergency Services that includes mitigation measures, preparedness responses and recovery strategies for twelve specific hazard contingency areas of concern.

Noise Sensitive Use: Dwellings, schools, hospitals, nursing homes, churches and libraries.

Nonattainment Area: An area which is shown by monitorial data or which is calculated by air quality modeling to exceed any national ambient air quality standard.

Nonpoint Source Pollutants: Pollutants that wash off, run off, or seep from broad areas of land or water.

Notice of Hazards: A recorded notice filed with the County Recorder based upon a geologic and/or soil report, which identifies a known hazard located on a portion of the described property. This Notice of Hazard is recorded to protect potential buyers of real estate in areas of known natural hazards. Examples of natural hazards include: fault hazard, ground shaking, liquefaction, landslide/mudslide, subsidence, expansive soil, flood hazards and coastal wave hazards and erosion.

Off-Site Waste Treatment Facilities: Those facilities which accept wastes from outside their permit boundaries for treatment to change the physical, chemical or biological characteristics of the waste so as to render it less harmful to the quality of the waters of the State, safer to handle, easier to contain or manage, including use as a fuel, nutrient or soil amendment.

On-Site Septic Systems: Those liquid waste systems that dispose of sewage generated by individual residences and businesses in unsewered areas. A conventional *Individual Sewage Disposal System (ISDS)* usually includes a septic tank and either a seepage pit or leach lines. Mound systems and subsurface sand filtration systems are two alternative ISDS that may be approved for use in areas where there are shallow soils over bedrock, high groundwater (either seasonal or permanent), or fractured bedrock. They are restricted for use only under specific conditions and guidelines in those areas of the County where community sewer systems are not available and on-site conditions preclude the use of conventional septic tank/soil absorption systems. Only domestic wastes (i.e., human waste from everyday living activities) can be discharged into a septic system.

On-Site Wastewater Treatment Facilities: Plants that treat liquid waste that is generated on the same project site where the plant is located, with both the plant and the project site under common ownership. These plants are sized to serve only the project site, and cannot serve uses off-site or under different ownership.

Open Space: Is any parcel or area of land or water which is essentially undeveloped for human use and devoted to an open space use, such as the preservation of natural resources, managed production of resources, outdoor recreation, and preservation of public health and safety.

Paleontological Resources: The fossilized remains of ancient plants and animals.

Permanent potable water supply - A continuous water supply source and delivery system that will serve a *development* for its expected life span. "Life span" means the period of time that the land uses and structures are expected to be in existence or utilized.

Point Source Pollutants: Pollutants that enter the water from discernible, confined, and discrete conveyances (such as sewer pipes, culverts, tunnels, or other channels or conduits). These include seawater intrusion, agricultural erosion, septic tanks, and storm water runoff.

Policy: A specific statement guiding action and implying clear commitment.

Potentially Active Fault: See *Fault*.

Preservation: Use of long-term or permanent safeguards to guarantee the viability of natural or man-made resources.

Primary Arterials: County or city thoroughfares (usually six or more lanes- divided) primarily for the purpose of the movement of through traffic with limited access to abutting property.

Prime Farmlands: A category of the Important Farmlands Inventory. Generally includes land with the best combination of physical and chemical characteristics for the production of crops. Prime farmlands are irrigated soils over 40 inches deep with a water holding capacity of four inches or more. They are generally well drained, free from frequent flooding, and have very slow sub-soil permeability or freezing soil temperature.

Program: A coordinated set of measures to carry out goals and policies.

Protected Resource: Is a mapped designation that appears on the Resource Protection Map and serves to identify areas of the County that contain resources identified in the Resources Chapter as needing special regulatory measures.

Rare Species: A species listed as Rare by the State. Generally any species that exists in such small numbers, or is so limited geographically, or that is unable to displace other species in competition, or is under protection or management programs, such that it may be endangered if its habitat was reduced or significantly altered.

Red Line Channels: Channels over which the Watershed Protection District exercises regulatory jurisdiction.

Regional Recreation Area: An extent of land which, by its unique natural character or unusual or extensive development, offers recreation opportunities that attract visitors from beyond the local vicinity without regard to physical, political or municipal boundaries.

Regional Road Network: The road system in Ventura County consisting of the following roads:

- Federal highways
- State highways
- County thoroughfares
- City thoroughfares

Regulatory Flood: The magnitude of the flood chosen by a governmental agency for planning purposes.

Release of Hazardous Material: Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous material.

Renewable Energy: Energy sources that are not depleted by use and are available as natural flows of energy and materials in the environment, e.g. solar, wind, falling water, plant matter, and by-products of human activities.

Renewable Resources: Self-perpetuating types of resources; living or biotic resources and resources that are finite in quantity but can be reused, such as air and water. Other renewable natural resources include solar, wind, biomass, and water resources.

Reservoir: Any receptacle that contains or will contain the water impounded by a dam.

Resource Protection Map: The policy map of the Goals, Policies and Programs Resources Chapter (Figure 1), that delineates Mineral Resource Areas, Scenic Resource Areas and Scenic Highway Areas.

Road Cross Section: See *Lanes*.

Selected Flood: See *Regulatory Flood*.

Scenic Highway Area: The viewshed corridor one-half mile on both sides of a state or County designated scenic highway as shown on the Goals, Policies and Programs Resource Protection Map (Figure 1).

Scenic Resource Area: 1) Scenic resource areas are areas as may be identified by an area plan; and 2) The area encompassing lakes and the viewshed extending from the lakes to the highest ridgeline surrounding the lakes. The County lakes included are: Lake Casitas, Lake Matilija, Lake Piru, and Lake Sherwood. Scenic Resource Areas are depicted on the Resource Protection Map (Figure 1).

Scenic Route: A street, drive, road, highway, or freeway deemed scenic.

Secondary Arterials: County or city thoroughfares (usually four lanes-divided) that connect other arterials and major collectors for the purpose of through traffic with some access to commercial/industrial developments but generally restricted access to residential areas.

Seiche (saysh): A wave that oscillates in an enclosed or partially enclosed body of water.

Seiche Hazard Area: An area surrounding all existing reservoirs and lakes. For smaller water bodies the hazard area is arbitrarily set to an elevation of ten feet above the normal water level.

Service Level: See *Levels of Service*.

Sewage Treatment Facilities: Facilities that collect water used for domestic, commercial and industrial purposes, treat it to remove organic and inorganic waste materials, and discharge the treated effluent to the environment. (See *Community Sewage Treatment Facilities* and *On-Site Wastewater Treatment Facilities*).

Shoreline Protective Devices: Seawalls, revetments, breakwaters, and other such construction that alters shoreline processes.

Site: One or more lots planned and developed as a unit under one permit.

Soils Capability Classes: Classification of the suitability of soils are designated by Roman numerals I through VIII. The numerals include progressively greater limitations and narrower choices for practical use. The groups are made according to the limitations of soils when used for field crops, the risk of damage when they are used, and the way they respond to treatment.

> ***Class I Soils***: Have few limitations that restrict their use.
>
> ***Class II Soils***: Have some limitations that reduce the choice of plants or require moderate conservation practices.

Solid Waste Disposal Sites: Are those facilities for the final deposition of wastes onto land. Wastes are categorized into four general types: Class I (Hazardous); Class II (Designated Wastes); Class III (Municipal); and inert waste.

Special Occupancy Structure: A category of structures as defined in the California Building Code. They are:

- Covered structures whose primary occupancy is public assembly with a capacity of more than 300 persons.
- Buildings for schools through secondary or day-care center with a capacity of more than 250 students.
- Buildings for colleges or adult education schools with a capacity for more than 500 students.
- Medical facilities with 50 or more resident incapacitated patients; but not including hospitals and other medical facilities having surgery and emergency treatment areas, which are *Essential Facilities*.
- Structures and equipment in power generating stations and other public utility facilities that are not identified as *Essential Facilities*, and required for continued operation.
- Jails and detention facilities.

- All structures with an occupancy of more than 5,000 persons.

(See *Essential Facilities*)

State Highway: A numbered state route.

Subsidence: Any settling or sinking of the ground surface arising from the withdrawal of fluids, typically oil, gas and water or from decay of materials (peat oxidation).

Surface Mining and Reclamation Act of 1975 (SMARA): The State Legislature in 1975 enacted this act to ensure the proper reclamation of surface mining operations and to safeguard access to mineral resources of regional and statewide significance in the face of competing land uses and urban expansion.

Tank Bottoms: Clay and other solids that separate out of well fluid components. These solids contain mineral salts, organic compounds, and a fraction of dense, oil-based compounds.

Tenure: The ownership or rental status of a unit.

Thoroughfare: A road that is either a primary arterial, a secondary arterial or a major collector and is depicted on the Public Facilities Map (Ventura County General Plan Goals, Policies and Program – Figure 4).

Threatened Species: A species listed as Threatened by the State or U.S. Fish and Wildlife Services. Generally, any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Tsunami *(tsoo naa' me)*: A traveling ocean wave of extremely long wavelength and period, generated by disturbances of the ocean floor, typically associated with earthquakes, volcanoes or major submarine landslides.

Unique Biological Resources: A biotic resource whose presence is unusual and of special interest due to extremities of range, special soil types, or unusual associations with other species.

Unique Farmlands: A category of the Important Farmlands Inventory. Generally includes lands of lesser quality soils used for the production of the State's leading agricultural cash crops. It has the special combination of soil quality, location, growing, season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods.

Viewshed: The area within view from a defined observation point.

Waste Site: The location where waste is stored, collected, processed, reused, converted or disposed.

Waste Transfer Stations: Those facilities utilized to receive wastes from outside their permit boundaries to temporarily store and/or separate wastes, or transfer the solid wastes directly from smaller to larger vehicles for transport.

Water Reclamation: The recycling or reuse of either treatment plant effluent (wastewater) or industrial process water.

Wetland Habitats: Plant communities that are associated with *wetlands*.

Wetlands: Lands that are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water. The frequency of occurrence of water is sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs, vernal pools, wet meadows, river and stream overflows, mudflats, ponds, springs and seeps.

Wildlife Migration Corridor: Linear spaces that connect the various areas of an animal's habitat, and serve as links between feeding, watering, resting and breeding places. These corridors are especially important to larger, wider- ranging animal species.

Williamson Act: A California Statute which allows local government to enter into long-term contracts with agricultural landowners by lowering property taxes as an incentive to continue agricultural use of the land. Also known as the California Land Conservation Act of 1965.

Appendix M

Ventura County Agricultural Irrigated Lands Group 2008 Water Quality Monitoring Plan

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August 15, 2009

VENTURA COUNTY AGRICULTURAL IRRIGATED LANDS GROUP (VCAILG)

2008 WATER QUALITY MANAGEMENT PLAN

submitted to:

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

prepared by:

LARRY WALKER ASSOCIATES

On behalf of the:

VENTURA COUNTY AGRICULTURAL IRRIGATED LANDS GROUP (VCAILG)

LARRY WALKER ASSOCIATES

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Acronyms

BMP	Best Management Practice
CC	Calleguas Creek
CCWTMP	Calleguas Creek Watershed TMDL Monitoring Program
CWA	Clean Water Act
DPR	Department of Pesticide Regulation
DQO	Data Quality Objective
EPA	Environmental Protection Agency
IPM	Integrated Pest Management
LARWQCB	Los Angeles Regional Water Quality Control Board (Regional Board)
MRP	Monitoring and Reporting Program
NOA	Notice of Applicability
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
OC	Organochlorine
OP	Organophosphorus
QAPP	Quality Assurance Project Plan
RCD	Resource Conservation District
SCR	Santa Clara River
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UCCE	University of California Cooperative Extension
USDA	United Stated Department of Agriculture
VCAILG	Ventura County Agricultural Irrigated Lands Group
VR	Ventura River
WQMP	Water Quality Management Plan

Introduction

On November 3, 2005 the Los Angeles Regional Water Quality Control Board (Regional Board) adopted a *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* ("Conditional Waiver", Order No. R4-2005-0080). The purpose of the Conditional Waiver is to assess the effects of and control discharges from irrigated agricultural lands in Los Angeles and Ventura Counties, including irrigation return flows, flows from tile drains, and stormwater runoff. These discharges can affect water quality by transporting nutrients, pesticides, sediment, salts, and other pollutants from cultivated fields into surface waters, potentially impairing designated beneficial uses. Owners and operators of agricultural lands in Ventura and Los Angeles Counties must comply with provisions contained in the Conditional Waiver or be regulated under other Regional Board programs.

The Conditional Waiver allows individual landowners and growers to comply with its provisions by working collectively as a Discharger Group, or as an individual. A Discharger Group is defined by the Conditional Waiver as "any group of dischargers and/or organizations that form to comply with this Conditional Waiver. Discharger Groups can be, but are not limited to, organizations formed on a geographic basis or formed with other factors in common such as commodities." The primary purpose of allowing Discharger Groups is to encourage collaboration on monitoring and reporting and to increase the effectiveness of management practices throughout a watershed to attain water quality standards. Those landowners and growers choosing to comply with the Conditional Waiver as a Discharger Group must signify by submitting a Group Notice of Intent and by developing a Discharger Group monitoring program.

To assist agricultural landowners and growers that farm within the boundaries of Ventura County, various agricultural organizations, water districts and individuals joined together to form the Ventura County Agricultural Irrigated Lands Group (VCAILG), which is intended to act as one unified "Discharger Group" for those agricultural landowners and growers that wish to participate. A Notice of Intent (NOI) to comply with the Conditional Waiver was submitted to the Regional Board by the VCAILG on August 3, 2006. The NOI included the VCAILG membership roster, as well as the required Quality Assurance Project Plan (QAPP) and Monitoring and Reporting Program Plan (MRP), which detail the water quality monitoring and reporting procedures being conducted in compliance with the terms of the Conditional Waiver. The Regional Board responded by issuing the Notice of Applicability (NOA) to the VCAILG on December 18, 2006, signifying the Regional Board's approval of the VCAILG and its Monitoring Program.

The first Annual Monitoring Report was submitted by the VCAILG to the Regional Board on February 15, 2008 and provided a detailed summary of activities of the VCAILG during 2007, including administration of the VCAILG, an overview of farming in Ventura County and obstacles faced by the VCAILG members, coursework offered to Group members to fulfill the Conditional Waiver's education requirement, a list of education hours completed to date by each member, and monitoring data collected during the three monitoring events conducted. Also included in the Annual Monitoring Report was a discussion of monitoring results that exceeded water quality benchmarks.

As specified in the Conditional Waiver, if the monitoring results show that an applicable water quality benchmark has not been met, then a Water Quality Management Plan (WQMP) must be

developed. As outlined in the Monitoring and Reporting Program for discharger groups, the WQMP is designed to:

1. Assess the impacts of waste discharges from irrigated lands to surface waters through source identification.
2. Determine the degree of implementation of management practices to reduce discharge of specific wastes that impact water quality.
3. Determine the effectiveness of management practices and strategies to reduce discharges of waste that impact water quality.
4. Determine concentration and load of waste in these discharges to surface waters.
5. Construct or implement management practices to alleviate the impacts of the waste discharges.
6. Evaluate compliance with existing narrative and numeric water quality objectives to determine if additional implementation of management practices are necessary to improve and/or protect water quality.
7. Construct or implement additional management practices or provide technical documentation of natural, historical, or existing conditions.

The Conditional Waiver also includes language in various sections that require the WQMP to include:

- Concrete steps with specific milestones that work toward attainment of water quality objectives with best management practices.
- Plan to implement specific management measures and management practices to improve the discharge quality, including a date-specific time line.

On August 15, 2008, the 2007 VCAILG WQMP was submitted to address exceedances of water quality benchmarks that occurred during the 2007 monitoring year. All of the constituents for which benchmarks were exceeded were included in this WQMP. Also discussed were the water quality problems that can be caused by the benchmark exceedance and the degree to which agricultural discharges are contributing to the problem (where feasible and appropriate).

In addition, for the Calleguas Creek watershed, WQMPs are also required to be developed for the TMDLs that are effective in the watershed. Where WQMPs are also required by TMDLs, the 2007 plan included all necessary information to meet the TMDL requirement as well.

The 2007 WQMP contained four major sections. The first section provided a discussion of the VCAILG monitoring sites and monitoring results detailing benchmark exceedances. Constituent-specific information was provided in the second section to summarize the currently available information on sources of the constituents, discuss the water quality problems associated with the benchmark exceedances, and where feasible, the degree to which agriculture is contributing to the water quality problem. The third section discussed the process by which priority areas would be targeted to implement management practices, and how implementation would be tracked and used to evaluate management practice effectiveness through water quality monitoring efforts. The final section provided references and resource agency contact information to assist growers in implementing specific management measures to improve water quality.

This update to the 2007 WQMP provides information on benchmark exceedances that occurred during the 2008 monitoring year (as discussed in the 2008 Annual Monitoring Report) and

progress made in implementation of the WQMP. Additionally, Management Practice Surveys collected from growers within the first tier priority drainage areas are discussed. Second tier priority drainages were updated according to monitoring information collected in the past year.

Identification of Benchmark Exceedances

This section provides a summary of information that was included in the VCAILG 2008 Annual Monitoring Report. For more detailed information about monitoring sites, locations, and water quality monitoring results, please refer to that report.

MONITORING OBJECTIVES

The objectives of the VCAILG Monitoring Program are as follows:

- Assess the impact on waters of the State from wastes discharged from irrigated lands;
- Determine concentration and loading (where practicable) of pollutants present in surface waterbodies influenced primarily by irrigated agriculture land use;
- Evaluate compliance with applicable water quality benchmarks to determine whether modifying management practices is necessary to improve surface water quality;
- Attempt to identify pollutant sources, if necessary;
- Provide feedback to growers in areas where benchmarks are exceeded to facilitate implementation and monitoring of management practices employed for controlling pollutant loads, if necessary;
- Report results and other required information as specified in the Monitoring and Reporting Program (CI-8836);
- Monitor trends in ambient water quality over time (long term objective);
- Coordinate monitoring efforts with existing and future monitoring programs so that data generated are complementary and not duplicative (*e.g.*, coordinate monitoring sites and sampling events with the Calleguas Creek Watershed TMDL Monitoring Program).

SAMPLING SITE DESCRIPTIONS AND LOCATIONS

The first step toward fulfilling monitoring program objectives was selecting appropriate monitoring sites. Because the focus of the program is on impacts to surface waterbodies from discharges from irrigated agricultural lands, monitoring sites were selected to best characterize agricultural inputs and are generally located at the lower ends of mainstem tributaries or agricultural drainages in areas associated primarily with agricultural activity. In some cases, sites were also located to facilitate distinguishing agricultural inputs from other sources, such as golf courses or landscaped areas – these are referred to herein as “background” (“BKGD”) sites.

Additional site selection criteria included the following:

- Sub-watershed representation
- Acreage of agricultural irrigated lands represented
- Drainage into waterbodies included on the federal Clean Water Act 303(d) list of impaired waterbodies
- Safe access during dry and wet weather

Appendix C includes drainage area maps for each of the VCAILG monitoring sites. These maps will be used in mailings and outreach materials to assist growers in identifying where their property drains and if they are contributing to any water quality benchmark exceedances.

Monitoring site selection in the Calleguas Creek Watershed was coordinated with monitoring sites identified in the Calleguas Creek Watershed TMDL Monitoring Program (CCWTMP). Data collected at these coordinated sites are designed to augment TMDL implementation monitoring in that watershed by establishing loadings from agricultural inputs.

The format for the monitoring site ID/code is XXXA_YYYYY_ZZZZZ, where:

- "XXX" is a 2- or 3- character code that identifies the mainstem receiving water reach (where applicable) into which the monitored waterbody drains;
- "A" identifies the monitored waterbody as an agricultural discharge (D) or a tributary (T) to the receiving water;
- YYYYY is a 3-, 4- or 5-character abbreviation for the site location;
- ZZZZZ is an optional 3-, 4- or 5-character abbreviation that provides additional site location information (*e.g.,* "BKGD" indicates a background site).

Examples:

05D_SANT_VCWPD signifies that the monitoring site is located in on the Santa Clara Drain, which is an agricultural discharge that flows into Calleguas Creek Watershed Reach 5 (Beardsley Channel). The site is located at the Ventura County Watershed Protection District stream gage.

SO4T_TAPO_BKGD signifies that this a background monitoring site located on Tapo Creek, which is a tributary to the Santa Clara River, Reach 4.

Table 1 contains a detailed list of monitoring sites selected for the VCAILG Monitoring Program. Monitoring site IDs in bold type indicate CCW TMDL monitoring sites that were coordinated with that monitoring program starting in August 2008.

Maps of monitoring sites located in the Calleguas Creek / Oxnard Coastal, Santa Clara River and Ventura River watersheds are presented in Figure 1, Figure 2, and Figure 3 respectively.

Table 2 provides estimates of irrigated acreage by crop type represented by each monitoring site selected.

Maps of crops grown in the vicinity of each monitoring site in the Calleguas Creek / Oxnard Coastal, Santa Clara River and Ventura River watersheds are presented in Figure 4, Figure 5, and Figure 6, respectively.

Table 1. VCAILG Monitoring Program Monitoring Site Locations

Watershed / Subwatershed	Station ID [1]	Reach	Water-body Type [2]	Station Location	GPS Coordinates [3] Latitude	Longitude
Calleguas Creek / Mugu Lagoon	**01T_ODD2_DCH**	1	T	Duck Pond/Oxnard Drain #2/Mugu Drain S. of Hueneme Rd.	34.139514	-119.118330
	01T_ODD3_ARN	1	T	Rio de Santa Clara/Oxnard Drain #3 at Arnold Rd.	34.123564	-119.156514
Calleguas Creek / Calleguas Creek	02D_BROOM	2	D	Discharge to Calleguas Creek at Broome Ranch Rd.	34.143353	-119.071306
	02D_CSUCI	2	B	02D_BROOM background site near CSUCI	34.159860	-119.049375
Calleguas Creek / Revolon Slough	04D_ETTG	4	D	Discharge to Revolon Slough at Etting Rd.	34.161797	-119.091419
	04D_LAS	4	D	Discharge to Revolon Slough at S. Las Posas Rd.	34.134208	-119.079767
Calleguas Creek / Beardsley Channel	**05D_SANT_VCWPD**	5	D	Santa Clara Drain at VCWPD Gage #781	34.242667	-119.113736
	05D_SANT_BKGD	5	B	05D_SANT_VCWPD background site near the golf course	34.263213	-119.111314
	05D_LAVD	5	T	La Vista Drain at La Vista Ave.	34.265950	-119.093589
	05T_HONDO	5	T	Hondo Barranca at Hwy. 118	34.263608	-119.057431
Calleguas Creek / Arroyo Las Posas	**06T_FC_BR**	6	T	Fox Canyon at Bradley Rd.	34.264653	-119.011128
	06T_LONG	6	T	Long Canyon at Hwy. 118	34.270083	-118.958664
Calleguas Creek / Conejo Creek	**9BD_GERRY**	9B	D	Drain Crossing Santa Rosa Rd. at Gerry Rd.	34.235847	-118.944675
Oxnard Coastal	OXD_CENTR	--	D	Central Ditch at Harbor Blvd.	34.220555	-119.254983
Santa Clara River	S02T_ELLS	2	T	Ellsworth Barranca at Telegraph Rd.	34.306805	-119.141275
	S02T_TODD	2	T	Todd Barranca at Hwy. 126	34.313584	-119.117095
	S03T_TIMB	3	T	Timber Canyon at Hwy. 126	34.370172	-119.020939
	S03T_ BOULD	3	T	Boulder Creek at Hwy. 126	34.389578	-118.958738
	S03D_BARDS	3	D	Discharge along Bardsdale Ave. upstream of confluence with Santa Clara River	34.371535	-118.964470
	S04T_HOPP	4	T	Hopper Creek at Hwy. 126	34.401616	-118.826799
	S04T_TAPO	4	T	Tapo Canyon Creek	34.401717	-118.723706
	S04T_TAPO_BKGD	4	B	S04T_TAPO background site upstream of agricultural operations	34.387316	-118.7204509
Ventura River	VRT_THACH	--	T	Thacher Creek at Ojai Avenue	34.446719	-119.210893
	VRT_SANTO	--	T	San Antonio Creek at Grand Avenue	34.454455	-119.221723

[1] Station IDs indicated in **bold** type signify Calleguas Creek Watershed TMDL Monitoring Program sites that will be monitored through that program once that program is underway.
[2] T = Tributary to receiving water; D = agricultural Drain; B = Background site.
[3] All GPS coordinates presented in decimal degrees latitude and longitude in North American Datum 1983 (NAD83).

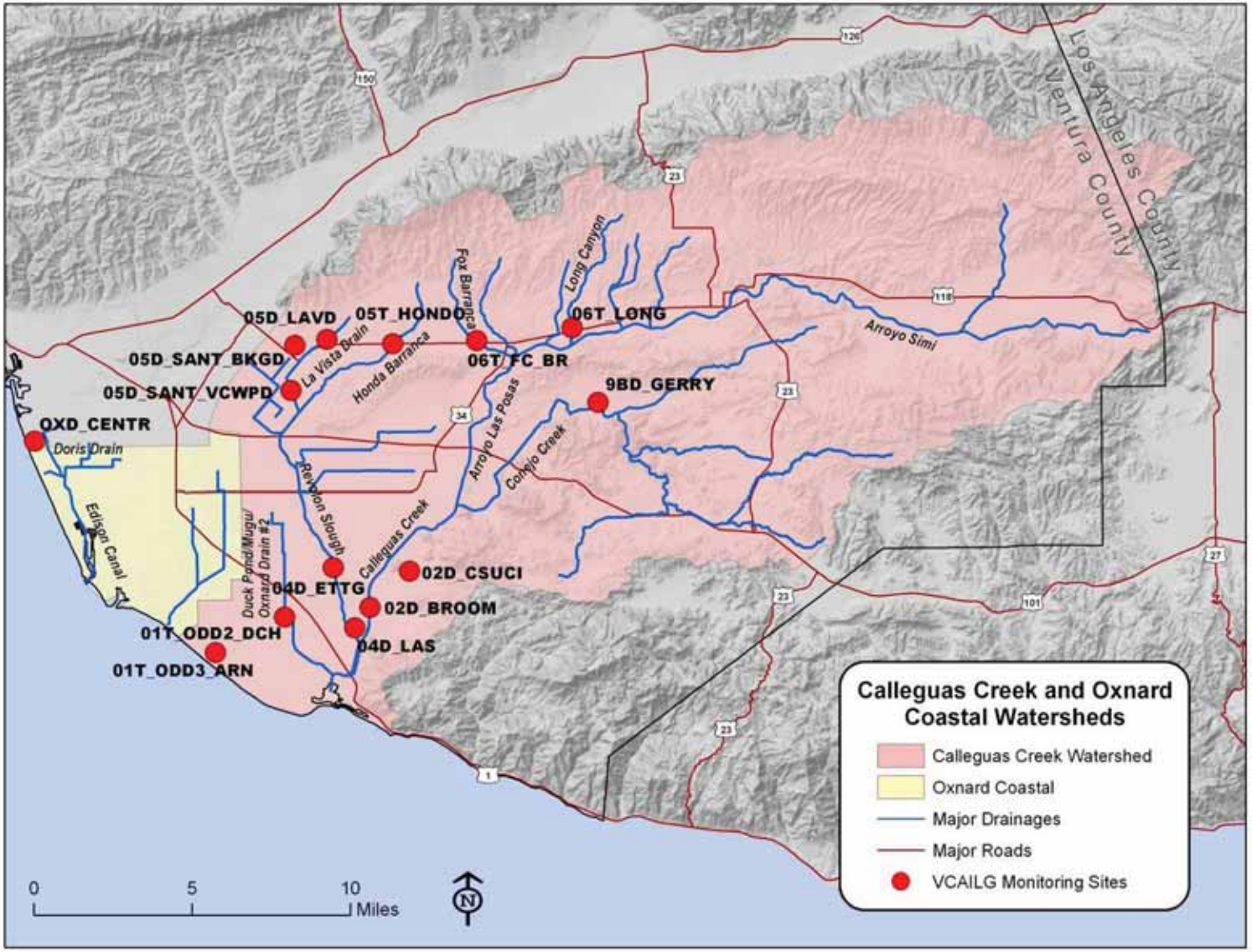

Figure 1. VCAILG Monitoring Sites Located in the Calleguas Creek / Oxnard Coastal Watersheds

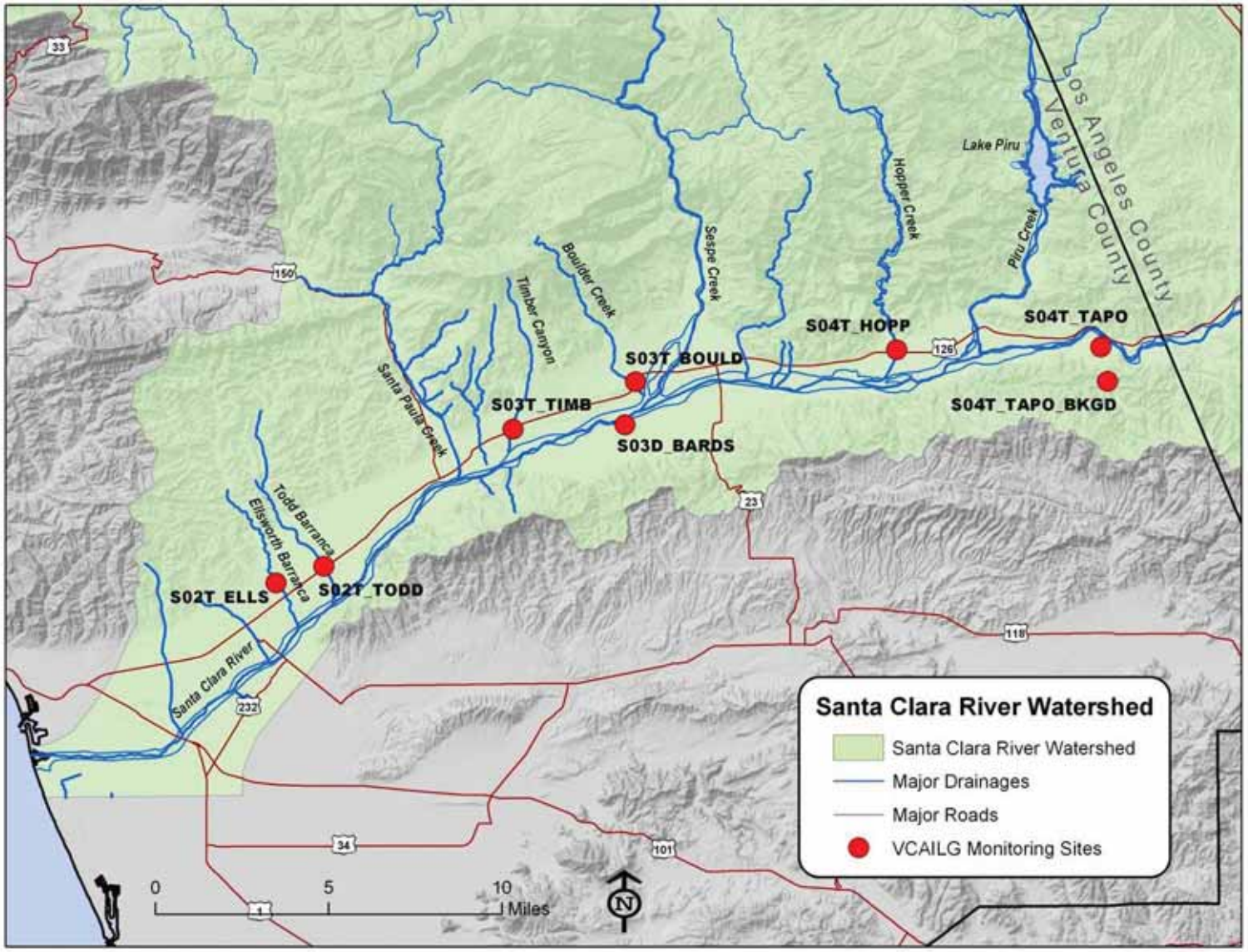

Figure 2. VCAILG Monitoring Sites Located in the Santa Clara River Watershed

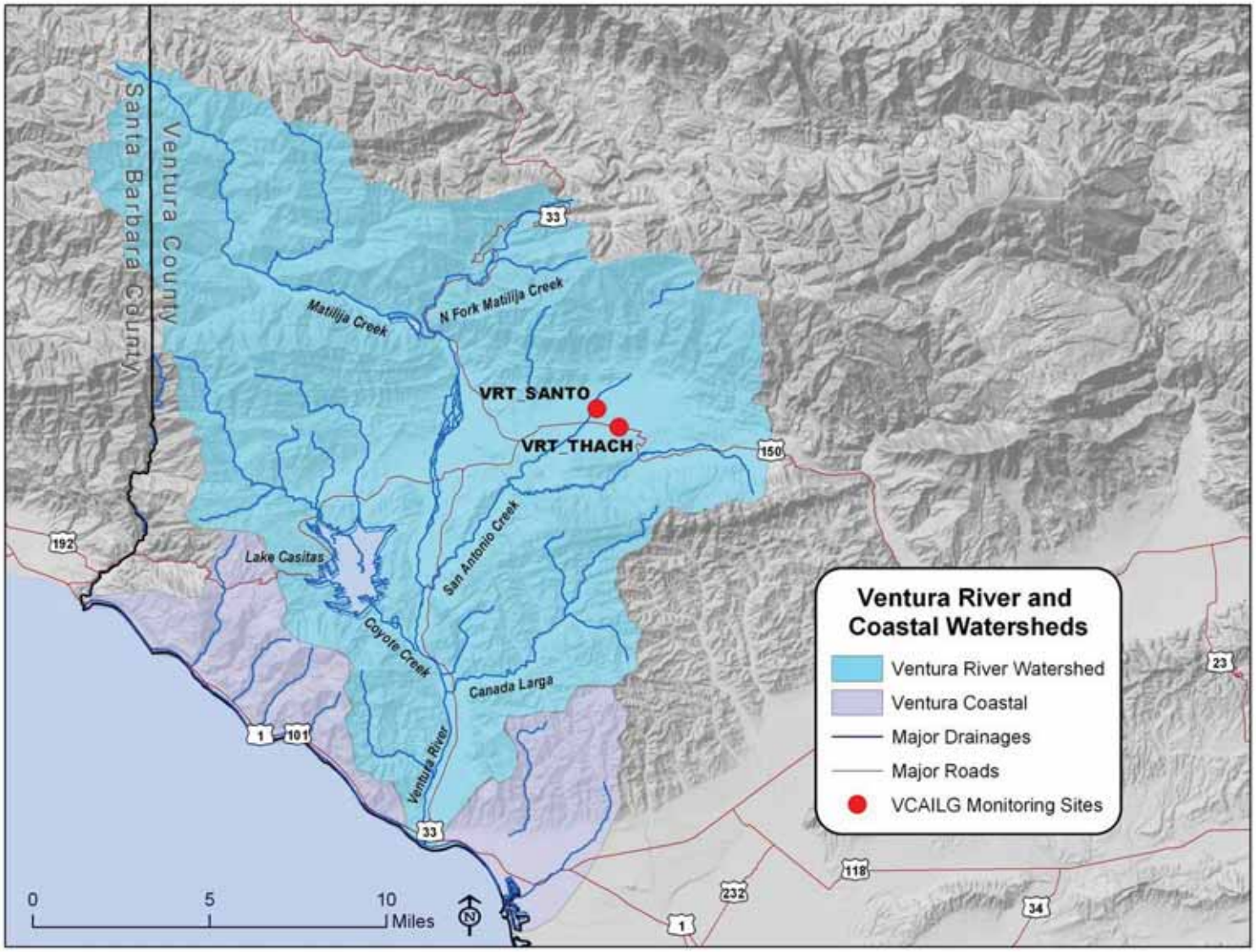

Figure 3. VCAILG Monitoring Sites Located in the Ventura River Watershed

Table 2. Estimated Irrigated Acreage Represented at Each VCAILG Monitoring Site

Station ID[1]	Irrigated Agricultural Acreage [2, 3]									Total Acres Drained
	Row Crops	Cut Flowers	Citrus	Avocados	Other Tree Crops	Strawberries	Other Berries	Sod	Nursery	
01T_ODD2_DCH	2,874	3	17			665		368		1,564
01T_ODD3_ARN	818					39		578		800
02D_BROOM	3,639		378	344		283	177		21	8,236
04D_ETTG	6,271		116			952	77			3,779
04D_LAS	2,212	42				209	41	178		1,339
05D_LAVD	12		219	139		199	77			877
05D_SANT_VCWPD	725		502	146		447				1,154
05T_HONDO	16	4	740	475	1	78	48		9	3,267
06T_FC_BR	129	19	1,029	117	2	15	72		65	3,121
06T_LONG	12		501	692		24	28		48	2,935
9BD_GERRY			58	100			91			447
OXD_CENTR	435	67	35			943			11	1,243
S02T_ELLS	74		277	524	1		21			9,015
S02T_TODD	51	33	227	160	1					5,748
S03D_BARDS	30		725	74					17	2,214
S03T_BOULD			165	680					167	3,764
S03T_TIMB	9		102	363	3					2,183
S04T_HOPP			7						14	15,141
S04T_TAPO	28		34						50	3,686
VRT_SANTO			279	251	13					7,220
VRT_THACH	6		620	130	8				2	6,003

[1] Background sites 02D_CSUCI (primarily runoff from the university), 05D_SANT_BKGD (runoff from a golf course and residential area), and S04T_TAPO_BKGD (runoff from non-irrigated agriculture) are not included in this table.
[2] Data Source Ventura Agricultural Commissioner's Office
[3] Some acreage is double or triple counted due to multi-cropping practices.

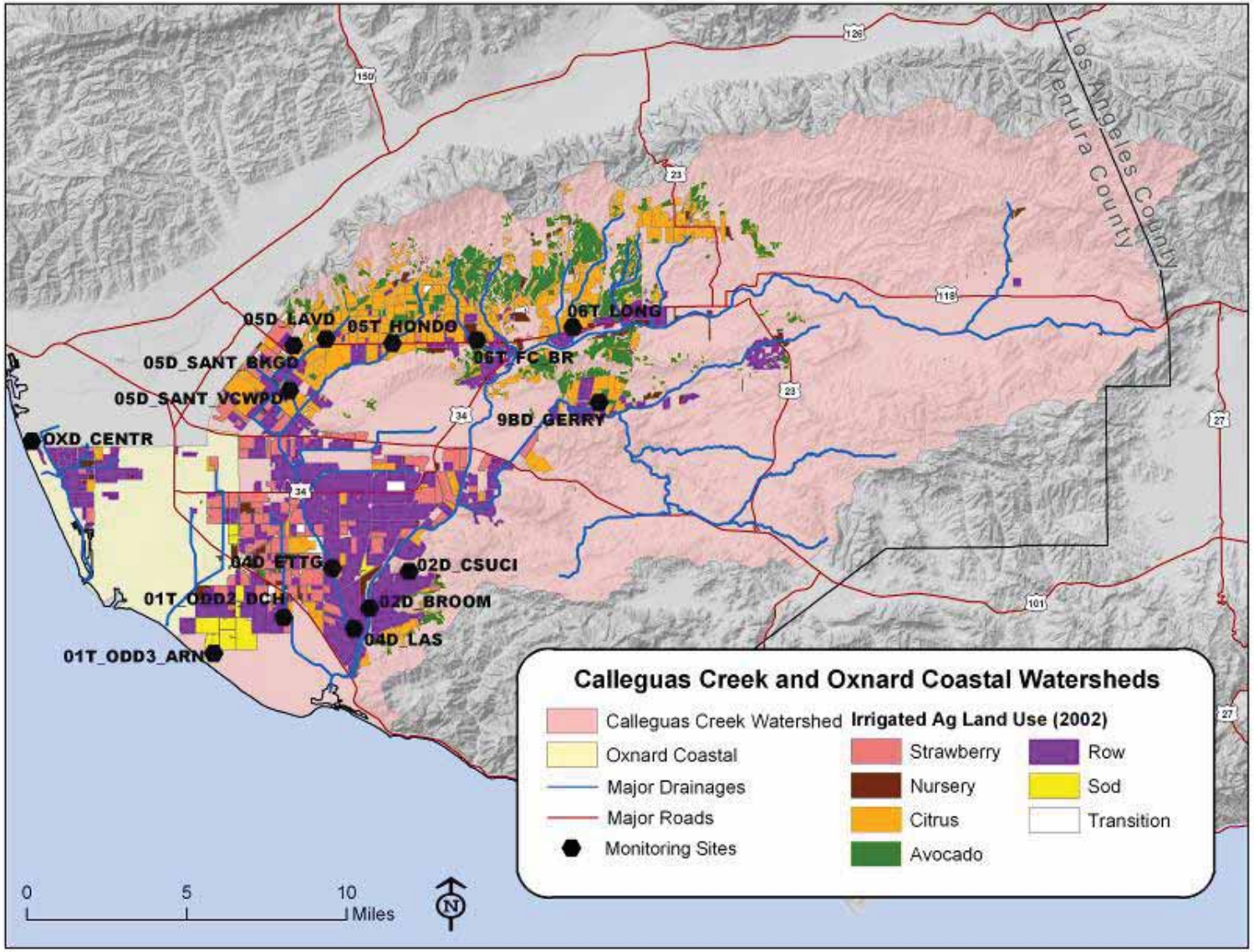

Figure 4. Calleguas Creek Watershed Monitoring Sites and Agricultural Land Use

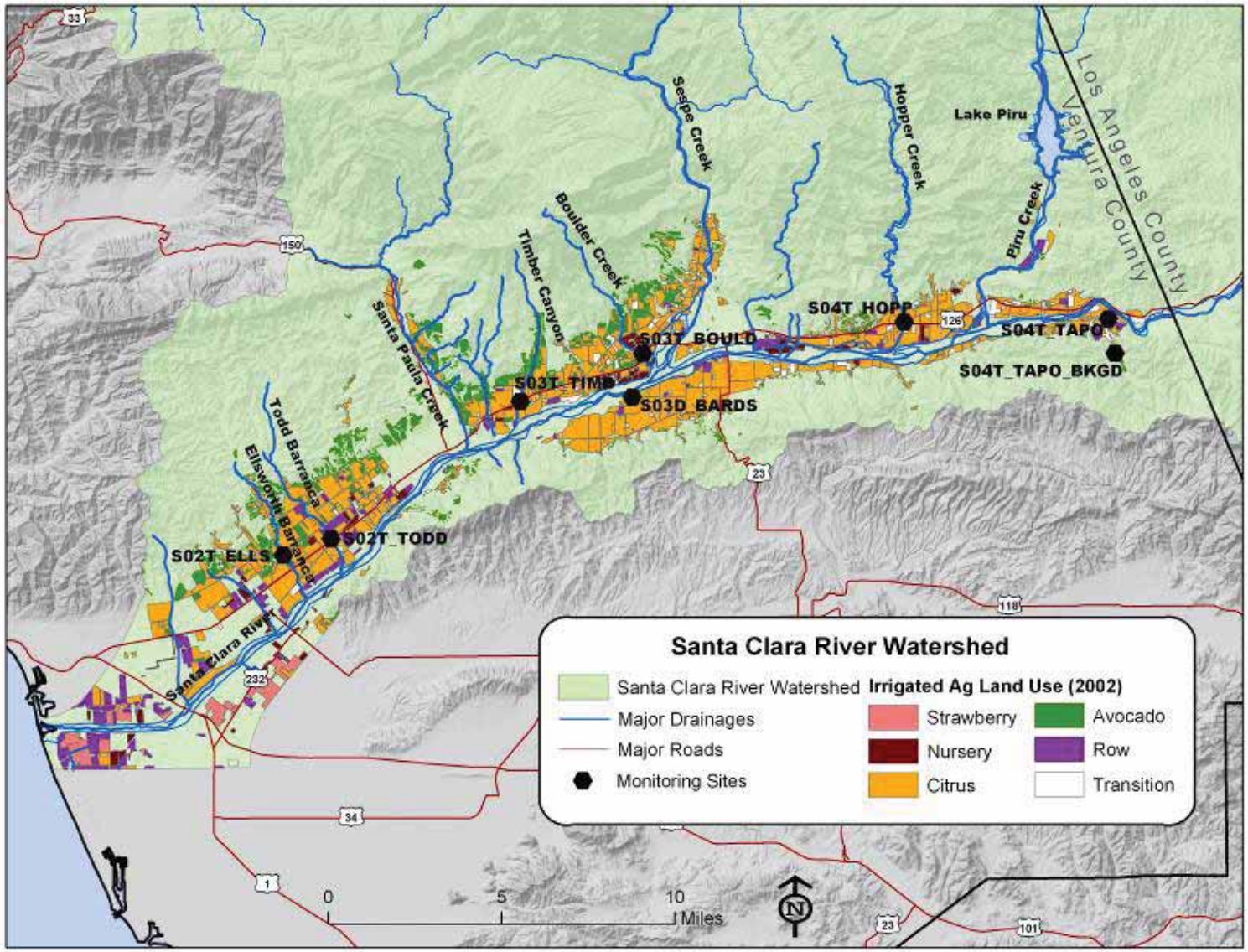

Figure 5. Santa Clara River Watershed Monitoring Sites and Agricultural Land Use

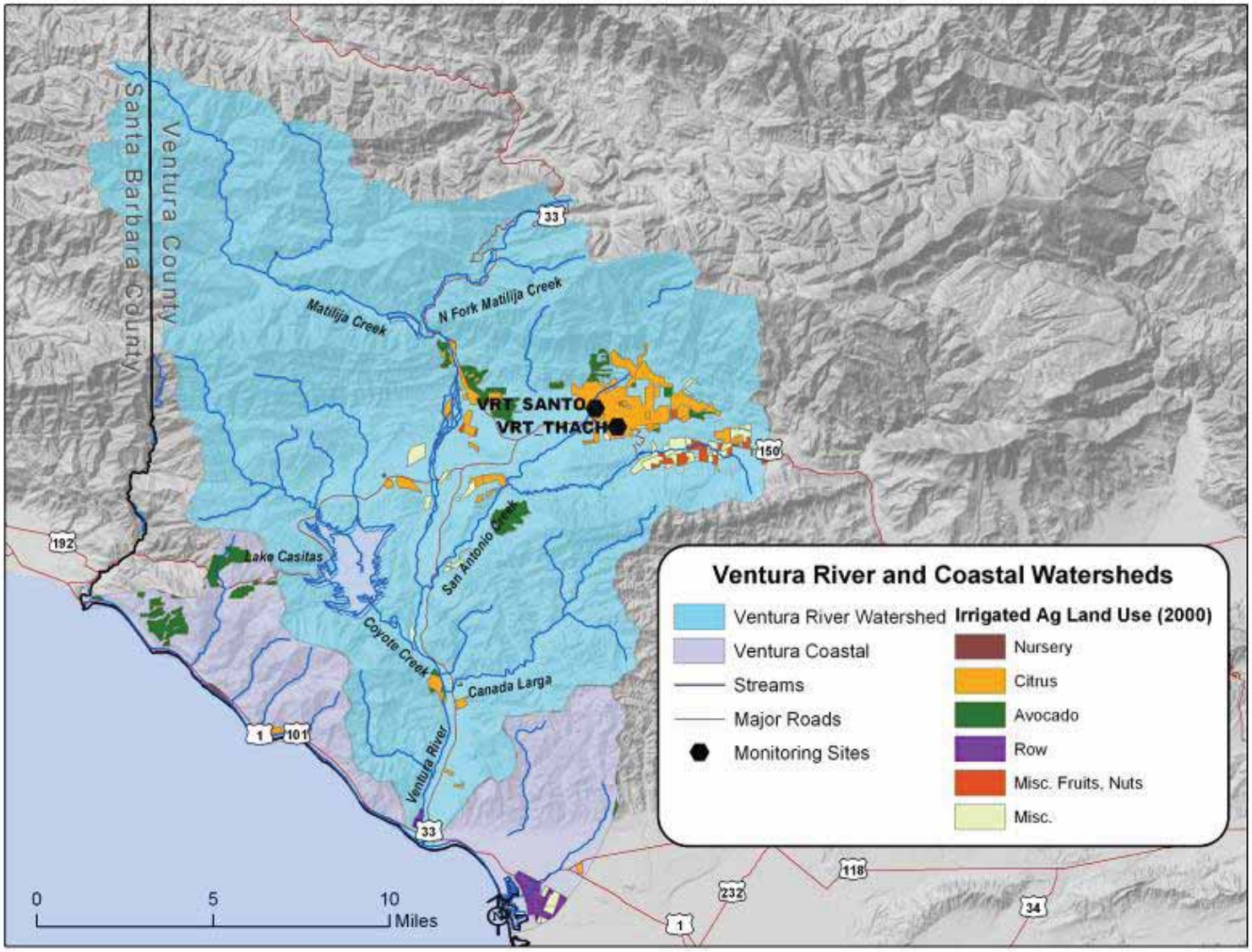

Figure 6. Ventura River Watershed Monitoring Sites and Agricultural Land Use

WATER QUALITY BENCHMARKS

This section presents the water quality benchmarks used to evaluate monitoring data collected at the VCAILG monitoring sites in 2008. Benchmarks used for this purpose include numeric and narrative water quality objectives contained in Appendix 1 and Appendix 2 in the Conditional Waiver, which includes narrative and numeric Basin Plan objectives and water quality standards from the California Toxics Rule (CTR). TMDL load allocations were not used as benchmarks to determine whether WQMPs are necessary to reduce water quality impacts from irrigated agriculture. Rather, because effective TMDLs already contain the requirement to develop WQMPs regardless of whether monitoring data exceed benchmarks identified in the Conditional Waiver, all TMDL requirements are included in this WQMP.

Several of the narrative water quality objectives contained in the Basin Plan specify that discharges of wastes to receiving waters cannot alter "natural" or "ambient" conditions above or below a stated level. Many of the VCAILG monitoring sites are located in agricultural drains that discharge to receiving waters. Because "natural" and "ambient" conditions have not been established in receiving waters or are non-existent on agricultural drains and ephemeral streams, monitoring data from sites located on agricultural drains were evaluated in the AMR based on the assumption that if benchmarks are not exceeded in the agricultural drain, it is unlikely that the discharge from that drain will cause benchmark exceedances in the receiving water.

Conditional Waiver benchmarks applicable to VCAILG monitoring sites are presented in Table 3 through Table 7.

Table 3. Conditional Waiver Benchmarks Derived From Narrative Objectives and Toxicity

Constituent	Watershed [1]	Narrative Objective[2]	Applicable Benchmark
pH	CC, OXD, SCR, VR	The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed by more than 0.5 pH units from natural conditions as a result of waste discharges.	$6.5 \leq pH \leq 8.5$ Changes to ambient receiving water conditions are not assessed; "ambient" or "natural" conditions have not been established
Temperature	CC, OXD, SCR, VR	For waters designated WARM, water temperature shall not be altered by more than 5°F above the natural temperature. At no time shall WARM-designated waters be raised above 80°F as a result of waste discharges.	WARM: $\leq$ 80°F Changes to ambient receiving water conditions are not assessed; "ambient" or "natural" conditions have not been established
	SCR, VR	For waters designated COLD, water temperature shall not be altered by more than 5°F above the natural temperature.	COLD: No numeric benchmark. Changes to ambient receiving water conditions are not assessed; "ambient" or "natural" conditions have not been established
Dissolved Oxygen	OXD	No single dissolved oxygen determination shall be less than 5 mg/L, except when natural conditions cause lesser concentrations.	$\geq$ 5 mg/L
	CC, SCR, VR	The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges.	WARM: $\geq$ 5 mg/L
	SCR, VR	The dissolved oxygen content of all surface waters designated as COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.	COLD, SPWN: $\geq$ 7 mg/L
Turbidity	CC, OXD, SCR, VR	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits: ▪ Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%; ▪ Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.	No numeric benchmarks. Changes to ambient receiving water conditions are not assessed; "ambient" or "natural" conditions have not been established
Biostimulatory Substances	CC, OXD, SCR, VR	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.	No numeric benchmarks. Waterbody-specific benchmarks for nutrients are listed in Tables 12 and 13.
Total Suspended Solids (TSS)	CC, OXD, SCR, VR	Wastes shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	No numeric benchmarks.
Pesticides	CC, OXD, SCR, VR	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.	No numeric benchmarks. Applicable benchmarks for specific pesticides are listed in Tables 14,15, and 16
Toxicity	CC, OXD, SCR, VR	All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal or aquatic life. There shall be no chronic toxicity in ambient waters outside mixing zones.	$\leq$ 1.0 TUc [3] Benchmarks for specific potentially toxic constituents are listed in Tables 12 through 16.

[1] CC = Calleguas Creek Watershed OXD = Oxnard Coastal Watershed SCR = Santa Clara River Watershed VR = Ventura River Watershed

[2] Source: Water Quality Control Plan, Los Angeles Region (Basin Plan), 1994.

[3] Source: "Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands," Order No. R4-2005-0077, Los Angeles Regional Water Quality Control Board, adopted November 3, 2005.

Table 4. Conditional Waiver Benchmarks for Salts and Nutrients (Basin Plan Table 3-8 Numeric Water Quality Objectives)

Watershed / Reach	Reach Description	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Nitrogen [1] (mg/L)	Ammonia [2] (mg/L)	Phosphate (mg/L)
CC below Potrero Rd.	-----	-----	-----	-----	10 [3]	pH, temperature dependent	-----
CC above Potrero Rd.[5]	-----	150	250	850	10	pH, temperature dependent	-----
OXD	-----	-----	-----	-----	10 [3]	pH, temperature dependent	-----
SCR Reach 1	Tidally-influenced mouth of Santa Clara River upstream to 101 Bridge	-----	-----	-----	10 [3]	pH, temperature dependent	-----
SCR Reach 2	Upstream of Hwy 101 Bridge to Freeman Diversion	150	600	1200	10 [3]	pH, temperature dependent	-----
SCR Reach 3	Upstream of Freeman Diversion to A Street Bridge in Fillmore	100 [4]	650	1300	5	pH, temperature dependent	-----
SCR Reach 4	Upstream of A Street Bridge in Fillmore to Blue Cut Gaging Station	100	600	1300	5	pH, temperature dependent	-----
VR Reach 4	Between Camino Cielo Rd. and Casitas Vista Rd.	60	300	800	5	pH, temperature dependent	-----

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

[1] The Nitrogen benchmarks listed are as Nitrate-N plus Nitrite-N.

[2] Ammonia benchmarks are based on 1) freshwater ammonia objectives as calculated according to LARWQCB Resolutions 2002-011 and 2005-014, and 2) saltwater ammonia objectives as calculated according to LARWQCB Resolution 2004-022. Ammonia objectives are calculated based on the pH and temperature of the receiving water measured at the time of sample collection for ammonia analysis. Ammonia objectives used as benchmarks are chronic, 30-day averages.

[3] There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N + Nitrite-N was used for comparison with VCAILG data collected at monitoring sites in this reach.

[4] The 100 mg/L benchmark for chloride is the revised water quality objective adopted by the Regional Board in Resolution 2003-015.

[5] In the 1997 Chloride Policy, the Basin Plan objectives for salts were defined to apply to Calleguas Creek above Potrero, Conejo Creek, Arroyo Las Posas, Arroyo Simi, and upstream tributaries. The Basin Plan objectives were not identified as applicable to Revolon Slough in the 1997 Basin Plan Amendment. However, the CCW Salts TMDL applied the Basin Plan Amendment as targets upstream of Laguna Road on Revolon Slough to be above the tidal influence. As a result, the benchmarks in this table are applied upstream of Laguna Road on Revolon Slough.

Table 5. Conditional Waiver Benchmarks for Organochlorine Pesticides

Constituent	CC Watershed		OXD, SCR Watersheds		VR Watershed	
	Benchmark (ug/L)	Benchmark Source [1]	Benchmark (ug/L)	Benchmark Source [1]	Benchmark (ug/L)	Benchmark Source [1]
Aldrin	0.00014	CTR HHO	0.00014	CTR HHO	0.00013	CTR HHWO
Alpha-BHC	0.013	CTR HHO	0.013	CTR HHO	0.0039	CTR HHWO
Beta-BHC	0.046	CTR HHO	0.046	CTR HHO	0.014	CTR HHWO
Gamma-BHC (Lindane)	0.063	CTR HHO	0.063	CTR HHO	0.019	CTR HHWO
Delta-BHC	-----	-----	-----	-----	-----	-----
Chlordane-alpha	-----	-----	-----	-----	-----	-----
Chlordane-gamma	-----	-----	-----	-----	-----	-----
Chlordane, sum	0.00059	CTR HHO	0.00059	CTR HHO	0.00057	CTR HHWO
2,4'-DDD	-----	-----	-----	-----	-----	-----
2,4'-DDE	-----	-----	-----	-----	-----	-----
2,4'-DDT	-----	-----	-----	-----	-----	-----
4,4'-DDD	0.00084	CTR HHO	0.00084	CTR HHO	0.00083	CTR HHWO
4,4'-DDE	0.00059	CTR HHO	0.00059	CTR HHO	0.00059	CTR HHWO
4,4'-DDT	0.00059	CTR HHO	0.00059	CTR HHO	0.00059	CTR HHWO
Dieldrin	0.00014	CTR HHO	0.00014	CTR HHO	0.00014	CTR HHWO
Endosulfan I	0.056	CTR AFWC	0.056	CTR AFWC	0.056	CTR AFWC
Endosulfan II	0.056	CTR AFWC	0.056	CTR AFWC	0.056	CTR AFWC
Endosulfan Sulfate	240	CTR HHO	240	CTR HHO	110	CTR HHWO
Endrin	0.036	CTR AFWC	0.036	CTR AFWC	0.036	CTR AFWC
Endrin Aldehyde	0.81	CTR HHO	0.81	CTR HHO	0.76	CTR HHWO
Endrin Ketone	-----	-----	-----	-----	-----	-----
Toxaphene	0.0002	CTR AFWC	0.0002	CTR AFWC	0.0002	CTR AFWC

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

[1] CTR = California Toxics Rule (USEPA, May 18, 2000).
HHO = Human Health for Consumption of Organisms Only (30-day average)
HHWO = Human Health for Consumption of Water and Organisms (MUN-designation) (30-day average)
AFWC = Aquatic Life, Freshwater Chronic (4-day average)

Table 6. Conditional Waiver Benchmarks for Organophosphorus Pesticides

Constituent	CC, OXD, SCR, VR Watersheds Benchmark (ug/L) [1]
Bolstar	-----
Chlorpyrifos	0.025
Demeton	-----
Diazinon	0.10
Dichlorovos	-----
Dimethoate	-----
Disulfoton	-----
Ethoprop	-----
Fenchlorophos	-----
Fensulfothion	-----
Fenthion	-----
Malathion	-----
Merphos	-----
Methyl Parathion	-----
Mevinphos	-----
Phorate	-----
Tetrachlorvinphos	-----
Tokuthion	-----
Trichloronate	-----

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River
[1] Benchmarks are from Appendix 1 of the Conditional Waiver

Table 7. Conditional Waiver Benchmarks for Pyrethroid Pesticides

Constituent	CC, OXD, SCR, VR Watersheds Benchmark (ug/L) [1]
Allethrin	-----
Bifenthrin	-----
Cyfluthrin	-----
l-Cyhalothrin	-----
Cypermethrin	-----
Deltamethrin	-----
Esfenvalerate	-----
Fenpropathrin (Danitol)	-----
Fenvalerate	-----
Fluvalinate	-----
Permethrin	-----
Prallethrin	-----
Resmethrin	-----

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River
[1] There are currently no Conditional Waiver benchmarks in effect for these watersheds.

SUMMARY OF BENCHMARK EXCEEDANCES

Monitoring data from samples collected at 17 of the 21 VCAILG monitoring sites exceeded benchmarks and triggered the requirement to write this update to the VCAILG WQMP, which addresses the additional exceedances. Background sites are not included in the total number of monitoring sites because they are located upstream of irrigated agricultural operations. Exceedances of water quality benchmarks occurred in all watersheds.

Because TMDLs require the development of WQMPs regardless of whether monitoring data exceed TMDL load allocations, TMDL WQMP requirements are discussed separately in the next section.

Table 8 contains a summary of benchmark exceedances that occurred at each site during 2008. Table 8 also identifies sites that were sampled but where no exceedances occurred, as well as sites that were not sampled. Table 9 contains the same exceedance summary organized by constituent and by watershed. Organochlorine (legacy) pesticides, primarily DDT compounds, caused the highest number of exceedances overall, followed by nitrogen, organophosphorus pesticides, salts, and chronic toxicity. During the wet events there were fewer sites with flow that had exceedances than during the two dry events. However, during the dry events there are less total sites that are sampled.

Pesticides

Exceedances of benchmarks for organochlorine (OC) pesticides occurred at 16 VCAILG sites, 10 of which are located in the Calleguas Creek Watershed. Exceedances of benchmarks for DDT compounds occurred during all 3 events at the sites located in the Oxnard Coastal Watershed and at 4 sites in the Calleguas Creek Watershed. There were 10 sites with OP pesticides exceedances during 2008, 7 of those sites are in the Calleguas Creek Watershed. Chlorpyrifos was the most frequently detected OP pesticide. Also of note, there are OC and OP pesticides TMDLs in the Calleguas Creek Watershed.

Salts

Exceedances of salts benchmarks (TDS, chloride, sulfate, or any combinations thereof) occurred at 9 sites, six of which are located in the Santa Clara River Watershed. The Salts TMDL in the Calleguas Creek Watershed includes load allocations for boron, chloride, sulfate, and TDS. All of these constituents, except for boron are monitoring as part of the VCAILG Conditional Waiver monitoring program. A Chloride TMDL exists for the Santa Clara River Watershed; however, it does not include load allocations or implementation actions for agricultural dischargers.

Chronic Toxicity

Toxicity was detected at 7 sites during event 4. Toxicity was not detected in any of the event 7 samples. Only one site triggered a TIE during 2008 monitoring.

Nitrogen

Exceedances of nitrate-N and ammonia-N occurred at 12 VCAILG sites, 8 of which are in the Calleguas Creek Watershed. The nitrate-N benchmark applicable to the Oxnard Coastal monitoring site was exceeded during all four monitoring events. In the Santa Clara River Watershed, nitrogen objectives were exceeded at 4 monitoring sites. It should be noted here that there are nitrogen compounds TMDLs in both the Calleguas Creek and Santa Clara River Watersheds for which the VCAILG monitoring results can be compared to load allocations; exceedances of the applicable load allocations are discussed in the next section.

Dissolved Oxygen

An exceedance of the dissolved oxygen benchmark occurred during Event 7 at one site in the Calleguas Creek Watershed.

Temperature

An exceedance of the temperature benchmark occurred during Event 6 at one site in the Calleguas Creek Watershed.

pH

An exceedance in pH occurred during Event 7 at one site in the Santa Clara River Watershed. The pH at the site was slightly too basic to meet the water quality objective.

Table 8. Water Quality Benchmark Exceedances in 2008 – by Site & Event

Site ID	Event 4 – *Wet* January 5, 2008	Event 5 – *Wet* January 24, 2008	Event 6 – *Dry* May 20, 2008	Event 7 – *Dry* Sept. 16, 2008
01T_ODD2_DCH	Nitrate-N, Chlorpyrifos, Chronic Toxicity	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	Nitrate-N, 4,4'-DDE	Nitrate-N, 4,4'-DDE, Toxaphene
01T_ODD3_ARN	Nitrate-N, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE	*FTO*
02D_BROOM	Nitrate-N, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Dieldrin	Nitrate-N, 4,4'-DDD, 4,4'-DDE	Dissolved Oxygen, Nitrate-N, Chlordane, , 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Toxaphene
04D_ETTG	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	Nitrate-N, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT	Ammonia-N, Nitrate-N, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Toxaphene, Chlorpyrifos
04D_LAS	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	Temperature, Nitrate-N, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Diazinon	Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Toxaphene, Chlorpyrifos
05D_SANT_VCWPD	TDS, Chloride, Sulfate, Nitrate-N, Chlordane, 4,4'-DDE, Chlorpyrifos	TDS, Chloride, Sulfate, Nitrate-N, Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	TDS, Chloride, Sulfate, Nitrate-N, 4,4'-DDE	TDS, Chloride, Sulfate, Nitrate-N, 4,4'-DDE, 4,4'-DDT, Toxaphene, Chlorpyrifos
05D_LAVD	*NS*	Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	*NS*	*NS*
05T_HONDO	Sulfate, 4,4'-DDE, 4,4'-DDT, Chronic Toxicity	Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	*NS*	*NS*
06T_FC_BR	TDS, Sulfate, Nitrate-N, Chronic Toxicity	Chlordane, 4,4'-DDE, 4,4'-DDT	*NS*	*NS*
06T_LONG	*NS*	*NS*	*NS*	*NS*
9BD_GERRY	*NS*	*NS*	*NS*	*NS*
OXD_CENTR	Nitrate-N, 4,4-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	Nitrate-N, Chlordane, 4,4-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos	Nitrate-N, 4,4'-DDE	Nitrate-N, 4,4'-DDD, 4,4'-DDE, Toxaphene
S02T_ELLS	TDS, Chloride, Sulfate, Chronic Toxicity	TDS, Sulfate	*NS*	pH, Chlorpyrifos
S02T_TODD	TDS, Sulfate, Chronic Toxicity	TDS, Sulfate, 4,4'-DDT	TDS, Sulfate, Nitrate-N	*FTO*
S03T_TIMB	Nitrate-N, Chlorpyrifos, Chronic Toxicity	Sulfate, 4,4'-DDT	*NS*	*NS*
S03T_ BOULD	Chronic Toxicity	Chlordane	TDS, Chloride, Sulfate, Ammonia-N, Nitrate-N	*FTO*
S03D_BARDS	*NS*	Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlorpyrifos, Diazinon	*NS*	*NS*
S04T_HOPP	*None*	*None*	TDS, Sulfate	*NS*
S04T_TAPO	TDS, Chloride, Sulfate, 4,4'-DDE	TDS, Chloride, Sulfate, Chlordane, 4,4'-DDD, 4,4'-DDE	TDS, Chloride, Sulfate, Nitrate-N	TDS, Chloride, Sulfate, Nitrate-N
VRT_THACH	*None*	4,4'-DDT	*NS*	*NS*
VRT_SANTO	*None*	*None*	*NS*	*NS*
Total Number of Sites Sampled	17	19	11	8
Total Number of Sites with Exceedances	14	17	11	8

NS = Not Sampled; insufficient or no flow. FTO = Fish Tissue Offset; site not visited.

Table 9. Water Quality Benchmark Exceedances in 2008 – by Pollutant & Watershed

Pollutant	VCAILG Monitoring Sites with Benchmark Exceedances		
	CC / OXN	SCR	VR
Salts	05D_SANT_VCWPD 05T_HONDO 06T_FC_BR	S02T_ELLS S02T_TODD S03T_TIMB S03T_BOULD S04T_TAPO S04T_HOPP	None
Nitrogen	01T_ODD2-DCH 01T_ODD3_ARN 02D_BROOM 04D_ETTG 04D_LAS 05D_SANT_VCWPD 06T_FC_BR OXD_CENTR	S02T_TODD S03T_TIMB S03T_BOULD S04T_TAPO	None
Chronic Toxicity	01T_ODD2_DCH 05T_HONDO 06T_FC_BR	S02T_ELLS S02T_TODD S03T_TIMB S03T_BOULD	None
OC Pesticides	01T_ODD2_DCH 01T_ODD3_ARN 02D_BROOM 04D_ETTG 04D_LAS 05D_SANT_VCWPD 05D_LAVD 05T_HONDO 06T_FC_BR OXD_CENTR	S02T_TODD S03T_TIMB S03T_BOULD S03D_BARDS S04T_TAPO	VRT_THACH
OP Pesticides	01T_ODD2-DCH 04D_ETTG 04D_LAS 05D_SANT_VCWPD 05D_LAVD 05T_HONDO OXD_CENTR	S02T_ELLS S03T_TIMB S03D_BARDS	None
Dissolved Oxygen	02D_BROOM	None	None
pH	None	S02T_ELLS	None
Temperature	04D_LAS	None	None

CC = Calleguas Creek OXN = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

Monitoring results organized by constituent and site for each water quality benchmark exceedance can be found in Appendix B.

Table 10 is a comparison of water quality benchmark exceedances in each of eight constituent classes: salts, nitrogen, chronic toxicity, organochlorine pesticides, organophosphorus pesticides, dissolved oxygen, pH, and temperature, between the 2007 and 2008 monitoring years. The following sites had exceedances in the same classes of constituents during both years:

- 04D_ETTG
- OXD_CENTR

- S02T_TODD
- S03T_BOULD
- S03D_BARDS

Four sites had less exceedances in 2008 than previously, considering the constituents by class, not necessarily overall number; they are:

- 01T_ODD3_ARN
- 05D_SAND_VCWPD
- 05D_LAVD
- S04T_TAPO

05D_LAVD showed significant improvement between the two monitoring years. In 2007 there were exceedances in five classes of constituents and in 2008, only two. There are three sites that continue to not have any water quality benchmark exceedances, they are as follows:

- 06T_LONG
- 9BD_GERRY
- VRT_SANTO

The remaining sites showed an increase in benchmark exceedances by constituent class. All of the information presented in Table 10 was considered as part of the monitoring site drainage area prioritization for determining tier 2 drainages.

Table 10. Water Quality Benchmark Exceedance Comparison between 2007 and 2008 Monitoring Years

Site [1]	Sampling Year	Salts	Nitrogen	Chronic Toxicity	OC Pesticides	OP Pesticides	Dissolved Oxygen	pH	*Temperature*
01T_ODD2_DCH	2007		x		x	x			
	2008		x	x	x	x			
01T_ODD3_ARN	2007		x	x	x				
	2008		x		x				
02D_BROOM	2007		x		x				
	2008		x		x		x		
04D_ETTG	2007		x		x	x			
	2008		x		x	x			
04D_LAS	2007		x		x	x			
	2008		x		x	x			*x*
05D_SANT_VCWPD	2007	x	x		x	x			*x*
	2008	x	x		x	x			
05D_LAVD	2007	x	x	x	x	x			
	2008				x	x			
05T_HONDO	2007				x	x			
	2008	x		x	x	x			
06T_FC_BR	2007				x	x			
	2008	x	x	x	x	x			
OXD_CENTR	2007		x		x	x			
	2008		x		x	x			
S02T_ELLS	2007	x				x			
	2008	x		x		x		x	
S02T_TODD	2007	x	x	x		x			
	2008	x	x	x	x				
S03T_TIMB	2007	x							
	2008		x	x	x	x			
S03T_BOULD	2007	x	x	x			x		
	2008	x	x	x	x				
S03D_BARDS	2007				x	x			
	2008				x	x			
S04T_HOPP	2007								
	2008	x							
S04T_TAPO	2007	x	x	x	x				
	2008	x	x		x				
VRT_THACH	2007								
	2008				*x*				

x = Water quality benchmark exceedance during the corresponding year for the constituent noted in the above column.
[1] 06T_LONG and 9BD_GERRY are not included in the above table since they were not sampled during either monitoring year due to a lack of flow. VRT_SANTO is not included in this table because there were not any exceedances in water quality benchmarks during 2007 or 2008.

TMDL WATER QUALITY MANAGEMENT PLAN REQUIREMENTS

Because TMDLs require the development of WQMPs regardless of whether monitoring data exceed TMDL load allocations, all of the areas covered by a TMDL that require a WQMP are addressed by this plan. This section discusses the TMDLs that require WQMPs, other TMDLs that are effective in Ventura County, but do not require WQMPs and provides a comparison of the TMDL WQMP requirements to the Conditional Waiver benchmark exceedances.

The process and BMPs outlined in the 2007 WQMP are designed to result in compliance with the TMDL load allocations. Like the Conditional Waiver benchmarks, TMDL allocations are designed to result in receiving waters achieving water quality objectives. As a result, actions taken to achieve water quality benchmarks will also help achieve TMDL load allocations.

The schedule for achieving TMDL load allocations will, in most cases, be longer than the schedule assigned to address water quality benchmark exceedances in the WQMP because TMDL implementation schedules are generally longer than the Conditional Waiver time frame. As a result, TMDL exceedances that do not correspond with prioritized Conditional Waiver benchmark exceedance locations will be addressed during future implementation phases within the time frame of the TMDL implementation schedules. TMDL exceedances within the prioritized Conditional Waiver areas will begin BMP implementation prior to November 2010 (See Table 13). All TMDL load allocations will be addressed using the process and BMPs outlined in the 2007 WQMP and referenced in this 2008 update.

The Conditional Waiver currently does not include monitoring for metals and selenium. However, in the Calleguas Creek watershed, a Metals and Selenium TMDL is effective and requires the development of a WQMP. As a result, metals and selenium were included in the previous 2007 WQMP to meet the requirements of the TMDL. Due to the fact that metals and selenium are not currently monitored under the waiver program, metals and selenium will not be specifically addressed during the first phase of WQMP implementation. However, BMPs are identified that address metals and selenium. Growers in priority areas in the Calleguas Creek watershed will be notified that a Metals and Selenium TMDL is in place and provided with BMP information. As many BMPs address multiple pollutants, actions taken to address other constituents are likely to address discharges of metals and selenium as well. Monitoring conducted as part of the Calleguas Creek Watershed TMDL Monitoring Program will be used to assess metals and selenium discharges from agriculture.

Table 11. Effective TMDLs in Calleguas Creek Watershed Requiring WQMPs

Constituent	Arroyo Simi	Arroyo Las Posas	Conejo Creek	Calleguas Creek [1, 2]	Revolon Slough [2]	Mugu Lagoon [2]
Organochlorine Pesticides and PCBs TMDL						
Chlordane	X	X	X	X	X	X
4,4'-DDD	X	X	X	X	X	X
4,4'-DDE	X	X	X	X	X	X
4,4'-DDT	X	X	X	X	X	X
Dieldrin	X	X	X	X	X	X
PCBs	X	X	X	X	X	X
Toxaphene	X	X	X	X	X	X
Sediment						X
Toxicity TMDL						
Diazinon	X	X	X	X	X	X
Chlorpyrifos	X	X	X	X	X	X
Toxicity	X	X	X	X	X	X
Metals and Selenium TMDL						
Copper			X	X	X	X
Nickel			X	X	X	X
Mercury			X	X	X	X
Selenium					X	
Salts TMDL						
Chloride	X	X	X	X	X	
TDS	X	X	X	X	X	
Sulfate	X	X	X	X	X	
Boron	X				X	

Blanks in table indicate constituent is not included in TMDL for that subwatershed.

1. Calleguas Creek covers Camarillo and Pleasant Valley subwatersheds for Salts TMDL.
2. Salts TMDL doesn't apply to Mugu Lagoon and only applies to Calleguas Creek above Potrero Road and Revolon Slough above Laguna Road.

Table 12. Other Effective TMDLs in Ventura County Not Requiring WQMPs [1]

Constituent	Arroyo Simi	Arroyo Las Posas	Conejo Creek	Calleguas Creek	Revolon Slough	Mugu Lagoon	Santa Clara River [2]	Ventura River Estuary
Nitrogen TMDL								
Ammonia	X	X	X	X	X	X		
Nitrate	X	X	X	X	X	X		
Nitrite	X	X	X	X	X	X		
Nitrate+Nitrite	X	X	X	X	X	X		
Ammonia+Nitrate+Nitrite							X	
Chloride TMDL							[3]	
Trash TMDL					X			X

1. Although WQMPs are not required for these TMDLs, BMPs may be needed to meet the requirements of the TMDLs. This WQMP may assist with agricultural compliance with these TMDLs, but specific activities will not be outlined in this WQMP to address these TMDLs above and beyond where the TMDLs overlap with benchmark exceedances.
2. For the Nitrogen TMDL, the Santa Clara River includes Reach 3, Mint Canyon Reach 1, Wheeler Canyon/Todd Barranca, Brown Barranca/Long Canyon.
3. The Chloride TMDL is effective in the Santa Clara River Reach 3, but does not include any requirements for agricultural actions.

The following table summarizes where TMDL requirements for the development of WQMPs overlaps with agricultural waiver benchmark exceedances that trigger WQMPs. The table addresses the Calleguas Creek TMDLs that require the development of WQMPs and the nitrogen TMDLs for the Calleguas Creek and Santa Clara River watershed. Although the nitrogen TMDLs do not require the development of WQMPs, benchmark exceedances of nitrogen exist and BMP implementation in those areas will assist with TMDL implementation. This table provides a mechanism for comparing where nitrogen BMPs will be implemented as compared to TMDL requirements. As growers implement BMPs to address the water quality benchmark exceedances, they will also be implementing actions to achieve TMDL load allocations. The Trash TMDLS and Santa Clara Chloride TMDL are not addressed in this WQMP and are not included in the table.

Table 13. Comparison of Effective TMDLs to Waiver Monitoring Location Benchmark Exceedances

WQMP TMDL Subwatershed and Corresponding VCAILG Monitoring Sites	Organochlorine Pesticides	Organophosphorus Pesticides	Salts	Toxicity	Nitrogen	Metals and Selenium
Arroyo Simi	T	T	T	T	T	
None						
Arroyo Las Posas	T	T	T	T	T	
06T_FC_BR	A		A	A	A	
06T_LONG						
Conejo Creek	T	T	T	T	T	T
9BD_GERRY						
Calleguas Creek	T	T	T [1]	T	T	T
02D_BROOM	A		[3]	A		
Revolon Slough	T	T	T [2]	T	T	T
04D_ETTG	A	A	[3]		A	
04D_LAS	A	A	[3]		A	
05D_SANT_VCWPD	A	A	A		A	
05D_LAVD	A	A				
05T_HONDO	A	A	A	A		
Mugu Lagoon	T	T	[3]	T	T	T
01T_ODD2_DCH	A	A	[3]	A	A	
01T_ODD3_ARN	A		[3]		A	
Santa Clara Reach 3					T	
S03T_TIMB	A	A	A	A	A	
S03T_BOULD	A		A	A	A	
S03D_BARDS	A	A				
Mint Canyon Reach 1					T	
None						
Brown Barranca/Long Canyon					T	
None						
Wheeler Canyon/Todd Barranca					T	
S02T_TODD	A		A	A	A	
Other Santa Clara River Sites						
S02T_ELLS		A	A	A		
S04T_HOPP			A			
S04T_TAPO	A		A		A	

Note: VCAILG monitoring sites (except background sites and those in the Ventura River Watershed) are listed under their appropriate reach or subwatershed to allow for easy comparison with where TMDLs are in effect.
T=TMDL in effect for the corresponding reach or subwatershed
A=Ag Waiver benchmark exceedance
Blank cell=Either samples were collected and an exceedance was not found or the site has been dry and therefore not sampled

1. Salts TMDL only applies to discharges above Potrero Road.
2. Salts TMDL only applies to discharges above Laguna Road.
3. Salts objectives and TMDL do not apply to these locations because they are tidally influenced.

Constituent-Specific Water Quality Problems and Sources

The example WQMP in Appendix 7 of the Conditional Waiver includes requirements to discuss the water quality problem, including a discussion of the potential sources of the constituents. In the 2007 WQMP, the "Constituent Specific Water Quality Problems and Sources" section provided a discussion of the following aspects of the example WQMP:

- Describe the water quality problem identified by monitoring or other methods
- Describe the pollutant associated with this water quality problem
- Describe the sources of the pollutant or water quality problem

For each constituent group, characteristics of the pollutant and a summary of potential sources were discussed in the 2007 WQMP and are not repeated in this document. Details of the monitoring sites where exceedances of benchmarks occurred are presented in the previous section and exceedance results for 2008 are summarized in Appendix B. Specifically for chronic toxicity, the Conditional Waiver requires that the WQMP propose the most relevant species for toxicity testing. VCAILG submitted recommendations for subsequent toxicity testing in a letter to the Executive Officer on July 30, 2008. On September 11, 2008, VCAILG received instructions regarding single species tests for future toxicity monitoring; therefore, a proposal of sensitive species is not included in this report.

Management Practice Identification, Implementation, and Tracking

This section of the 2007 WQMP defined the process to be utilized by VCAILG to identify the need for management practices, implement specific management practices, and track the implementation and effectiveness of those management practices to mitigate water quality benchmark exceedances and achieve TMDL load allocations. The process that was identified addressed required elements of the WQMP (as provided in Appendix 7 to the Conditional Waiver) and included a timeline during which VCAILG and its members would carry out the approved steps.

The VCAILG 2007 WQMP should be referred to regarding plan specifics, detailed explanations of the process, and mechanisms for completing implementation actions. However, integral figures and some components of the WQMP implementation process are duplicated in this 2008 WQMP for easy reference. Accomplishments in WQMP implementation since submittal of the 2007 plan are described in the following section.

WQMP IMPLEMENTATION PROCESS

Figure 7 outlines the WQMP implementation process and Figure 8 provides a timeline for task completion as well as how and when each priority tier will be targeted. New in this WQMP are Figure 9 and Table 14, which list the implementation achievements since submittal of the 2007 WQMP. Many outreach tasks were completed by VCAILG in addition to the steps required by the WQMP. Table 14 summarizes the education outreach classes, which were approved for Conditional Waiver education credits, only two of which were required by the WQMP.

Most completed tasks were focused on outreach to the first tier priority growers, however outreach to the entire VCAILG membership and some specific commodities also took place. An explanation of each element of the WQMP process is discussed in the 2007 report.

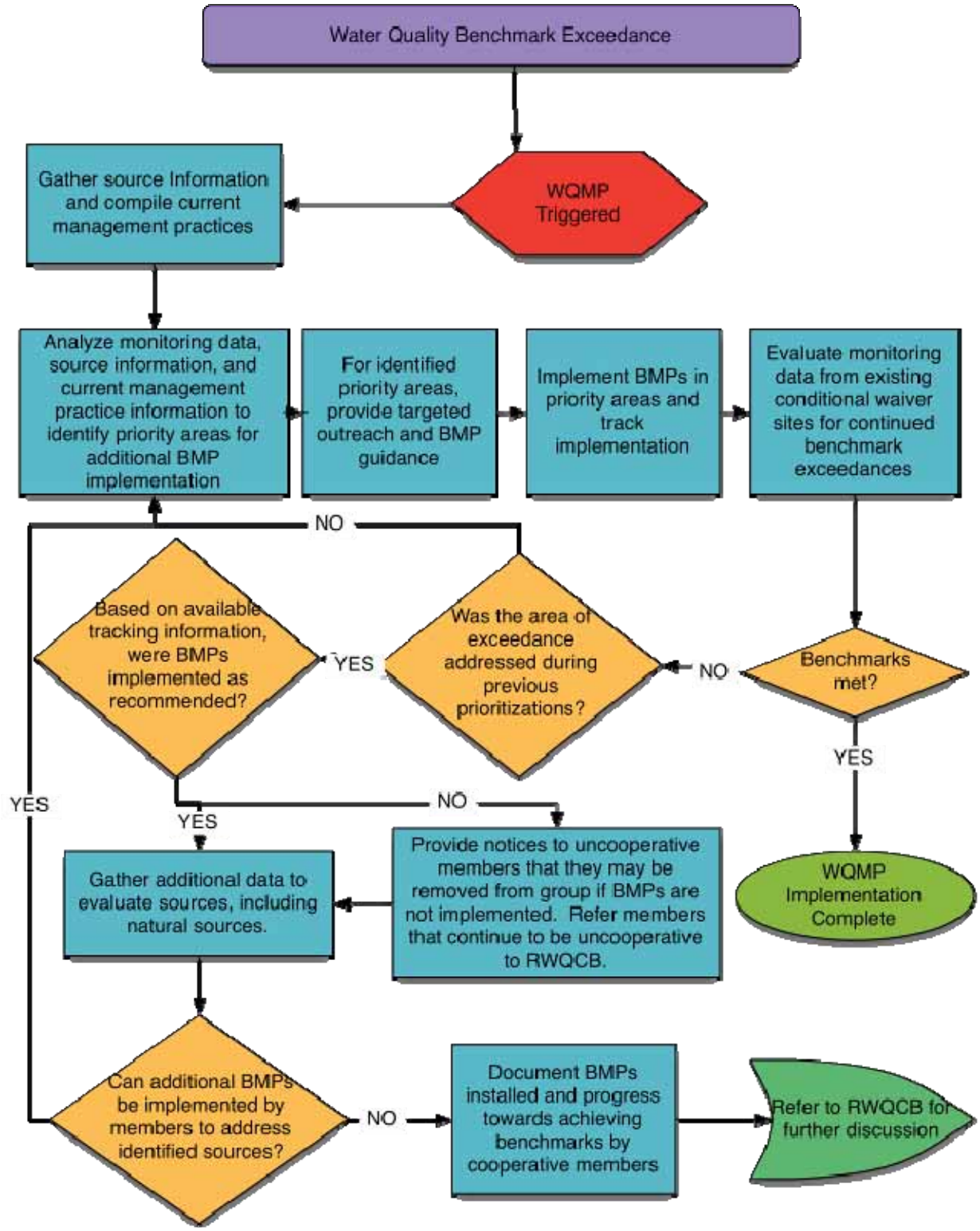

Figure 7. WQMP Implementation Process

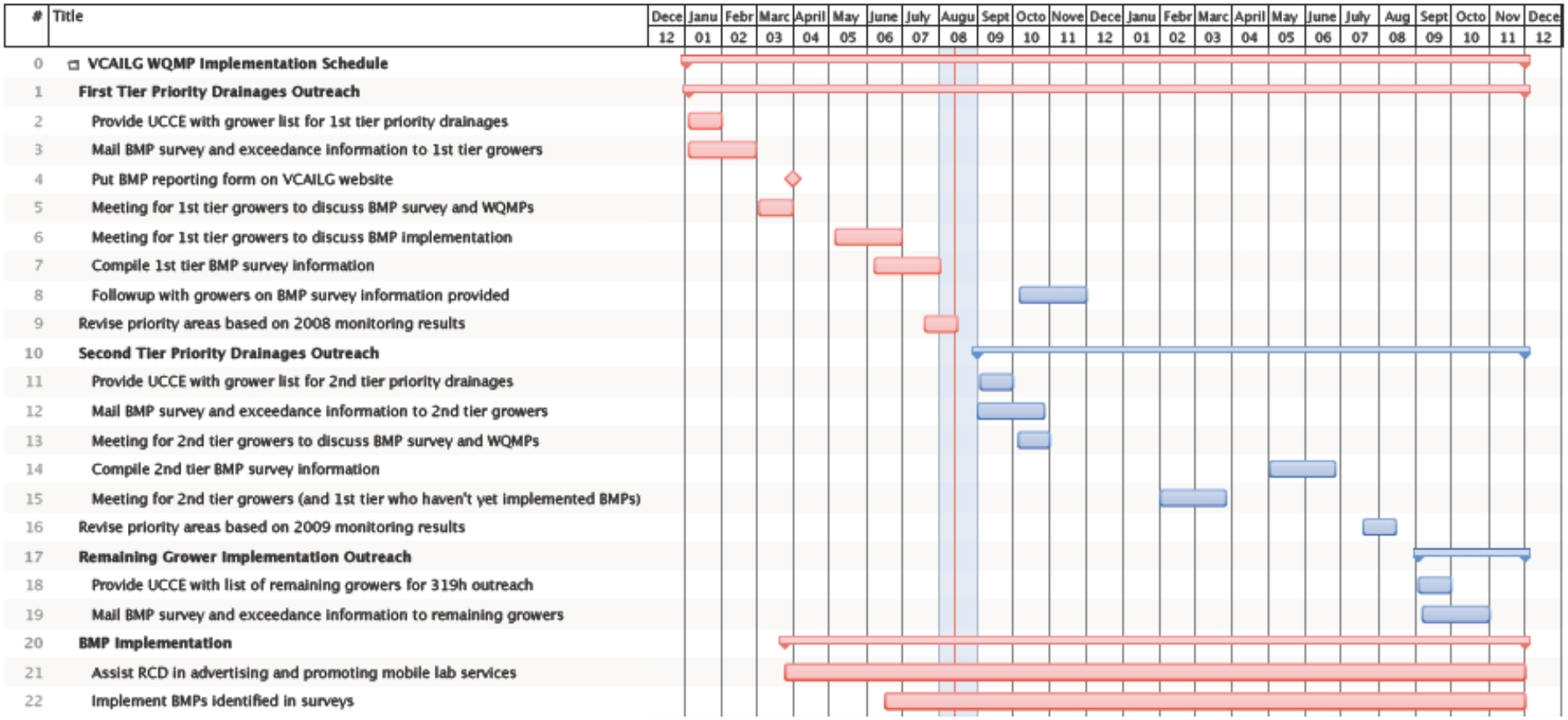

Figure 8. Task and Date-specific Implementation Timeline

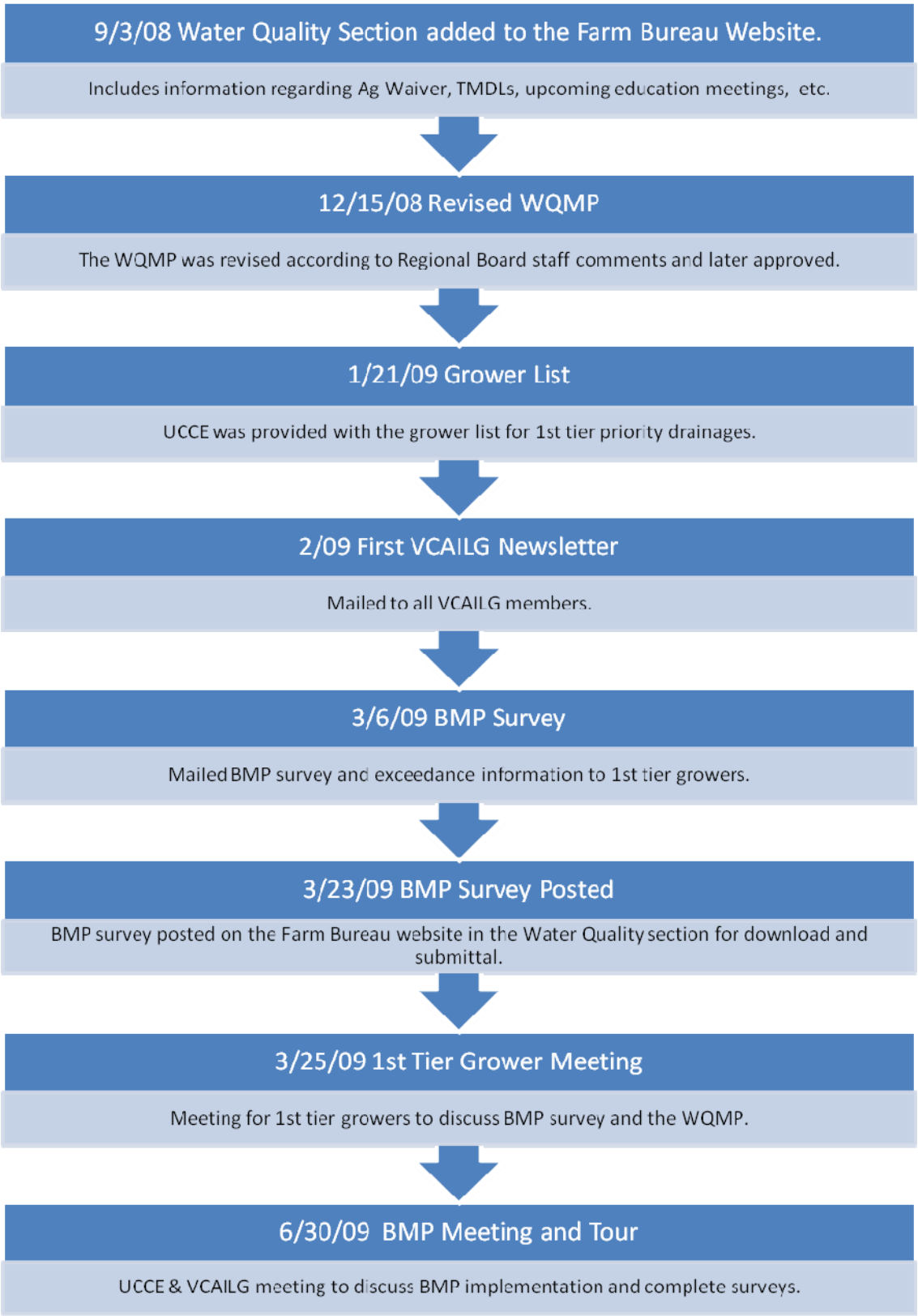

Figure 9. WQMP Specified Implementation Actions

Table 14. Education Outreach Classes

Date	Class	VCAILG Members in Attendance	Course Topics
11/13/08	Water and Agriculture in Ventura County: The Conditional Waiver and You	4	Hosted by the Strawberry Commission, this meeting summarized up to date monitoring information and explained the WQMP process. BMPs to address benchmark exceedances were also discussed and information was provided regarding resources and agencies available to assist with BMP implementation.
3/25/09	**Water Quality Management Plan Survey: First Priority**	44	Growers and landowners in the first tier priority drainages were invited to this meeting. VCAILG representatives and consultants explained the WQMP process and what it means to be in a first tier drainage. Finally, the Management Practice Survey was explained in detail and attendees were given the opportunity to complete their survey or ask questions.
4/2/09	CORF IPM Practices for Bedding Plants and Container Color	10	Hosted by CORF and UCCE, this meeting provided Integrated Pest Management practice information specifically for nursery crops.
4/15/09	California Avocado Grower's Seminar: Creating Our Future	37	Hosted by the Avocado Commission and UCCE, this meeting focused on pest research and updates relevant to avocados.
6/10/09	Water Best Management Practices	54	Hosted by the Strawberry Commission with support from the Ventura County RCD and VCAILG, presentations were given regarding the Mobile Irrigation Lab and the importance of effective irrigation scheduling for plant health and runoff reduction. VCAILG representatives gave a short introduction of the Management Practice Survey and provided assistance as needed.
6/30/09	**Vegetated Treatment Systems: Seminar and Tour**	58	Growers and landowners in the first tier priority drainages were invited to this meeting hosted by VCAILG, UCCE, and RCD. The seminar and tour focused on the uses and implementation of vegetated treatment systems as a BMP to address a variety of water quality issues. Time was also allotted for filling out the Management Practice Survey.

Education classes held to fulfill 2007 WQMP implementation are noted in **bold**.

IDENTIFICATION OF PRIORITY AREAS

Identifying priority areas is important for focusing outreach efforts and promoting the implementation of BMPs in the areas with water quality benchmark exceedances. Four criteria categories were used to determine first, second, and third tier priority drainage areas:

- The total number of constituent exceedances at the monitoring site. This is the exceedance total from each site as listed in Table 8.
- Number of classes of pollutants with exceedances at the monitoring site. The pollutant classes are those listed in Table 9 (salts, nitrogen, chronic toxicity, OC pesticides, OP pesticides, dissolved oxygen, and temperature).
- The number of TMDLs effective at the monitoring site as shown in Table 11.
- Percentage of agricultural acreage enrolled in VCAILG. Figure 10 through Figure 12 show the drainage areas of each VCAILG monitoring site and the location of parcels that are not currently enrolled in VCAILG (as of July 15, 2009). Area close-ups of VCAILG monitoring site drainages can be found in Appendix C. This fourth category will be considered when determining the feasibility of monitoring water quality improvements at current VCAILG monitoring sites. In cases where a monitoring site drainage area has a significant proportion of un-enrolled landowners or there are un-enrolled parcels adjacent to the monitoring site location, those drainages' priority level may be downgraded until enrollment in VCAILG improves.

The following two tables detail the results of monitoring site drainage prioritization based on the above criteria. Prioritizations determined according to 2007 monitoring data and presented in the previous WQMP can be found in Table 15. In Table 16 the prioritization information is updated according to 2008 information. Two changes were made in site prioritization, 02D_BROOM was upgraded from third to second tier due to a significant increase in constituent exceedances and S03T_BOULD was downgraded to third tier because of low VCAILG enrollment in the drainage area.

Table 15. Monitoring Site Drainage Area Prioritizations-2007

Site ID	Category 1 Total # Constituent Exceedances	Category 2 # of Classes of Pollutants with Exceedances	Category 3 # of Effective TMDLs	Category 4a Total Ag Acres in Drainage Area	Category 4 % Ag Acres Enrolled in VCAILG
01T_ODD2_DCH	9	3	5	1700.85	95.7%
01T_ODD3_ARN	10	3	5	690.50	100.0%
02D_BROOM	4	2	5	5867.56	99.9%
04D_ETTG	11	3	5	4060.51	99.9%
04D_LAS	11	3	5	3192.63	96.1%
05D_SANT_VCWPD	19	5	6	1633.98	90.1%
05D_LAVD	12	5	6	2003.92	100.0%
05T_HONDO	5	2	6	3208.98	97.3%
06T_FC_BR	4	2	5	2405.24	99.4%
06T_LONG	0	0	5	2628.89	96.0%
9BD_GERRY	0	0	6	1066.76	100.0%
OXD_CENTR	10	3	0	1589.22	100.0%
S02T_ELLS	4	2	0	3835.15	99.6%
S02T_TODD	10	4	1	2797.71	99.6%
S03T_TIMB	3	1	1	1632.74	100.0%
S03T_ BOULD	7	4	1	2514.05	73.6%
S03D_BARDS	2	2	1	1628.88	91.6%
S04T_HOPP	0	0	0	508.22	92.3%
S04T_TAPO	19	4	0	3768.47	100.0%
VRT_THACH	0	0	0	1734.67	98.0%
VRT_SANTO	0	0	0	1208.01	91.8%

	High Priority	#1: > 10	#2: > 4	#3: > 4
	Medium Priority	#1: 5-10	#2: 2-3	#3: 2-3
	Low Priority	#1: < 5	#2: < 2	#3: < 2

	1st tier prioritized drainages
	2nd tier prioritized drainages
	3rd tier prioritized drainages

Table 16. Monitoring Site Drainage Area Prioritizations-updated with 2008 data

Site ID	Category 1 Total # Constituent Exceedances	Category 2 # of Classes of Pollutants with Exceedances	Category 3 # of Effective TMDLs	Category 4a Total Ag Acres in Drainage Area	Category 4 % Ag Acres Enrolled in VCAILG
01T_ODD2_DCH	14	4	5	1700.85	95.7%
01T_ODD3_ARN	13	2	5	708.72	100.0%
02D_BROOM	20	3	5	5478.45	96.5%
04D_ETTG	23	3	5	3857.58	99.9%
04D_LAS	25	4	5	2350.57	88.4%
05D_SANT_VCWPD	29	4	6	1114.13	85.5%
05D_LAVD	5	2	6	1086.25	100.0%
05T_HONDO	9	4	6	3112.78	98.6%
06T_FC_BR	7	4	5	2396.27	99.8%
06T_LONG	0	0	5	2665.67	93.6%
9BD_GERRY	0	0	6	1066.76	97.9%
OXD_CENTR	17	3	0	1266.83	100.0%
S02T_ELLS	8	4	0	3909.81	99.6%
S02T_TODD	9	4	1	2111.55	99.5%
S03T_TIMB	5	5	1	1504.29	100.0%
S03T_ BOULD	7	4	1	2516.03	73.6%
S03D_BARDS	6	2	1	1769.98	92.2%
S04T_HOPP	2	1	0	508.22	92.3%
S04T_TAPO	18	3	0	2091.67	100.0%
VRT_THACH	1	1	0	1736.17	98.0%
VRT_SANTO	0	0	0	1165.73	95.1%

	High Priority	#1: > 10	#2: > 4	#3: > 4
	Medium Priority	#1: 5-10	#2: 2-3	#3: 2-3
	Low Priority	#1: < 5	#2: < 2	#3: < 2

	1st tier prioritized drainages
	2nd tier prioritized drainages
	3rd tier prioritized drainages

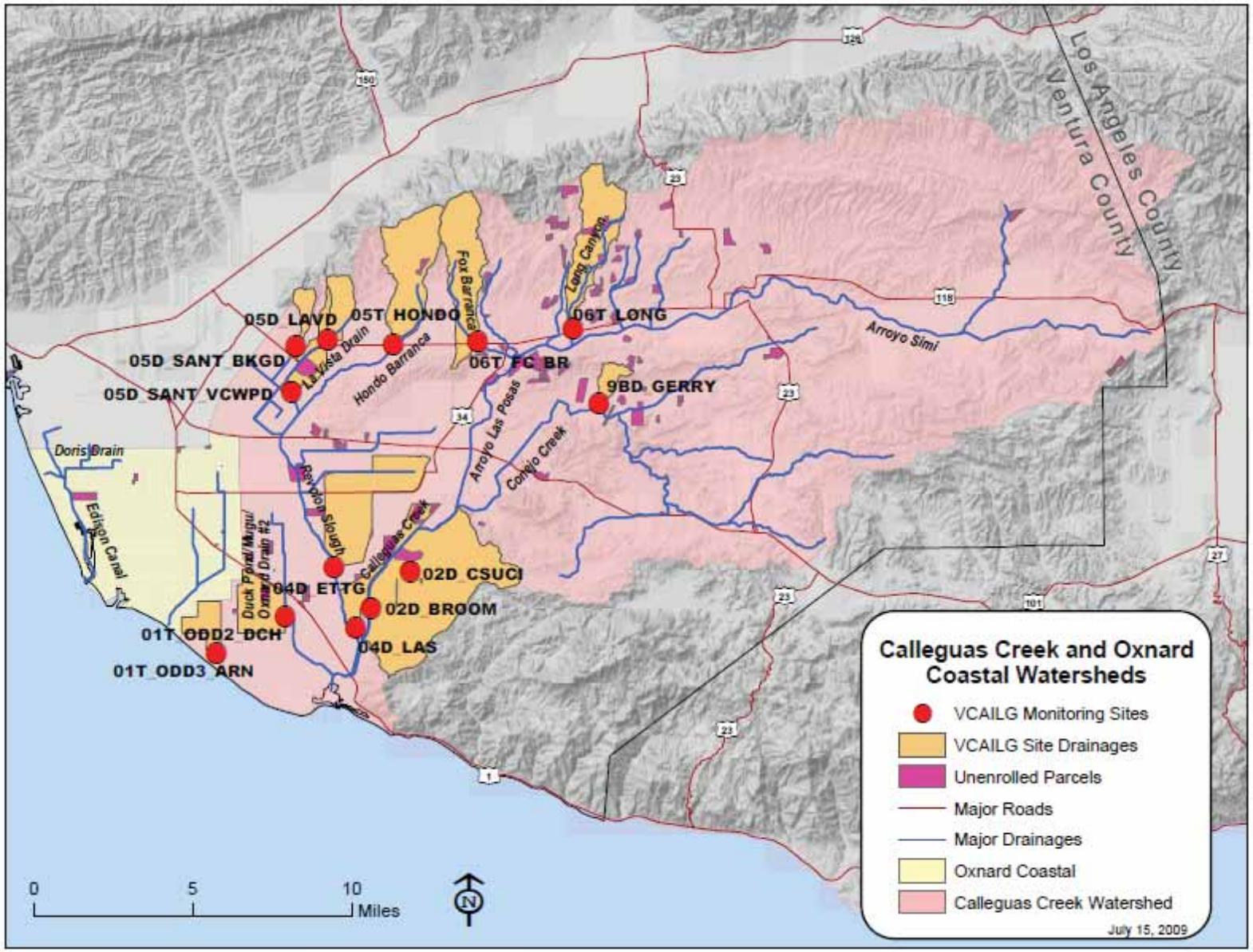

Figure 10. Calleguas Creek and Oxnard Coastal Watersheds Monitoring Site Drainages and Un-enrolled Parcels

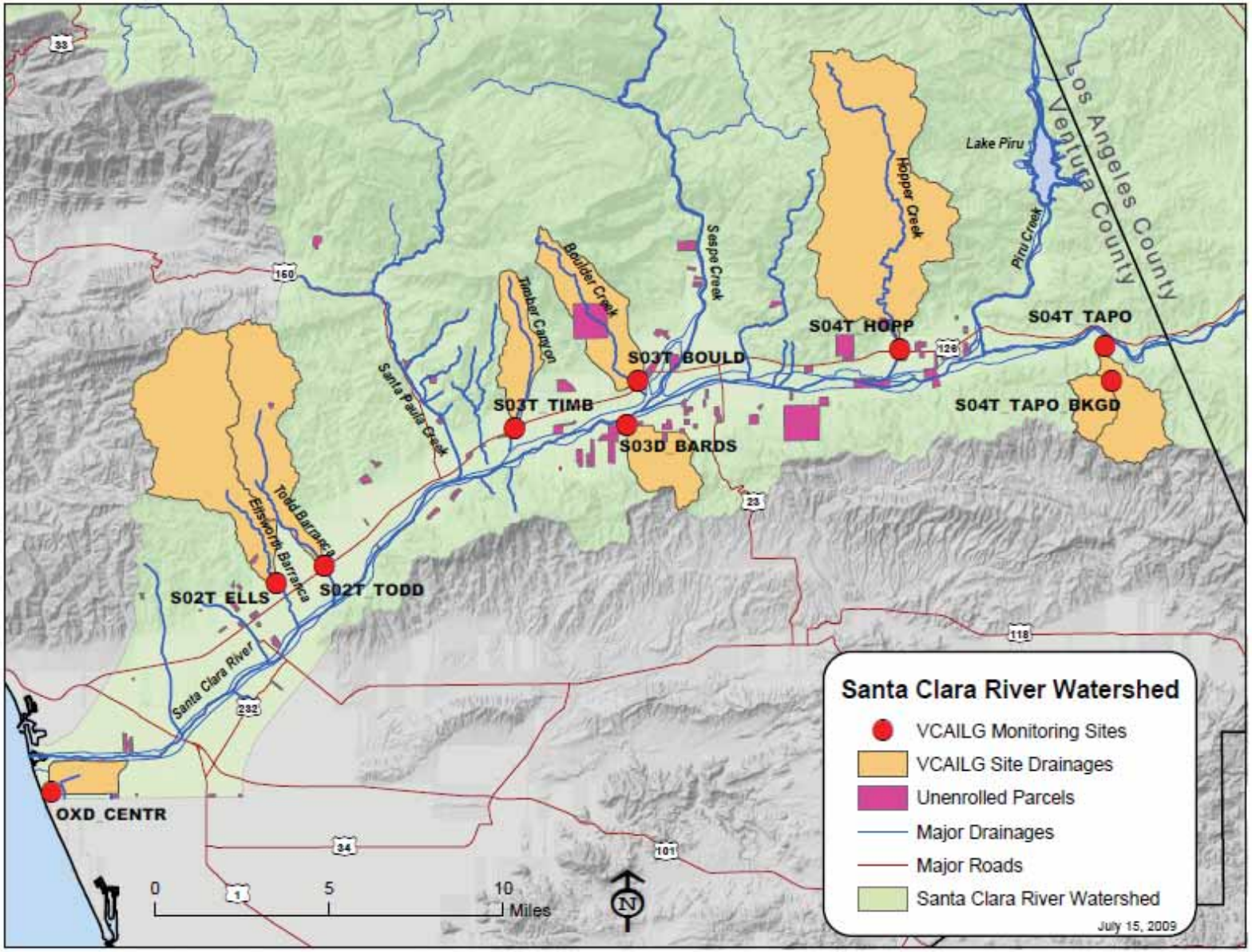

Figure 11. Santa Clara River Watershed Monitoring Site Drainages and Un-enrolled Parcels

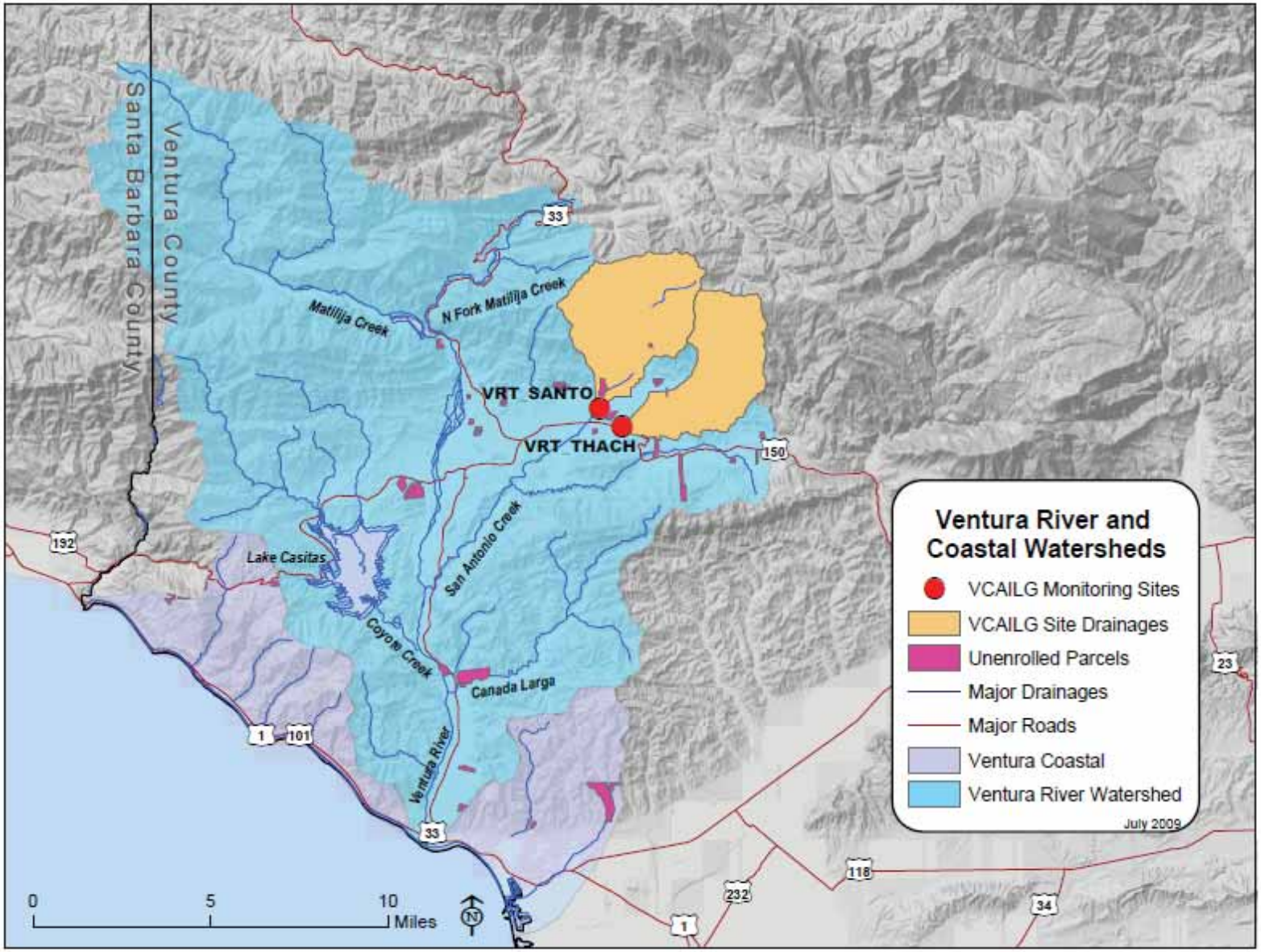

Figure 12. Ventura River Watershed Monitoring Site Drainages and Un-enrolled Parcels

First tier priority drainage areas were targeted for BMP implementation and management practice survey reporting during the past year according to the timeline and task list presented in the 2007 WQMP, which can also be found as Figure 8 in this version. The revised second tier priority drainage areas can be found Table 16 and are listed as follows:

- 01T_ODD2_DCH
- 01T_ODD3_ARN
- 02D_BROOM
- 04D_ETTG
- 04D_LAS
- S03T_BOULD

Landowners and growers within the second tier priority areas will be receiving outreach and BMP information beginning in August. Follow-up with those in the priority areas will take place as part of the 319h grant outreach. Additionally, VCAILG maintains contact with those submitting surveys to ensure completion and accuracy of submitted documents. Appendix C shows the drainage areas for each VCAILG monitoring site, which are also the priority area boundaries.

Growers that are not in priority areas will be notified of the need to implement management practices, provided with resources for selecting appropriate management measures, and may download and complete and Management Practice Survey for inclusion in the VCAILG grower database. However, they will not receive targeted outreach or BMP assistance during this Conditional Waiver.

Priority areas will continue to evolve (as shown in the flow chart) as future monitoring data becomes available; sites that are currently a priority may show significant water quality improvements and areas where there has previously been no runoff could have water quality impairments that will need to be addressed. Any changes to priority tier status of a monitoring site drainage will be noted in subsequent WQMPs, including the rational for the change, as was noted for tier 2 in this document.

The following two sections are evaluation steps of the WQMP process. The first section includes a compilation of pesticide use data as a first step in assessing trends in pesticide application and water quality data. An analysis of the Management Practice Survey results for the first tier priority areas can be found following the pesticide use evaluation.

2008 PESTICIDE USE EVALUATION

As stated in the Conditional Waiver, should pesticide concentrations exceed a benchmark, an assessment of pesticide usage in relation to amount and timing of applications must be completed. To fulfill this requirement, the following is an analysis of pesticide use records for 2007 and 2008 as compared with VCAILG monitoring data for the same years. The evaluation focuses on diazinon and chlorpyrifos since those are the only two presently permitted pesticides with water quality benchmarks. Site specific application data was obtained from the Ventura County Agricultural Commissioner's office for 2007 and 2008, whereas County-wide application totals were available only for 2007 from DPR. To evaluate the pesticide use records, first site application locations had to be linked to the appropriate monitoring site drainage area. Not all pesticide applications took place within a monitoring drainage area. Additional manipulation of the pesticide use data included converting the percent concentration of active

ingredient based on the product name to an amount of active ingredient applied during each application. Depending on the product formulation, the conversion was either into gallons or pounds of active chlorpyrifos or diazinon. In the following discussion, the pounds of pesticide refer to pounds of active ingredient applied. The dates and amounts of pesticides applied were then compared to any benchmark exceedances. Table 17 through Table 20 include the available pesticide application information for 2007 and 2008 that occurred within the VCAILG monitoring drainages as compared to the monitoring data.

Chlorpyrifos

For agricultural application, chlorpyrifos is the active ingredient in Lorsban. Use of chlorpyrifos is common on lemons in Ventura County. Based on the 2007 DPR Annual Pesticide Use Report for Ventura County, 18,610 pounds of chlorpyrifos were applied to 5,251 acres of lemons. These applications account for 68% of the chlorpyrifos used in Ventura County for the year. Strawberries are second to lemons in pounds of chlorpyrifos applied with 6,489 pounds spread over 6,702 acres. Other commodities, separately under 800 pounds of chlorpyrifos each, accounted for the remaining 2,143 pounds applied to agricultural crops throughout the County for the year.

In 2007 and 2008, chlorpyrifos was applied within 19 out of 21 VCAILG monitoring sites (not including background sites). S04T_HOPP and S04T_TAPO are the two sites that did not have any chlorpyrifos applications during either of the monitoring years. Of the 19 sites with chlorpyrifos applications, 11 had exceedances of the water quality benchmark during the 2007 monitoring year and 10 had exceedances in 2008. All exceedances in 2007 occurred during the December 19th storm event, except for the dry weather exceedances at 05D_LAVD. During 2008, four dry weather chlorpyrifos exceedances took place, though the majority were during wet weather as in the previous monitoring year. The following factors are likely to contribute to the likelihood chlorpyrifos is transported off-site: pesticide formulation and application method, date of application in relation to subsequent rain events, mobilization of sediment during rain events, and proximity to a drainage channel, stream, or tributary. Table 17 and Table 18 provide chlorpyrifos application details within the VCAILG monitoring site drainage areas and exceedances of the 0.025 µg/L benchmark that occurred during 2007 and 2008.

Table 17. Chlorpyrifos Applications and Exceedances by Monitoring Site for 2007

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs.)	Total Amount of Active Ingredient Applied per Site in 2007 (gal)	Total Amount of Active Ingredient Applied per Site in 2007 (lbs)	2007 Date Benchmark Exceeded	Dry or Wet Event ?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
01T_ODD2_DCH	1/6/2007	Broccoli		41.43	12.46	41.43	12/19/2007	Wet	2.146	1,564
	11/19/2007	Strawberry	7.97							
	12/13/2007	Strawberry	4.49							
01T_ODD3_ARN	7/5/2007	Cabbage		2.50	0.00	2.50	none		N/A	800
02D_BROOM	3/26/2007	Lemon	85.88		141.15	21.38	none		N/A	8,236
	4/17/2007	Cabbage		21.38						
	8/24/2007	Lemon	22.49							
	10/12/2007	Lemon	32.78							
04D_ETTG	1/10/2007	Broccoli		89.25	32.62	368.92	12/19/2007	Wet	1.38	3,779
	1/11/2007	Broccoli	7.70							
	1/17/2007	Broccoli/Cabbage		88.87						
	1/22/2007	Broccoli	1.01							
	6/7/2007	Cabbage		29.93						
	6/28/2007	Cabbage		35.25						
	7/20/2007	Cabbage		114.00						
	8/7/2007	Cabbage		11.63						
	8/11/2007	Strawberry	3.03							
	11/5/2007	Strawberry	18.07							
	11/21/2007	Strawberry	2.81							
04D_LAS	8/17/2007	Strawberry	2.81		13.77	30.92	12/19/2007	Wet	0.033	1,339
	8/17/2007	Strawberry	10.96							
	10/3/2007	Cabbage		30.92						

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs.)	Total Amount of Active Ingredient Applied per Site in 2007 (gal)	Total Amount of Active Ingredient Applied per Site in 2007 (lbs)	2007 Date Benchmark Exceeded	Dry or Wet Event ?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
05D_LAVD[1]	4/25/2007	Lemon	2.25		22.65	0.00	6/5/2007	Dry	0.1094	877
	9/5/2007	Lemon	14.86				6/5/2007	Dry	0.0775	
	11/2/2007	Strawberry	3.30							
	11/19/2007	Strawberry	2.25							
05D_SANT_ VCWPD	5/2/2007	Lemon	19.03		48.66	6.39	12/19/2007	Wet	0.292	1,154
	6/11/2007	Kale/Collard		6.39						
	11/9/2007	Lemon	23.46							
	11/10/2007	Strawberry	4.27							
	11/20/2007	Strawberry	1.91							
05T_HONDO	11/10/2007	Lemon	25.93		91.33	0.00	12/19/2007	Wet	0.192	3,267
	8/29/2007	Lemon	7.61							
	8/31/2007	Lemon	3.82							
	11/30/2007	Lemon	13.47							
	8/29/2007	Lemon	40.50							
06T_FC_BR	9/10/2007	Lemon	45.68		105.61	0.00	12/19/2007	Wet	0.054	3,121
	9/24/2007	Lemon	18.32							
	9/28/2007	Lemon	9.52							
	10/19/2007	Lemon	14.79							
	10/19/2007	Tangerine	5.97							
	11/2/2007	Orange	1.23							
	11/9/2007	Lemon	10.10							

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)[2]	Total Amount of Active Ingredient Applied per Site in 2007 (gal)	2007 Date Benchmark Exceeded	Dry or Wet Event?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
06T_LONG	5/17/2007	Lemon	5.06	76.33	none		N/A	2,935
	7/17/2007	Orange	0.08					
	10/5/2007	Lemon	0.39					
	10/10/2007	Lemon	4.21					
	10/26/2007	Lemon	44.14					
	11/18/2007	Lemon	2.25					
	12/13/2007	Lemon	20.21					
9BD_GERRY	10/31/2007	Lemon	7.39	43.31	none		N/A	447
	11/29/2007	Lemon	35.92					
OXD_CENTR	7/28/2007	Strawberry	50.40	50.40	12/19/2007	Wet	1.452	1,243
S02T_ELLS	8/28/2007	Lemon	4.49	22.45	12/19/2007	Wet	0.038	9,015
	10/5/2007	Lemon	17.96					
S02T_TODD	8/9/2007	Lemon	4.71	25.48	12/19/2007	Wet	0.16	5,748
	10/1/2007	Lemon	20.77					
S03D_BARDS	4/4/2007	Orange	0.88	30.16	12/19/2007	Wet	0.322	2,214
	4/9/2007	Orange	0.01					
	4/16/2007	Orange	2.92					
	10/31/2007	Tangerine/Lemon	26.35					
S03T_BOULD	10/4/2007	Lemon	9.77	9.77	none		N/A	3,764
S03T_TIMB	10/4/2007	Lemon	7.37	7.37	none		N/A	2,183
VRT_SANTO	10/30/2007	Lemon	2.69	2.69	none		N/A	7,220
VRT_THACH	10/29/2007	Lemon	12.12	12.12	none		N/A	6,003

[1] There are two exceedance concentrations for LAVD on 6/5/07 because the site was sampled twice in the same day.
[2] Site listed on this page did not have any chlorpyrifos applications weighted in pounds.

Table 18. Chlorpyrifos Applications and Exceedances by Monitoring Site for 2008

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs)	Total Amount of Active Ingredient Applied per Site in 2008 (gal)	Total Amount of Active Ingredient Applied per Site in 2008 (lbs)	2008 Date Benchmark Exceeded	Dry or Wet Event ?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
01T_ODD2_DCH	3/19/2008	Cabbage		89.78	7.97	179.04	1/5/2008	Wet	1.2828	1,564
	5/14/2008	Cabbage		10.13			1/24/2008	Wet	0.9837	
	9/16/2008	Broccoli		79.14						
	11/22/2008	Strawberry	7.97							
01T_ODD3_ARN	2/17/2008	Broccoli		75.81		75.81	none		N/A	800
02D_BROOM	6/25/2008	Lemon	100.58		102.48	1.50	none		N/A	8,236
	7/24/2008	Cabbage		1.50						
	11/1/2008	Strawberry	1.91							
04D_ETTG	1/7/2008	Broccoli		34.91	41.31	295.90	1/5/2008	Wet	0.5481	3,779
	1/15/2008	Broccoli		69.00			1/24/2008	Wet	0.8757	
	2/6/2008	Broccoli		9.98			9/16/2008	Dry	0.0561	
	2/27/2008	Broccoli		21.28						
	6/24/2008	Cabbage		99.00						
	7/2/2008	Cabbage		7.98						
	7/9/2008	Cabbage		14.25						
	8/22/2008	Cabbage		24.00						
	8/24/2008	Strawberry	2.25							
	9/2/2008	Kale		1.38						
	9/17/2008	Lemon	16.16							
	10/2/2008	Cabbage		14.12						
	10/10/2008	Lemon	17.96							
	11/11/2008	Strawberry	0.22							
	11/19/2008	Strawberry	4.71							

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs)	Total Amount of Active Ingredient Applied per Site in 2008 (gal)	Total Amount of Active Ingredient Applied per Site in 2008 (lbs)	2008 Date Benchmark Exceeded	Dry or Wet Event?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
	4/11/2008	Onion		49.88			1/5/2008	Wet	0.0654	
04D_LAS	10/8/2008	Cabbage		3.00	0.00	88.88	1/24/2008	Wet	0.0586	1,339
	11/10/2008	Cabbage		36.00			9/16/2008	Dry	0.1307	
	9/12/2008	Lemon	91.06				1/24/2008	Wet	0.3984	
	10/30/2008	Lemon	38.17							
05D_LAVD	11/17/2008	Strawberry	0.70		398.73	0.00				877
	11/25/2008	Lemon	268.80							
	4/26/2008	Cabbage		13.50			1/5/2008	Wet	0.2254	
	9/2/2008	Lemon	28.29				1/24/2008	Wet	0.2442	
	9/24/2008	Lemon	302.40				9/16/2008	Dry	0.2695	
05D_SANT_VCWPD	11/20/2008	Strawberry	1.12		405.15	13.50				1,154
	11/20/2008	Strawberry	4.94							
	11/24/2008	Strawberry	1.21							
	11/25/2008	Lemon	67.20							
	7/21/2008	Lemon	3.04				1/24/2008	Wet	0.2482	
	8/28/2008	Lemon	46.47							
	9/2/2008	Lemon	30.53							
	9/4/2008	Lemon	3.82							
05T_HONDO	10/1/2008	Lemon	25.54		469.51	0.00				3,267
	10/6/2008	Lemon	344.16							
	10/6/2008	Lemon	12.60							
	11/22/2008	Lemon	3.36							

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs)	Total Amount of Active Ingredient Applied per Site in 2008 (gal)	Total Amount of Active Ingredient Applied per Site in 2008 (lbs)	2008 Date Benchmark Exceeded	Dry or Wet Event?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
	7/23/2008	Lemon	2.69				none		N/A	
	8/11/2008	Lemon	0.76							
	8/27/2008	Lemon	18.51							
	8/29/2008	Lemon	3.23							
06T_FC_BR	9/29/2008	Orange	0.45		70.86	0.00				3,121
	10/31/2008	Lemon	15.15							
	11/12/2008	Lemon	26.94							
	11/19/2008	Lemon	0.60							
	11/19/2008	Lemon	2.53							
	6/24/2008	Lemon	2.81				none		N/A	
	8/5/2008	Lemon	47.77							
	9/17/2008	Lemon	50.29							
	9/18/2008	Lemon	2.92							
	9/30/2008	Lemon	28.35							
	10/8/2008	Lemon	37.80							
06T_LONG	10/10/2008	Lemon	123.48		582.53	0.00				2,935
	10/25/2008	Lemon	4.20							
	10/28/2008	Lemon	245.70							
	11/8/2008	Lemon	17.60							
	11/12/2008	Lemon	10.51							
	11/30/2008	Lemon	11.11							

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs)	Total Amount of Active Ingredient Applied per Site in 2008 (gal)	Total Amount of Active Ingredient Applied per Site in 2008 (lbs)	2008 Date Benchmark Exceeded	Dry or Wet Event?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
9BD_GERRY	7/18/2008	Lemon	23.12		89.35	0.00	none		N/A	447
	9/12/2008	Lemon	35.92							
	10/11/2008	Lemon	30.24							
	11/2/2008	Lemon	0.07							
OXD_CENTR	7/8/2008	Cabbage		252.00	157.15	252.00	1/5/2008	Wet	0.6766	1,243
	8/9/2008	Strawberry	157.15				1/25/2008	Wet	4.9679	
S02T_ELLS	4/28/2008	Cabbage	1.57		279.83	0.00	9/16/2008	Dry	0.225	9,015
	8/28/2008	Lemon	64.26							
	9/3/2008	Lemon	52.92							
	9/15/2008	Lemon	12.60							
	9/15/2008	Lemon	67.20							
	10/28/2008	Lemon	22.30							
	10/31/2008	Lemon	58.98							
S02T_TODD	4/28/2008	Cabbage	1.57		102.52	0.00	none		N/A	5,748
	8/11/2008	Lemon	23.94							
	9/4/2008	Lemon	12.52							
	10/11/2008	Lemon	31.88							
	10/26/2008	Lemon	32.61							
S03D_BARDS	10/27/2008	Orange	0.56		1.68	0.00	1/24/2008	Wet	2.6776	2,214
	11/6/2008	Orange	1.12							

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs)	Total Amount of Active Ingredient Applied per Site in 2008 (gal)	Total Amount of Active Ingredient Applied per Site in 2008 (lbs)	2008 Date Benchmark Exceeded	Dry or Wet Event?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
S03T_BOULD	9/10/2008	Lemon	147.51		290.35	0.00	none		N/A	3,764
	9/30/2008	Lemon	111.53							
	10/14/2008	Lemon	0.34							
	11/10/2008	Lemon	30.98							
S03T_TIMB	8/27/2008	Lemon	152.66		189.62	0.00	1/5/2008	Wet	0.1123	2,183
	10/21/2008	Lemon	36.96							
VRT_SANTO	2/8/2008	Orange		1.50	15.12	4.50	none		N/A	7,220
	2/27/2008	Orange		3.00						
	11/8/2008	Lemon	15.12							
VRT_THACH	2/7/2008	Orange		0.75	45.36	7.35	none		N/A	6,003
	2/11/2008	Orange		0.30						
	6/2/2008	Orange		4.50						
	9/19/2008	Orange		1.80						
	11/7/2008	Lemon	45.36							

Diazinon

Diazinon usage by weight was much less than chlorpyrifos in 2007, with 3,183 pounds applied as compared to 27,242 pounds of chlorpyrifos.[1] The commodity receiving the most diazinon was raspberries with 1,780 pounds applied to 676 acres. Applications of diazinon occurred within 9 VCAILG monitoring site drainage areas in 2007 and only 7 drainages in 2008. There was one exceedance of the 0.10 µg/L benchmark during the December 19, 2007 storm event. Two diazinon exceedances occurred during 2008, one during the January 24th storm event and the second during the dry season on May 20th. In 2007 most applications of diazinon were completed in the early months of the year, January through March, with a few applications in early summer. Diazinon applications during 2008, were during the dry months of April through September. As compared to chlorpyrifos, most of the 2007 applications of diazinon were small, with less than 10 gallons of active ingredient broadcast. In 2008 there was a wider range of application amounts (0.30 to 57.60 gallons of active ingredient). Table 19 and Table 20 include diazinon application information for the VCAILG monitoring site drainages and the water quality benchmark exceedances.

[1] California Department of Pesticide Regulation. "2007 Annual Pesticide Use Report Indexed by Chemical, Ventura County."

Table 19. Diazinon Applications and Exceedances by Monitoring Site for 2007

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs)	Total Amount of Active Ingredient Applied per Site in 2007 (gal)	Total Amount of Active Ingredient Applied per Site in 2007 (lbs)	2007 Date Benchmark Exceeded	Dry or Wet Event?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
01T_ODD2_DCH	3/19/2007	Lettuce Head	0	84	0	84	none		N/A	1,564
02D_BROOM	2/21/2007	Raspberry	2.28	0	46.79	34	none		N/A	8,236
	2/21/2007	Raspberry	11.32	0						
	3/5/2007	Cabbage	3.24	0						
	3/20/2007	Beet/Bok Choy	6.85	4						
	4/4/2007	Cabbage/Bok Choy/Soil Fumigation Prep	23.1	0						
	7/10/2007	Corn, Human Consumption	0	30						
04D_ETTG	5/4/2007	Cabbage	0.48	0.5	1.01	0.5	none		N/A	3,779
	9/7/2007	Mustard	0.53	0						
04D_LAS	1/11/2007	Cabbage	0.84	0	0.99	0	none		N/A	1,339
	5/11/2007	Cabbage	0.15	0						
05D_SANT_VCWPD	7/3/2007	Collard	0.955	0	0.955	0	none		N/A	1,154
05T_HONDO	6/5/2007	Nursery-Outdoor Plant	0.228	0	0.228	0	12/19/2007	Wet	0.125	3,267
06T_LONG	3/20/2007	Raspberry	2.04	0	2.04	0	none		N/A	2,935
OXD_CENTR	7/29/2007	Nursery-Outdoor Flower	0	1	0	1	none		N/A	1,243
S03D_BARDS	3/6/2007	Radish/Beet	0.375	0	0.375	0	none		N/A	2,214

Table 20. Diazinon Applications and Exceedances by Monitoring Site for 2008

Site	Date	Commodity	Amount of Active Ingredient Applied (gal)	Amount of Active Ingredient Applied (lbs)	Total Amount of Active Ingredient Applied per Site in 2008 (gal)	Total Amount of Active Ingredient Applied per Site in 2008 (lbs)	2008 Date Benchmark Exceeded	Dry or Wet Event?	Exceedance Date Concentration (ug/L)	Total Drainage Area (ac.)
02D_BROOM	7/8/2008	Corn	NA	16.50	NA	30.50	none		N/A	8,236
	4/10/2008	Cabbage	NA	14.00						
04D_ETTG	7/12/2008	Tomato	57.60	NA	64.32	NA	none		N/A	3,779
	4/22/2008	Tomato	6.72	NA						
04D_LAS	4/10/2008	Cabbage	NA	10.50	NA	10.50	5/20/2008	Dry	0.1933	1,339
05D_SANT_VCWPD	9/24/2008	Collard	2.88	NA	2.88	NA	none		N/A	1,154
05T_HONDO	8/21/2008	Raspberry	0.73	NA	0.73	NA	none		N/A	3,267
S03T_TIMB	5/24/2008	Parsley	0.30	NA	0.30	NA	none		N/A	2,183
S03D_BARDS	5/1/2008	Parsley	0.42	NA	0.42	NA	1/24/2008	Wet	0.1231	2,214

Pesticide Use Summary

Within the VCAILG monitoring drainages, chlorpyrifos and diazinon are applied at opposite times of the year. Application timing, but also amount, may sufficiently explain the discrepancy between these two pesticides in terms of rate of exceedance. Chlorpyrifos, while being applied at greater volumes, is typically used in the fall and winter when there is greater potential for pesticide transport offsite as stormwater runoff. Diazinon is applied during the spring and summer, which minimizes the likelihood of transport to drainage channels, or adjacent streams. It is also applied in smaller volumes. There are additional differences in soil sorption and half-life. Chlorpyrifos attaches more strongly to sediment surfaces and is not readily soluble in water. It's half-life in soil is between 60 and 120 days[2]. The half-life of diazinon in soil ranges from 2 to 4 weeks[3]. Evaluation of diazinon and chlorpyrifos reports for subsequent years will provide insight into the continued usage or replacement of these pesticides with other alternatives. A synthesis of the information from pesticide use reports and BMP surveys can be found in the section following the BMP Survey Evaluation.

BMP SURVEY EVALUATION

Background

As part of the VCAILG 2007 WQMP, a Survey of Management Practices was developed for distribution to VCAILG enrollees. The survey was modified and submitted in the December 15, 2008 revised version of the 2007 WQMP. It was then approved by the Regional Board Executive officer February, 3, 2009. Once approved, the finalized survey and drainage specific exceedance information (Appendix E, 2007) were mailed to all landowners and growers within the first tier priority drainage on March 6, 2009 (Figure 9). Completed surveys were provided by the first tier landowners and growers between March and June 2009.

The VCAILG Survey of Management Practices was designed, in part, to gather information about the extent of use of 100 BMPs, each of which was assigned to one of the following management practices categories[4]:

- Sediment and Erosion Management
- Irrigation Management
- Pest Management
- Nutrient Management
- Salinity Management and Leaching
- Property Management

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[2] EXTOXNET. "Chlorpyrifos." June 1996. < http://extoxnet.orst.edu/pips/chlorpyr.htm>

[3] EXTOXNET. "Diazinon." June 1996. < http://extoxnet.orst.edu/pips/diazinon.htm>

[4] The list of BMPs, and the contaminants potentially mitigated by each BMP, is provided in Appendix D as approved in the 2007 WQMP, revised December 15, 2008.

As part of the survey, respondents were asked to assign one of the following five descriptors (scores) to each of the BMPs:

- Yes, used prior to Jan. 2008
- Yes, new since Jan. 2008
- Planned for Future
- No, not currently used
- Not Applicable

The design of the survey resulted in associations between Ventura County Assessor's Parcel Numbers (APNs) and the scores for each of the 100 BMPs.

As previously described, the areas draining to the following five monitoring sites were designated as first tier priority drainages:

1. 05D_SANT_VCWPD
2. 05D_LAVD
3. OXD_CENTR
4. S02T_TODD
5. S04T_TAPO

First tier priority drainage survey responses are evaluated below.

Level of Response

As of August 2008, 40 surveys had been returned which described management practices on the irrigated land within 92 parcels. The geographic distribution of the surveyed parcels is presented in Table 21.

Table 21. Geographic Distribution of Irrigated Parcels for Which Surveys Were Returned

VCAILG Monitoring Site Associated with Irrigated Parcel	Number of Parcels Surveyed
05D_LAVD	7
05D_SANT_BKGD	1
05D_SANT_VCWPD	7
OXD_CENTR	19
S02T_ELLS	8
S02_TODD	17
S03D_BARDS	1
S04T_TAPO	4
S04T_TAPO_BKGD	1
Outside a VCAILG monitoring site drainage	27

Detail about the response rate (pegged to acreage, not grower) for the surveys from the priority drainages is provided in Table 22.

Table 22. Details about the Surveyed Acreage in the Priority Drainages

Priority Drainage	Irrigated Acres for Which Surveys Were Received	Irrigated Acres in Drainage Area Enrolled in VCAILG	Percent of Enrolled Acres for which Surveys were Received	Total Assessed Agricultural Parcel Acres in Drainage Area
S02T_TODD	1231.12	1345.03	92%	2111.55
S04T_TAPO	751.76	751.76	100%	2091.67
OXD_CENTR	946.07	945.57	100%	1266.83
05D_SANT_VCWPD	478	798	60%	1114.13
05D_LAVD	546.4	738.7	74%	1086.25

Evaluation of Survey Results

BMPs were evaluated separately for specific constituents of concern. In order to focus the analysis, BMPs were evaluated only for constituents that produced water quality benchmark exceedances during VCAILG monitoring in both 2007 and 2008. Table 23 shows the combinations of drainages and constituents that resulted from this prioritization. Exceedances in dissolved oxygen, pH, temperature, and chronic toxicity benchmarks were not evaluated using survey results, since these are not specific pollutants targeted by implementing survey management practices; though some management practices may have a positive impact in addressing these exceedances.

Table 23. Cases for which Survey Results were Evaluated

Priority Drainage	Salts	Nitrogen	OC Pesticides	OP Pesticides
S02T_TODD	X	X		
S04T_TAPO	X	X	X	
OXD_CENTR		X	X	X
05D_SANT_VCWPD	X	X	X	X
05D_LAVD			X	X

Survey results were entered into an Access database. For the analyses contained herein, the database was queried on the basis of drainage area and APN. In the majority of cases, a single set of management practices (scores for the 100 BMPs) applied to an entire parcel. In these cases, the irrigated acreage assigned to a set of BMP scores was that reported for the parcel during the original VCAILG enrollment process. In a few cases where more than one survey was returned that applied to a single parcel (e.g., when an owner and a tenant reported management practices for subsets of the same parcel), the irrigated acreage within the parcel was

subdivided after consultation with owners and tenants, and assigned to the pertinent sets of BMP scores.

The BMP scores and associated parcel acreage were used to derive the following parameters for each BMP, for each priority drainage:

A_{Unused}	Surveyed acres in the priority drainage applicable to a BMP that are currently not managed using the BMP
A_{2007}	Surveyed acres in the priority drainage already managed using a BMP prior to Jan. 2008
A_{2008}	Surveyed acres in the priority drainage managed using a BMP only after Jan. 2008
A_{Future}	Surveyed acres in the priority drainage planned for future management using a BMP
A_{Total}	Surveyed acres in the priority drainage in which the BMP is potentially applicable: $(A_{Unused} + A_{2007} + A_{2008} + A_{Future})$

Next, these parameters were used to calculate two types of percentages (P) for each BMP:

1. Percent of total applicable acres in the drainage on which a BMP was employed *by the time of the Survey*:

   $$P_{current} = (A_{2007} + A_{2008})/A_{Total}$$

2. Percent of applicable acres unmanaged prior to Jan. 2008 that *became* managed after Jan. 2008 using the BMP:

   $$P_{new} = A_{2008} /(A_{Total} - A_{2007})$$

The first parameter ($P_{current}$) serves as an index of the current prevalence of BMP use, regardless of when the BMP was instituted by the grower. The second parameter (P_{new}) serves as an indicator of improvement in BMP use during 2008. Values for $P_{current}$ and P_{new} for each BMP, stratified by constituent and drainage area, are presented in Appendix E.

In order to simplify results, $P_{current}$ and P_{new} were averaged for the BMPs within management categories to provide single percentages for each priority drainage and management category. These results are provided in Table 24 and Table 25.

In order to identify which individual BMPs are under-used that apply to specific constituents, $P_{current}$ for BMPs were averaged across the priority drainages applicable to each of the four constituents of concern (salts, nutrients, OC pesticides, and OP pesticides). This procedure resulted in a new parameter, *mean* $P_{current}$, for each combination of BMP and constituent. BMPs for each constituent were then ranked according to *mean* $P_{current}$. In Table 26 cases are presented for which *mean* $P_{current}$ was less than 50% -- in other words, cases in which a BMP is currently being utilized, on average, on less than 50% of the applicable acreage in the priority drainages.

Table 24. Percent of Surveyed Acres Employing BMPs by the Time of the Survey (averaged within BMP categories)

Targeted Constituent	Category of BMPs	Number of Applicable BMPs	Priority Drainage				
			05D_SANT_VCWPD	S02T_TODD	OXD_CENTR	S04T_TAPO	05D_LAVD
Nitrogen	Sediment and Erosion	12	44%	69%	74%	66%	
	Irrigation	23	86%	92%	85%	86%	
	Nutrient	13	78%	93%	94%	85%	
	Salinity/Leaching	2	76%	42%	97%	68%	
	Property Management	5	84%	96%	98%	100%	
Salts	Sediment and Erosion	12	44%	69%		66%	
	Irrigation	23	88%	95%		100%	
	Pest Management	1	88%	95%		100%	
	Nutrient	13	78%	93%		85%	
	Salinity/Leaching	4	55%	71%		84%	
	Property Management	5	84%	96%		100%	
OC Pesticides	Sediment and Erosion	19	57%		73%	58%	74%
	Irrigation	22	81%		84%	85%	85%
	Property Management	4	88%		100%	100%	95%
OP Pesticides	Sediment and Erosion	19	57%		73%		74%
	Irrigation	22	81%		84%		85%
	Pest Management	28	88%		95%		90%
	Property Management	5	84%		96%		93%

Table 25. Percent of Surveyed Acres with New BMPS, Implemented After Jan. 2008 (averaged within BMP categories for targeted constituents)

Targeted Constituent	Category of BMPs	Number of Applicable BMPs	Priority Drainage				
			05D_SANT_VCWPD	S02T_TODD	OXD_CENTR	S04T_TAPO	05D_LAVD
Nitrogen	Sediment and Erosion	12	2%	17%	24%	0%	
	Irrigation	23	39%	45%	11%	0%	
	Nutrient	13	39%	13%	46%	0%	
	Salinity/Leaching	2	34%	5%	0%	0%	
	Property Management	5	0%	75%	78%	NA	
Salts	Sediment and Erosion	12	2%	17%		0%	
	Irrigation	23	39%	45%		0%	
	Pest Management	1	0%	0%		NA	
	Nutrient	13	39%	13%		0%	
	Salinity/Leaching	4	17%	5%		0%	
	Property Management	5	0%	75%		NA	
OC Pesticides	Sediment and Erosion	19	0%		16%	0%	53%
	Irrigation	22	31%		11%	0%	64%
	Property Management	4	0%		100%	NA	84%
OP Pesticides	Sediment and Erosion	19	0%		16%		53%
	Irrigation	22	31%		11%		64%
	Pest Management	28	6%		60%		81%
	Property Management	5	0%		73%		77%

Table 26. Best Management Practices (BMPs) Used on Less Than 50% of the Surveyed Acreage, when Results for All Priority Drainages are Averaged

Constituent	BMP Code from Survey	BMP Description	Mean Percent Use
Nitrogen	17	Stormwater runoff is captured or kept on the property.	2%
	16	Irrigation runoff is captured or kept on the property.	11%
	35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	24%
	18	Sediment traps are used at the end of the field to retain sediments in runoff.	27%
	34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.	36%
	19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	37%
	21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	46%
OC Pesticides	17	Stormwater runoff is captured or kept on the property.	2%
	16	Irrigation runoff is captured or kept on the property.	4%
	35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	11%
	1	Consult with local agencies (NRCS, RCD, UCCE, or county planning) to develop a soil conservation plan.	21%
	18	Sediment traps are used at the end of the field to retain sediments in runoff.	23%
	19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	24%
	21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	29%
	2	Know your soil series and its erosion hazard rating.	48%

Constituent	BMP Code from Survey	BMP Description	Mean Percent Use
OP Pesticides	17	Stormwater runoff is captured or kept on the property.	2%
	16	Irrigation runoff is captured or kept on the property.	3%
	35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	11%
	1	Consult with local agencies (NRCS, RCD, UCCE, or county planning) to develop a soil conservation plan.	28%
	18	Sediment traps are used at the end of the field to retain sediments in runoff.	29%
	19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	32%
	55	Personnel are familiar with the UC online databases for comparing the risks of different pesticides moving with water and sediment and affecting non-target organisms (WaterTox or Pesticide Wise).	37%
	21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	39%
	45	Use UC IPM guidelines as a resource (www.ipm.ucdavis.edu).	44%
Salts	17	Stormwater runoff is captured or kept on the property.	0%
	16	Irrigation runoff is captured or kept on the property.	12%
	18	Sediment traps are used at the end of the field to retain sediments in runoff.	23%
	19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	24%
	35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	32%
	21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	34%
	74	Chemical properties of the soil, including pH and electrical conductivity (EC), are routinely measured.	39%
	34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.	41%

Of the five-first tier priority drainages, 05D_LAVD showed significant improvements between the two monitoring years within the constituent categories of salts and nitrogen. There were no exceedances in either salts or nitrogen in 2008 and therefore an additional analysis of BMP implementation within these two constituent categories is provided. Fifty-five of the 100-surveyed management practices may address nitrogen exceedances. Those same management practices with the addition of three more apply to salts (BMP codes from survey: 71, 88, and 89). The following table lists all the surveyed management practices that address nitrogen and salts, with the additional three practices specific to salts constituents. Percentages are provided regarding implementation of each practice within the 05D_LAVD drainage area. Within the newly implemented since January 2008 category, management practices which were recently utilized on greater than 25% of the acreage in the 05D_LAVD drainage area are highlighted in yellow. Five management practices fall into this category, they include:

- The grower knows the infiltration rate of the soil, the available water holding capacity of the soil, and the crop rooting depth.
- Flow meters are used to measure actual water use and is coupled with known crop use values or other measurements to conserve water as appropriate.
- Most recent nutrient recommendations for your particular crops and growing practices are used.
- Soil fertility is routinely monitored through measurements of nitrogen, phosphorus, potassium, and micronutrients.
- Fertilization rates are adjusted based on the results of soil fertility measurements.

The newly implemented BMPs bring the total coverage of these practices up to 100% utilization for all except the first practice listed above. Twenty-four, which is almost half of the 58 potential salts or 55 potential nitrogen management practices, have 100% use within the surveyed acreage. There are also many BMPs noted as being newly implemented within an area of 18% or greater of the 546.4 surveyed-irrigated acres.

Table 27. Salts and Nitrogen BMP Implementation within the 05D_LAVD Drainage Area

BMP Code from Survey	BMP Description	Overall Percent Use	Percent Use New Since Jan. 2008
5	Riparian areas or other areas of natural vegetation were retained or expanded during site development.	65.6%	18.3%
6	Avoid bare fields using cover crops, leaving plant debris, or planting subsequent crops.	100.0%	18.3%
8	Apply mulch, compost, or green waste to improve soil characteristics, especially for sandy or clayey soils.	100.0%	18.3%
10	In sloped production areas, management practices to minimize erosion such as contour farming, contoured buffer strips, or terracing are used.	65.6%	18.3%
11	Berms, culverts, or flow channels are in place to divert water away from roads.	100.0%	18.3%
13	Erosion management practices such as terracing, water diversions, and critical area plantings are used for non-production areas that are sloped or hilly.	55.9%	18.3%
14	Ditch banks are protected from erosion with vegetation, rock protection, or geotextiles.	81.7%	0.0%
15	Non-cropped areas with bare soil are protected from erosion with vegetation, mulch, gravel, or by diverting water.	100.0%	18.3%
16	Irrigation runoff is captured or kept on the property.	0.0%	0.0%
17	Stormwater runoff is captured or kept on the property.	0.0%	0.0%
18	Sediment traps are used at the end of the field to retain sediments in runoff.	13.7%	4.0%
19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	19.3%	0.0%
20	At least annually test the irrigation system for distribution uniformity by monitoring water delivery or pressure differences within a block.	100.0%	18.3%
21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	32.0%	18.3%
22	Implement appropriate improvements based on your own irrigation system test or the recommendations of the Irrigation Mobile Lab or other appropriate irrigation professionals.	100.0%	18.3%
23	When drip irrigation is used, the distribution uniformity is 90% or better.	81.7%	0.0%
24	Irrigation main and lateral lines are regularly inspected for breaks, leaks, or clogs.	100.0%	18.3%
25	Filters are inspected and cleaned regularly.	100.0%	18.3%
26	Lines are flushed or cleaned chemically to prevent clogging.	66.4%	0.0%

BMP Code from Survey	BMP Description	Overall Percent Use	Percent Use New Since Jan. 2008
27	Pressure regulators or pressure compensating emitters are used.	100.0%	18.3%
28	Sprinkler heads and drip emitters of the same gallonage are used within each block and replaced with the same heads or emitters when necessary.	84.7%	18.3%
29	Consistent riser heights are used.	66.4%	4.0%
30	Water is diverted from non-crop areas by adjusting sprinkler head arcs or using sprinkler guards.	56.7%	0.0%
31	When irrigating for frost protection, the proper timing and amount of irrigation is used.	38.4%	0.0%
32	Alternative equipment such as tunnels, air circulation, heaters, or smudge pots are used for frost protection.	66.4%	18.3%
33	The grower knows the infiltration rate of the soil, the available water holding capacity of the soil, and the crop rooting depth.	65.6%	27.1%
34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.	66.4%	8.8%
35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	32.0%	8.8%
36	If irrigation must be based on a set schedule due to water availability, the amount of irrigation is varied according to the weather and plant growth stage.	47.3%	0.0%
37	Flow meters are used to measure actual water use and is coupled with known crop use values or other measurements to conserve water as appropriate.	100.0%	52.7%
38	Irrigation is halted if significant runoff occurs.	90.5%	18.3%
39	Harvested or unplanted areas are not irrigated.	66.4%	18.3%
40	Irrigation water quality is tested for parameters of interest including: pH, electrical conductivity (EC), sodium (Na), chloride (Cl), bicarbonate (HCO3), and boron (B).	100.0%	18.3%
41	Well head is protected from surface contamination (located high in the landscape so that surface water drains away from well head; located away from potential contaminants; the space between the casing and sides of hole is grouted; casing regularly inspected for leaks; vermin-proof well cap with screened vent).	65.6%	18.3%
42	Irrigation duties are performed only by personnel who understand and practice appropriate irrigation scheduling, application, and crop management practices related to runoff management.	100.0%	18.3%
71	Copper sulfate is not applied prior to extensive irrigation or expected rainfall.	53.7%	0.0%
73	Most recent nutrient recommendations for your particular crops and growing practices are used.	100.0%	27.1%

BMP Code from Survey	BMP Description	Overall Percent Use	Percent Use New Since Jan. 2008
74	Chemical properties of the soil, including pH and electrical conductivity (EC), are routinely measured.	65.6%	18.3%
75	Soil fertility is routinely monitored through measurements of nitrogen, phosphorus, potassium, and micronutrients.	100.0%	27.1%
76	Fertilization rates are adjusted based on the results of soil fertility measurements.	100.0%	27.1%
77	Crop plants are visually assessed for signs of nutrient deficiency or toxicity.	100.0%	18.3%
78	Leaf or petiole analyses are used as a guide for fertilizer application.	100.0%	18.3%
79	Fertilizer applications are split into multiple smaller applications rather than applying all that is required for a crop in one large application.	100.0%	18.3%
80	Fertilizer levels in fertigation water are tested to ensure that injectors are correctly calibrated.	66.4%	18.3%
81	Fertilizer applications are timed to maximize plant uptake, taking into consideration the life stage of the crop, potential rain events, and irrigation timing.	100.0%	18.3%
82	Slow-release fertilizers are used.	37.6%	0.0%
83	Fertilizer applications are adjusted to account for other nutrient sources, such as: irrigation water, cover crops, and residuals from previous fertilizations.	100.0%	18.3%
84	Fertilizers are stored where they are protected from rain and on an impermeable pad with a curb to contain spills.	100.0%	18.3%
85	Mixing and loading of fertilizers occurs in a covered area on an impermeable surface and more than 100 feet down slope from any wells.	55.9%	18.3%
86	Leaching is performed only when necessary, as determined by measuring soil solution electrical conductivity (EC).	66.3%	18.3%
87	Leaching is done only when fertilizer injectors are turned off.	48.0%	0.0%
88	Fertilizers and amendments with a low salt index are used.	100.0%	18.3%
89	Saline or high selenium wells are decommissioned and other sources of water are used.	4.0%	0.0%
90	Landowner, grower, or other personnel regularly attend UC Cooperative Extension, Commodity Board, or other industry educational meetings concerning management practices that protect water resources.	81.7%	18.3%
91	Landowner, grower, or other responsible personnel subscribe to and read farming, trade, and industry journals containing articles about water quality, fertilizer, pest and erosion management.	100.0%	18.3%

BMP Code from Survey	BMP Description	Overall Percent Use	Percent Use New Since Jan. 2008
92	Employees receive training on the following: wearing protective clothing, understanding fertilizer/pesticide signage, MSDS and label information, personal hygiene and sanitation, trash disposal and recycling, use storage and disposal of fertilizers and pesticides, pest and disease scouting, spill cleanup, and irrigation.	100.0%	18.3%
93	Training is provided in the employees' native language.	91.2%	18.3%
95	Spill cleanup materials are readily accessible and maintained for all potential types and sizes of spills.	81.7%	18.3%

Survey Conclusions

The surveys that were received reflect management practices on large percentages (90-100%) of the enrolled acreage in three of the five priority drainages (S02T_TODD, S04T_TAPO, OXD_CENTR; see Table 22). Survey coverage was lower in the 05D_SANT_VCWPD drainage (60%) and the 05D_LAVD drainage (74%). Because all four of the priority constituents (salts, nutrients, OC pesticides, OP pesticides) are of concern in 05D_SANT_VCWPD, this drainage area is a priority for further survey work.

Inspection of the results in Table 25 reveals that growers in the S04T_TAPO drainage employed no new BMPs on irrigated acreage since Jan. 2008. Respondents in the OXD_CENTR and 05D_LAVD drainages report recently increased use of BMPs in almost all of the management categories pertinent to the constituents of local concern. Respondents in the 05D_SANT_VCWPD drainage reported almost no new use of BMPs for sediment and erosion management and property management (the latter entailing training and education activities).

Although only one year of monitoring data is available for review, the implementation of a broad range of management practices in the 05D_LAVD drainage area appears to be assisting with reducing benchmark exceedances in this drainage area. In future years when more monitoring data are available, similar analyses will be able to be completed for priority one and priority two drainage areas to assess the effectiveness of BMP implementation.

Inspection of the results in Table 24 indicates BMPs designed for sediment/erosion management and salinity/leaching management are less widely used in the priority drainages than BMPs designed for management of irrigation, pests, nutrients, and property (such as training and education). Several of the least used BMPs play a role in the control of all four of the constituents of concern. This suggests that it might be useful to focus outreach on the lesser used BMPs in order to decrease exceedances of water quality benchmarks. However, without knowing how prevalent the under-used BMPs are in drainage areas where water quality exceedances are *not* as frequently observed, it is difficult to determine the extent to which these patterns in BMP use explain water quality problems in the priority drainages.

SYNTHESIS OF PESTICIDE USE AND SURVEY INFORMATION WITHIN APPLICABLE FIRST TIER PRIORITY DRAINAGES

The following is an initial attempt to integrate information regarding pesticide usage with Management Practice Survey results for the three-first tier priority drainages with OP pesticides exceedances: 05D_SANT_VCWPD, 05D_LAVD, and OXD_CENTR. With only two years of monitoring data and one initial round of surveys, only general assessments regarding the observed exceedances and implemented or potential BMPs, can be made at this time. Of the two OP pesticides with water quality benchmarks, diazinon did not cause any exceedances during either of the two monitoring years at the previously mentioned sites. However, the chlorpyrifos benchmark was exceeded on at least two occasions at all three monitoring sites.

Within 05D_LAVD, chlorpyrifos was applied to lemons and strawberries. Exceedances at this monitoring site occurred during a dry event in 2007 and a wet event in 2008. According to the survey results covering 7 parcels and 74% of acres enrolled in VCAILG, BMPs that may address OP pesticides are being well executed in the categories of irrigation management, pest management, and property management. All BMPs within those three categories are currently implemented within greater than 85% of the surveyed acreage. Sediment and erosion

management practices had the lowest rate of implementation with 74% of all potential BMPs in that category being utilized. However, as shown in Table 25, many of the BMPs applicable to OP pesticides were newly implemented (after January 2008). During the two dry weather monitoring events in 2008, 05D_LAVD was dry and therefore no additional exceedances occurred at this site. 2009 monitoring will provide results on whether the previously implemented and new BMPs sufficiently mitigate OP pesticide transport. Additionally, VCAILG will work to obtain completed surveys from the 26% of acreage within the 05D_LAVD drainage area that are currently not covered.

Chlorpyrifos was applied to the following crops within the 05D_SANT_VCWPD drainage area: lemons, strawberries, kale, and cabbage. Exceedances of the chlorpyrifos benchmark occurred during the 2007 storm event, and both storm events and a single dry event in 2008. A significantly greater amount of chlorpyrifos was applied during 2008 than in 2007 within this drainage area, 405.15 gallons as compared to 48.66 and 13.5 pounds as compared to 6.39 pounds, respectively. Seven out of twelve chlorpyrifos applications within the years of 2007 and 2008, occurred during the month of November. Within this drainage area, surveys were returned for 7 parcels covering 60% of the VCAILG enrolled acres. Obtaining surveys to cover the additional 40% of the VCAILG acres will be the first step in assessing whether appropriate BMPs are being utilized to address OP pesticides within the 05D_SANT_VCWPD drainage area. Based on the currently available results, over 80% of surveyed acreage have implemented appropriate BMPs in the categories of irrigation, pest management, and property management (Table 24). Sediment and erosion BMPs are currently utilized at a rate of 57%, which leaves room for recommendations and improvement. No new BMPs were implemented on the surveyed acreage to control sediment and erosion.

Within the OXD_CENTR drainage area, chlorpyrifos was applied on three occasions to strawberries and cabbage within the months of July and August. Though applications took place in the summer, exceedances were only found during the three storm events. This lag in application time and water quality benchmark exceedances could be attributed to the transport time between application locations and the monitoring site. Additionally, if effective irrigation timing and application measures are in place, runoff and/or sediment transport may only occur during storm events. Based on the survey information, which covers 19 parcels and 100% of the VCAILG enrolled acreage, BMPs for irrigation, pest, and property management have all been implemented on over 80% of the drainage area acreage. However, sediment and erosion control is the category with the lowest implementation rate within this drainage area. Adding new BMPs in this category may help address the pesticide exceedances during wet weather. New BMPs, implemented after January 2008, were noted in the categories of irrigation and pest management.

GROWER OUTREACH AND BMP IMPLEMENTATION

In order to inform VCAILG members of their obligations under the Conditional Waiver and this WQMP, continued grower outreach is imperative. Outreach will continue to target growers according to the priority tiers and timeline described in previous sections. Methods of outreach to be carried out by the VCAILG include the following:

- Provide 319h grant team with lists of growers in each of the priority drainages according to the WQMP timeline (Figure 8). This will allow the grant team to provide on-site consultations, workshops, and demonstration tours for those growers in the areas which need the most assistance in achieving water quality benchmarks.

- Mail management practice surveys to growers in priority drainages according to the WQMP timeline (Figure 8). This will provide them with an opportunity to report their existing management practices, management practices that are newly implemented, and planned practices to address exceedances in their drainage area.
- The management practice survey is available online in the Water Quality section of the Farm Bureau website to enable any VCAILG member to report their current, new, and planned management practices.
- Host additional meetings according to the WQMP timeline (Figure 8). These meetings will focus on filling out the management practice survey, informing growers of water quality exceedances in their area, and discussing the importance of new management practice implementation and reporting.
- Provide growers with Mobile Irrigation Testing Lab information.

Uncooperative growers who do not participate in outreach opportunities or provide requested information may be removed from VCAILG and reported to the Regional Board at the discretion of the VCAILG Steering Committee.

BMP IMPLEMENTATION TRACKING

As detailed in the 2007 WQMP, VCAILG has created a database of BMP survey information to track established, new, and planned BMPs. Additional information will be gathered from the following sources:

- Management Practice Surveys
- VCAILG direct communication with grower members through mailings, meetings, and phone calls.
- VCAILG indirect communication with members using crop commission mailings and education outreach as a tool to gather management practice information.
- 319h grant communications with growers, including surveys, on-site consultations, workshops, tours, phone calls, other mailings. To enable efficient follow-up of BMP implementation, the VCAILG will provide UCCE with a list of its members who previously filled out a survey and are located within the priority drainage areas.
- Growers participating in the RCD's Irrigation Audits will be contacted in regard to changes they have made to their wells, pumps, and/or irrigation system following the recommendations outlined in their audit report.

Evaluation of survey results to date, show exceptional VCAILG member participation in submitting the Management Practice Survey within three of the first tier priority drainage areas (Table 22). Follow-up with growers within 05D_SANT_VCWPD and 05D_LAVD will take place to ensure survey completion by the remaining VCAILG members. Additionally, the 319h grant team will be provided with the survey results, which will allow them to target their site visits and outreach within the priority drainages and recommend BMPs that are not implemented as widely and may assist with achieving water quality benchmarks, such as sediment management practices (Table 26).

MONITORING RESULTS EVALUATION AND NEXT STEPS

The WQMP implementation has been designed based on the existing Conditional Waiver monitoring location drainage areas. As a result, the existing monitoring program can be utilized to determine if BMP implementation is effective in reducing water quality benchmark exceedances. Utilizing the existing monitoring sites and their identified drainage areas to prioritize, track, and implement management practices to address water quality impairments enables the VCAILG to build the existing dataset utilizing consistent sites that have been determined to represent agricultural discharges.

The evaluation of BMP survey results as compared to monitoring results discussed above has provided preliminary information on the effectiveness of BMPs in addressing benchmark exceedances. Additional monitoring data under the existing monitoring program is needed to further this evaluation. At this time, changes to the monitoring program are not necessary to further evaluate BMP effectiveness. Rather, additional years of monitoring data following BMP implementation will provide sufficient information to assess BMP effectiveness and compare water quality results with current field conditions and future improvements.

In this section of the 2007 WQMP, a process was presented for addressing continued exceedances and determining implementation completion. The WQMP implementation is still in the early stages and evaluation under the scenarios above cannot be completed until outreach to the first priority tier has been completed and monitoring results are available to determine if benchmark exceedances are still occurring. In the 2009 WQMP, the priority one drainages will be evaluated based on the procedure above to determine if additional actions or monitoring is needed.

With the participation of its members in this WQMP, the VCAILG will be able to document the efforts and progress towards improving water quality in Ventura County.

SUBMITTAL OF VCAILG MEMBER INFORMATION

Information regarding existing and newly installed BMPs, as well as other operational information relevant to water quality obtained from VCAILG members will be compiled on a monitoring site drainage or subwatershed basis for submittal to the Regional Board. All member information will be maintained should an inspection of the records be requested by Regional Board staff as required by the Conditional Waiver.

Conclusions and Recommendations

This 2008 WQMP addresses the exceedances of all constituents observed during the 2008 VCAILG Conditional Waiver Monitoring Program and requirements to have WQMPs in place for effective TMDLs in Ventura County. The WQMP implementation process was developed and presented in the 2007 WQMP, this plan provides information on 2008 benchmark exceedances, information regarding WQMP implementation achievements, and a detailed evaluation of Management Practice Survey results from the first tier priority drainages.

One VCAILG monitoring site location has been changed as requested in the April 9, 2009 letter, approving the 2008 Annual Monitoring Report. 06T_LONG has been moved upstream due to a lack of flow for two subsequent monitoring years. For details regarding this change in the VCAILG Monitoring Program, please refer to the VCAILG MRP Amendment dated May 19, 2009. No additional modifications to the MRP are proposed at this time.

Appendix A

Photos of Sites When Exceedances Occurred During 2008

CALLEGUAS CREEK WATERSHED

01T_ODD2_DCH

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

01T_ODD2_DCH

Event 6

View upstream

Event 7

View upstream

View downstream

01T_ODD3_ARN

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

01T_ODD3_ARN

Event 6

View upstream

View downstream

02D_BROOM

Event 4

No photos available, though exceedances occurred.

Event 5

View upstream

View downstream

Event 6

Pipe discharge at site

Event 7

Pipe Discharge at site

Pipe Discharge at site

04D_ETTG

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

04D_ETTG

Event 6

View upstream

View downstream

Event 7

View upstream

View downstream

04D_LAS

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

04D_LAS

Event 6

View upstream

View downstream

Event 7

View upstream

View downstream

05D_SANT_VCWPD

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

05D_SANT_VCWPD

Event 6

View upstream

View downstream

Event 7

View upstream

View downstream

05D_LAVD

Event 5

View upstream

05T_HONDO

Event 4

View upstream

Event 5

View upstream

View downstream

06T_FC_BR

Event 4

View downstream

Event 5

View upstream

View downstream

OXNARD COASTAL WATERSHED

OXD_CENTR

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

OXD_CENTR

Event 6

View upstream

View downstream

Event 7

View upstream

View downstream

SANTA CLARA RIVER WATERSHED

S02T_ELLS

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

S02T_ELLS

Event 7

View upstream

View downstream

S02T_TODD

Event 4

View upstream

View downstream

Event 5

View upstream

Event 6

View upstream

View downstream

S03T_TIMB

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

S03T_BOULD

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

S03T_BOULD

Event 6

View upstream (high flow)

View upstream (low flow)

View downstream

S03D_BARDS

Event 5

View upstream

View downstream

S04T_HOPP

Event 6

View upstream

View downstream

S04T_TAPO

Event 4

View upstream

View downstream

Event 5

View upstream

View downstream

S04T_TAPO

Event 6

View upstream

View downstream

Event 7

View upstream

View downstream

VENTURA RIVER WATERSHED

VRT_THACH

Event 5

View upstream

View downstream

Appendix B

Benchmark Exceedance Data by Constituent and Site–2008

ORGANOCHLORINE PESTICIDES EXCEEDANCES

Calleguas Creek Watershed

01T_ODD2_DCH

Duck Pond Agricultural Drains / Mugu Drain / Oxnard Drain No. 2. The monitoring site is located on an agricultural drain just south of Hueneme Road near the Duck Ponds. Flow from this drain eventually discharges into the western arm of Mugu Lagoon (Calleguas Creek Reach 1).

Table 28. 01T_ODD2_DCH Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results		
			Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Total Chlordane	µg/L	0.00059	*0.0799*	ND	ND
4,4'-DDD	µg/L	0.00084	*0.2558*	ND	ND
4,4'-DDE	µg/L	0.00059	*0.7365*	*0.0052*	*0.006*
4,4'-DDT	µg/L	0.00059	*0.4435*	ND	ND
Toxaphene	µg/L	0.0002			*0.0292*

ND = Not Detected

01T_ODD3_ARN

Rio de Santa Clara / Oxnard Drain No. 3. The monitoring site is located on an agricultural drain just upstream from the Arnold Road Bridge. Flow from this drain eventually discharges into the western arm of Mugu Lagoon (Calleguas Creek Reach 1). Because the site is tidally influenced, an attempt is made to conduct monitoring at this site approximately one-half our after low tide.

Table 29. 01T_ODD3_ARN Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results		
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008
Total Chlordane	µg/L	0.00059	ND	*0.025*	*0.0061*
4,4'-DDD	µg/L	0.00084	*0.0198*	*0.0646*	*0.0255*
4,4'-DDE	µg/L	0.00059	*0.0992*	*0.1772*	*0.0439*
4,4'-DDT	µg/L	0.00059	*0.0377*	*0.0917*	*ND*

ND = Not Detected

02D_BROOM

The monitoring site is located on an agricultural drain that discharges into Calleguas Creek Reach 2 at Broome Ranch Road.

Table 30. 02D_BROOM Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/202008	Event 7 9/16/2008
Total Chlordane	µg/L	0.00059	ND	*0.0148*	ND	*0.0285*
4,4'-DDD	µg/L	0.00084	*0.0155*	*0.0113*	*0.0051*	*0.0134*
4,4'-DDE	µg/L	0.00059	*0.0511*	*0.0866*	*0.0168*	*0.0547*
4,4'-DDT	µg/L	0.00059	*0.0140*	*0.034*	ND	*0.0144*
Dieldrin	µg/L	0.00014	ND	*0.0108*	ND	ND
Toxaphene	µg/L	0.0002	ND	ND	ND	*0.178*

ND = Not Detected

04D_ETTG

This monitoring site is located on an agricultural drain just upstream from its confluence with Revolon Slough, just east of the intersection of Wood Road and Etting Road. Flow from this drain eventually discharges into Calleguas Creek Reach 4 (Revolon Slough).

Table 31. 04D_ETTG Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Total Chlordane	µg/L	0.00059	*0.0071*	*0.0353*	ND	ND
4,4'-DDD	µg/L	0.00084	*0.0839*	*0.1679*	*0.007*	*0.0078*
4,4'-DDE	µg/L	0.00059	*0.599*	*0.9049*	*0.023*	*0.0342*
4,4'-DDT	µg/L	0.00059	*0.1388*	*0.5552*	*0.0078*	*0.0092*
Toxaphene	µg/L	0.0002	ND	ND	ND	*0.110*

ND = Not Detected

04D_LAS

This monitoring site is located on an agricultural drain just upstream of its confluence with Revolon Slough just upstream of South Las Posas Road. A tile drain discharge is intermittently pumped into this ag drain upstream of the monitoring site. Flow from this drain eventually flows into Calleguas Creek Reach 4 (Revolon Slough).

Table 32. 04D_LAS Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Total Chlordane	µg/L	0.00059	*0.0169*	*0.0438*	ND	*0.0088*
4,4'-DDD	µg/L	0.00084	*0.0449*	*0.0928*	*0.0083*	*0.02*
4,4'-DDE	µg/L	0.00059	*0.4073*	*0.5177*	*0.0217*	*0.0583*
4,4'-DDT	µg/L	0.00059	*0.0701*	*0.1695*	*0.0073*	*0.0109*
Toxaphene	µg/L	0.0002	ND	ND	ND	*0.177*

ND = Not Detected

05D_SANT_VCWPD

This monitoring site is located on the Santa Clara Drain east of Santa Clara Avenue at the Ventura County Watershed Protection District's Stream Gage #781. Flow from this drain eventually discharges into Calleguas Creek Reach 5 (Beardsley Channel).

Table 33. 05D_SANT_VCWPD Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Total Chlordane	µg/L	0.00059	*0.0081*	*0.0244*	ND	ND
4,4'-DDD	µg/L	0.00084	ND	*0.0427*	ND	ND
4,4'-DDE	µg/L	0.00059	*0.0509*	*0.1827*	*0.0175*	*0.0456*
4,4'-DDT	µg/L	0.00059	ND	*0.1078*	ND	*0.0164*
Toxaphene	µg/L	0.0002	ND	ND	ND	*0.142*

ND = Not Detected

05D_LAVD

This monitoring site is located on the La Vista Drain just east of La Vista Avenue, north of Hwy 118. Flow from this drain eventually discharges into Calleguas Creek Reach 5 (Beardsley Channel). The Ventura County Watershed Protection District maintains a stormwater monitoring station just downstream of the VCAILG monitoring site.

Table 34. 05D_LAVD Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results Event 5 1/24/2008
Total Chlordane	µg/L	0.00059	*0.0069*
4,4'-DDD	µg/L	0.00084	*0.0136*
4,4'-DDE	µg/L	0.00059	*0.1011*
4,4'-DDT	µg/L	0.00059	*0.0429*

05T_HONDO

This monitoring site is located on Hondo Barranca just downstream of the Hwy 118 Bridge. Hondo Barranca is a tributary to Calleguas Creek Reach 5 (Beardsley Channel).

Table 35. 05T_HONDO Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results	
			Event 4 1/5/2008	Event 5 1/24/2008
Total Chlordane	µg/L	0.00059	ND	*0.0257*
4,4'-DDD	µg/L	0.00084	ND	*0.2694*
4,4'-DDE	µg/L	0.00059	*0.0299*	*1.0013*
4,4'-DDT	µg/L	0.00059	*0.0116*	*0.494*

ND = Not Detected

06T_FC_BR

This monitoring site is located on Fox Barranca just upstream of the Bradley Road bridge, north of Hwy 118. Fox Barranca is a tributary to Calleguas Creek Reach 6 (Arroyo Las Posas).

Table 36. 06T_FC_BR Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results Event 5 1/24/2008
Total Chlordane	µg/L	0.00059	*0.0367*
4,4'-DDE	µg/L	0.00059	*0.3005*
4,4'-DDT	µg/L	0.00059	*0.1066*

Oxnard Coastal Watershed

OXD_CENTR

This is the only VCAILG monitoring site in the Oxnard Coastal Watershed. The site is located on the Central Ditch, which flows under Harbor Blvd and into McGrath Lake. Water from McGrath Lake is pumped periodically into the ocean to prevent the Central Ditch from backing up and flooding Harbor Blvd.

Table 37. OXD_CENTR Organochlorine Pesticides Exceedances for 2008

			Results			
			Event 4	Event 5	Event 6	Event 7
Constituent	Units	Benchmark	1/5/2008	1/24/2008	5/20/2008	9/16/2008
Total Chlordane	µg/L	0.00059	ND	*0.1802*	ND	ND
4,4'-DDD	µg/L	0.00084	*0.0128*	*1.0772*	ND	*0.0053*
4,4'-DDE	µg/L	0.00059	*0.1029*	*2.1452*	*0.0079*	*0.0093*
4,4'-DDT	µg/L	0.00059	*0.0439*	*1.0539*	ND	ND

ND = Not Detected

Santa Clara River Watershed

S02T_TODD

This monitoring site is located on Todd Barranca upstream of Hwy 126. Todd Barranca drains the Wheeler Canyon area and is a tributary to Santa Clara River Reach 2.

Table 38. SO2T_TODD Organochlorine Pesticides Exceedances for 2008

			Results
Constituent	Units	Benchmark	Event 5 1/24/2008
4,4'-DDT	µg/L	0.00059	*0.0186*

S03T_TIMB

This monitoring site is located on Timber Canyon Creek just upstream of Hwy 126, east of Santa Paula. Timber Creek is a tributary to Santa Clara River Reach 3.

Table 39. S03T_TIMB Organochlorine Pesticides Exceedances for 2008

			Results
Constituent	Units	Benchmark	Event 5 1/24/2008
4,4'-DDT	µg/L	0.00059	*0.0081*

S03T_BOULD

This monitoring site is located on Boulder Creek just upstream of Hwy 126, west of Fillmore. Boulder Creek is a tributary to Santa Clara River Reach 3.

Table 40. S03T_BOULD Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results
			Event 5 1/24/2008
Total Chlordane	µg/L	0.00059	*0.0066*

S03D_BARDS

This monitoring site is located near the end of the agricultural drain that runs parallel to Bardsdale Avenue in Bardsdale. The drain is located on the south side of the Santa Clara River and eventually discharges into Santa Clara River Reach 3.

Table 41. S03D_BARDS Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results
			Event 5 1/24/2008
Total Chlordane	µg/L	0.00059	*0.0186*
4,4'-DDD	µg/L	0.00084	*0.0141*
4,4'-DDE	µg/L	0.00059	*0.1001*
4,4'-DDT	µg/L	0.00059	*0.0553*

S04T_ TAPO

This monitoring site is located on Tapo Creek near the Ventura / Los Angeles County line, south of Hwy 126 and the Santa Clara River. Tapo Creek is a tributary to Santa Clara River Reach 4.

Table 42. S04T_TAPO Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results	
			Event 4 1/5/2008	Event 5 1/24/2008
Total Chlordane	µg/L	0.00059	ND	*0.0353*
4,4'-DDD	µg/L	0.00084	ND	*0.079*
4,4'-DDE	µg/L	0.00059	*0.0777*	*0.2578*

ND = Not Detected

Ventura River Watershed

VRT_THACH

This monitoring site is located on Thacher Creek just upstream of Ojai Avenue in Ojai. Thacher Creek is a tributary to San Antonio Creek, which is tributary to the Ventura River.

Table 43. VRT_THACH Organochlorine Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results Event 5 1/24/2008
4,4'-DDT	ng/L	0.00059	*0.0069*

ORGANOPHOSPHORUS PESTICIDES EXCEEDANCES

Calleguas Creek Watershed

01T_ODD2_DCH

Duck Pond Agricultural Drains / Mugu Drain / Oxnard Drain No. 2. The monitoring site is located on an agricultural drain just south of Hueneme Road near the Duck Ponds. Flow from this drain eventually discharges into the western arm of Mugu Lagoon (Calleguas Creek Reach 1).

Table 44. 01T_ODD2_DCH Organophosphorus Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results	
			Event 4 1/5/2008	Event 5 1/24/2008
Chlorpyrifos	µg/L	0.025	*1.2828*	*0.9837*

04D_ETTG

This monitoring site is located on an agricultural drain just upstream from its confluence with Revolon Slough, just east of the intersection of Wood Road and Etting Road. Flow from this drain eventually discharges into Calleguas Creek Reach 4 (Revolon Slough).

Table 45. 04D_ETTG Organophosphorus Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results	
			Event 4 1/5/2008	Event 5 1/24/2008
Chlorpyrifos	µg/L	0.025	*0.5481*	*0.8757*

04D_LAS

This monitoring site is located on an agricultural drain just upstream of its confluence with Revolon Slough just upstream of South Las Posas Road. A tile drain discharge is intermittently pumped into this ag drain upstream of the monitoring site. Flow from this drain eventually flows into Calleguas Creek Reach 4 (Revolon Slough).

Table 46. 04D_LAS Organophosphorus Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Chlorpyrifos	µg/L	0.025	*0.0654*	*0.0586*	ND	*0.1307*
Diazinon	µg/L	0.10	No exceedance	No exceedance	*0.1933*	ND

ND = Not Detected

05D_SANT_VCWPD

This monitoring site is located on the Santa Clara Drain east of Santa Clara Avenue at the Ventura County Watershed Protection District's Stream Gage #781. Flow from this drain eventually discharges into Calleguas Creek Reach 5 (Beardsley Channel).

Table 47. 05D_SANT_VCWPD Organophosphorus Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results		
			Event 4 1/5/2008	Event 5 1/24/2008	Event 7 9/16/2008
Chlorpyrifos	µg/L	0.025	*0.2254*	*0.2442*	*0.2695*

05D_LAVD

This monitoring site is located on the La Vista Drain just east of La Vista Avenue, north of Hwy 118. Flow from this drain eventually discharges into Calleguas Creek Reach 5 (Beardsley Channel). The Ventura County Watershed Protection District maintains a stormwater monitoring station just downstream of the VCAILG monitoring site.

Table 48. 05D_LAVD Organophospohorus Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results
			Event 5 1/24/2008
Chlorpyrifos	µg/L	0.025	*0.3984*

05T_HONDO

This monitoring site is located on Hondo Barranca just downstream of the Hwy 118 Bridge. Hondo Barranca is a tributary to Calleguas Creek Reach 5 (Beardsley Channel).

Table 49. 05T_HONDO Organophosphorus Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results
			Event 5 1/24/2008
Chlorpyrifos	µg/L	0.025	*0.2482*

Oxnard Coastal Watershed

OXD_CENTR

This is the only VCAILG monitoring site in the Oxnard Coastal Watershed. The site is located on the Central Ditch, which flows under Harbor Blvd and into McGrath Lake. Water from McGrath Lake is pumped periodically into the ocean to prevent the Central Ditch from backing up and flooding Harbor Blvd.

Table 50. OXD_CENTR Organophosphorus Pesticides Exceedances for 2008

			Results	
			Event 4	Event 5
Constituent	Units	Benchmark	1/5/2008	1/24/2008
Chlorpyrifos	µg/L	0.025	*0.6766*	*4.9679*

Santa Clara River Watershed

S02T_ELLS

This monitoring site is located on Ellsworth Barranca just downstream of the Telegraph Road Bridge. Ellsworth Barranca drains the Aliso Canyon area and is a tributary to Santa Clara River Reach 2.

Table 51. S02T_ELLS Organophosphorus Pesticides Exceedances for 2008

			Results
Constituent	Units	Benchmark	Event 7 9/16/2008
Chlorpyrifos	µg/L	0.025	*0.225*

ND = Not Detected

S03T_TIMB

This monitoring site is located on Timber Canyon Creek just upstream of Hwy 126, east of Santa Paula. Timber Creek is a tributary to Santa Clara River Reach 3.

Table 52. S03T_TIMB Organophosphorus Pesticides Exceedances for 2008

			Results
Constituent	Units	Benchmark	Event 4 1/5/2008
Chlorpyrifos	µg/L	0.025	*0.1123*

S03D_BARDS

This monitoring site is located near the end of the agricultural drain that runs parallel to Bardsdale Avenue in Bardsdale. The drain is located on the south side of the Santa Clara River and eventually discharges into Santa Clara River Reach 3.

Table 53. S03D_BARDS Organophosphorus Pesticides Exceedances for 2008

Constituent	Units	Benchmark	Results Event 5 1/24/2008
Chlorpyrifos	µg/L	0.025	*2.6776*
Diazinon	µg/L	0.10	*0.1231*

SALTS EXCEEDANCES

Calleguas Creek Watershed

05D_SANT_VCWPD

This monitoring site is located on the Santa Clara Drain east of Santa Clara Avenue at the Ventura County Watershed Protection District's Stream Gage #781. Flow from this drain eventually discharges into Calleguas Creek Reach 5 (Beardsley Channel).

Table 54. 05D_SANT_VCWPD Salts Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Total Dissolved Solids (TDS)	mg/L	850	*2960*	*2260*	*2650*	*2310*
Chloride	mg/L	150	*220*	*155*	*220*	*210*
Sulfate	mg/L	250	*1430*	*1150*	*1110*	*1040*

05T_HONDO

This monitoring site is located on Hondo Barranca just downstream of the Hwy 118 Bridge. Hondo Barranca is a tributary to Calleguas Creek Reach 5 (Beardsley Channel).

Table 55. 05T_HONDO Salts Exceedances for 2008

Constituent	Units	Benchmark	Results
			Event 4 1/5/2008
Sulfate	mg/L	250	*335*

06T_FC_BR

This monitoring site is located on Fox Barranca just upstream of the Bradley Road bridge, north of Hwy 118. Fox Barranca is a tributary to Calleguas Creek Reach 6 (Arroyo Las Posas).

Table 56. 06T_FC_BR Salts Exceedances for 2008

Constituent	Units	Benchmark	Results
			Event 4 1/5/2008
Total Dissolved Solids (TDS)	mg/L	850	*1600*
Sulfate	mg/L	250	*958*

Santa Clara River Watershed

S02T_ELLS

This monitoring site is located on Ellsworth Barranca just downstream of the Telegraph Road Bridge. Ellsworth Barranca drains the Aliso Canyon area and is a tributary to Santa Clara River Reach 2.

Table 57. S02T_ELLS Salts Exceedances for 2008

Constituent	Units	Benchmark	Results	
			Event 4 1/5/2008	Event 5 1/24/2008
Total Dissolved Solids (TDS)	mg/L	1200	*1510*	*1530*
Chloride	mg/L	150	*157*	No exceedance
Sulfate	mg/L	600	*740*	*776*

S02T_TODD

This monitoring site is located on Todd Barranca upstream of Hwy 126. Todd Barranca drains the Wheeler Canyon area and is a tributary to Santa Clara River Reach 2.

Table 58. S02T_TODD Salts Exceedances for 2008

Constituent	Units	Benchmark	Results		
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008
Total Dissolved Solids (TDS)	mg/L	1200	*1770*	*1710*	*2120*
Sulfate	mg/L	600	*880*	*875*	*1050*

S03T_TIMB

This monitoring site is located on Timber Canyon Creek just upstream of Hwy 126, east of Santa Paula. Timber Creek is a tributary to Santa Clara River Reach 3.

Table 59. S03T_TIMB Salts Exceedances for 2008

Constituent	Units	Benchmark	Results
			Event 5 1/24/2008
Sulfate	mg/L	650	*677*

S03T_BOULD

This monitoring site is located on Boulder Creek just upstream of Hwy 126, west of Fillmore. Boulder Creek is a tributary to Santa Clara River Reach 3.

Table 60. S03T_BOULD Salts Exceedances for 2008

Constituent	Units	Benchmark	Results Event 6 5/20/2008
Total Dissolved Solids (TDS)	mg/L	1300	*1940*
Chloride	mg/L	100	*105*
Sulfate	mg/L	650	*905*

S04T_HOPP

This monitoring site is located on Hopper Creek just upstream of Hwy 126 and the railroad bridge. Hopper Creek is a tributary to Santa Clara River Reach 4.

Table 61. S04T_HOPP Salts Exceedances for 2008

Constituent	Units	Benchmark	Results Event 6 5/20/2008
Total Dissolved Solids (TDS)	mg/L	1300	*1560*
Sulfate	mg/L	600	*805*

S04T_ TAPO

This monitoring site is located on Tapo Creek near the Ventura / Los Angeles County line, south of Hwy 126 and the Santa Clara River. Tapo Creek is a tributary to Santa Clara River Reach 4.

Table 62. S04T_TAPO Salts Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Total Dissolved Solids (TDS)	mg/L	1300	*4080*	*3030*	*4200*	*3660*
Chloride	mg/L	100	*190*	*137*	*203*	*200*
Sulfate	mg/L	600	*2160*	*1530*	*1870*	*1810*

NITROGEN EXCEEDANCES

Calleguas Creek Watershed

01T_ODD2_DCH

Duck Pond Agricultural Drains / Mugu Drain / Oxnard Drain No. 2. The monitoring site is located on an agricultural drain just south of Hueneme Road near the Duck Ponds. Flow from this drain eventually discharges into the western arm of Mugu Lagoon (Calleguas Creek Reach 1).

Table 63. 01T_ODD2_DCH Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Nitrate-N	mg/L	10 [1]	*45.05*	*40.44*	*60.37*	*59.6*

[1] There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N + Nitrite-N was used for comparison with VCAILG data collected at monitoring sites in this reach.

01T_ODD3_ARN

Rio de Santa Clara / Oxnard Drain No. 3. The monitoring site is located on an agricultural drain just upstream from the Arnold Road Bridge. Flow from this drain eventually discharges into the western arm of Mugu Lagoon (Calleguas Creek Reach 1). Because the site is tidally influenced, an attempt is made to conduct monitoring at this site approximately one-half hour after low tide.

Table 64. 01T_ODD3_ARN Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results		
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008
Nitrate-N	mg/L	10 [1]	*28.47*	*10.69*	*46.78*

[1] There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N + Nitrite-N was used for comparison with VCAILG data collected at monitoring sites in this reach.

02D_BROOM

The monitoring site is located on an agricultural drain that discharges into Calleguas Creek Reach 2 at Broome Ranch Road.

Table 65. 02D_BROOM Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results			
			Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/202008	Event 7 9/16/2008
Nitrate-N	mg/L	10 [1]	*43.95*	*49.22*	*36.82*	*48.23*

[1] There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N + Nitrite-N was used for comparison with VCAILG data collected at monitoring sites in this reach.

04D_ETTG

This monitoring site is located on an agricultural drain just upstream from its confluence with Revolon Slough, just east of the intersection of Wood Road and Etting Road. Flow from this drain eventually discharges into Calleguas Creek Reach 4 (Revolon Slough).

Table 66. 04D_ETTG Nitrogen Exceedances for 2008

			Results			
Constituent	Units	Benchmark	Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Total Ammonia-N	mg/L	3.77 / 4.73 / 1.56 / 1.74 [1]	No exceedance	No exceedance	No exceedance	*1.91*
Nitrate-N	mg/L	10 [2]	*75.65*	*56.85*	*74.66*	*114.92*

[1] The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based the April 2002 Basin Plan Amendment chronic equation (ELS absent) and are dependent upon the pH and temperature of the water at the time of collection.
[2] There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N + Nitrite-N was used for comparison with VCAILG data collected at monitoring sites in this reach.

04D_LAS

This monitoring site is located on an agricultural drain just upstream of its confluence with Revolon Slough just upstream of South Las Posas Road. A tile drain discharge is intermittently pumped into this ag drain upstream of the monitoring site. Flow from this drain eventually flows into Calleguas Creek Reach 4 (Revolon Slough).

Table 67. 04D_LAS Nitrogen Exceedances for 2008

			Results			
Constituent	Units	Benchmark	Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Nitrate-N	mg/L	10	*27.49*	*45.23*	*26.36*	*22.09*

05D_SANT_VCWPD

This monitoring site is located on the Santa Clara Drain east of Santa Clara Avenue at the Ventura County Watershed Protection District's Stream Gage #781. Flow from this drain eventually discharges into Calleguas Creek Reach 5 (Beardsley Channel).

Table 68. 05D_SANT_VCWPD Nitrogen Exceedances for 2008

			Results			
Constituent	Units	Benchmark	Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Nitrate-N	mg/L	10 [1]	*40.88*	*55*	*40.08*	*39.62*

[1] There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N + Nitrite-N was used for comparison with VCAILG data collected at monitoring sites in this reach.

06T_FC_BR

This monitoring site is located on Fox Barranca just upstream of the Bradley Road bridge, north of Hwy 118. Fox Barranca is a tributary to Calleguas Creek Reach 6 (Arroyo Las Posas).

Table 69. 06T_FC_BR Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results Event 4 1/5/2008
Nitrate-N	mg/L	10	*17.19*

Oxnard Coastal Watershed

OXD_CENTR

This is the only VCAILG monitoring site in the Oxnard Coastal Watershed. The site is located on the Central Ditch, which flows under Harbor Blvd and into McGrath Lake. Water from McGrath Lake is pumped periodically into the ocean to prevent the Central Ditch from backing up and flooding Harbor Blvd.

Table 70. OXD_CENTR Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results Event 4 1/5/2008	Event 5 1/24/2008	Event 6 5/20/2008	Event 7 9/16/2008
Nitrate-N	mg/L	10 [2]	*19.7*	*19.35*	*14.68*	*14.88*

[2] There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N + Nitrite-N was used for comparison with VCAILG data collected at the monitoring sites in this reach.

Santa Clara River Watershed

S02T_TODD

This monitoring site is located on Todd Barranca upstream of Hwy 126. Todd Barranca drains the Wheeler Canyon area and is a tributary to Santa Clara River Reach 2.

Table 71. S02T_TODD Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results Event 6 5/20/2008
Nitrate-N	mg/L	10	*10.25*

S03T_TIMB

This monitoring site is located on Timber Canyon Creek just upstream of Hwy 126, east of Santa Paula. Timber Creek is a tributary to Santa Clara River Reach 3.

Table 72. S03T_TIMB Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results Event 4 1/5/2008
Nitrate-N	mg/L	5	*6.65*

S03T_BOULD

This monitoring site is located on Boulder Creek just upstream of Hwy 126, west of Fillmore. Boulder Creek is a tributary to Santa Clara River Reach 3.

Table 73. S03T_BOULD Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results Event 6 5/20/2008
Total Ammonia-N	mg/L	3.93 / 4.21 / 1.45 / --[1]	*6.42* [2]
Nitrate-N	mg/L	5	*54.42*

[1] The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
[2] Ammonia was detected in the lab blank and one of the two field blanks below the RL but above the MDL. The second field blank was bottled Arrowhead water instead of lab water, this field blank came back as ND for ammonia.

S04T_ TAPO

This monitoring site is located on Tapo Creek near the Ventura / Los Angeles County line, south of Hwy 126 and the Santa Clara River. Tapo Creek is a tributary to Santa Clara River Reach 4.

Table 74. S04T_TAPO Nitrogen Exceedances for 2008

Constituent	Units	Benchmark	Results Event 6 5/20/2008	Event 7 9/16/2008
Nitrate-N	mg/L	5	*8.03*	*13.56*

DISSOLVED OXYGEN EXCEEDANCES

Calleguas Creek Watershed

02D_BROOM

The monitoring site is located on an agricultural drain that discharges into Calleguas Creek Reach 2 at Broome Ranch Road.

Table 75. 02D_BROOM Dissolved Oxygen Exceedances for 2008

Constituent	Units	Benchmark	Results Event 7 9/16/2008
Dissolved oxygen	mg/L	≥ 5	*1.95*

TEMPERATURE EXCEEDANCES

Calleguas Creek Watershed

04D_LAS

This monitoring site is located on an agricultural drain just upstream of its confluence with Revolon Slough just upstream of South Las Posas Road. A tile drain discharge is intermittently pumped into this ag drain upstream of the monitoring site. Flow from this drain eventually flows into Calleguas Creek Reach 4 (Revolon Slough).

Table 76. 04D_LAS Temperature Exceedances for 2008

Constituent	Units	Benchmark	Results Event 6 5/20/2008
Temperature	ºC	≤ 26.67˚C [1]	*29.95*

[1] The temperature limit for waterbodies designated as WARM is 80˚F (26.7˚C).

PH EXCEEDANCES

Santa Clara River Watershed

S02T_ELLS

This monitoring site is located on Ellsworth Barranca just downstream of the Telegraph Road Bridge. Ellsworth Barranca drains the Aliso Canyon area and is a tributary to Santa Clara River Reach 2.

Table 77. S02T_ELLS PH Exceedances for 2008

Constituent	Units	Benchmark	Results Event 7 9/16/2008
pH	NA	6.5 ≤ pH ≤ 8.5	*8.56*

CHRONIC TOXICITY EXCEEDANCES

Toxicity samples were collected during monitoring Events 4 and 7. During 2008 monitoring, some sites still required 3-species screen tests to determine the most sensitive species; these tests were performed at 05T_HONDO, 06T_FC_BR, S02T_ELLS, S03T_TIMB, S04T_HOPP, VRT_THACH, and VRT_SANTO. Chronic toxicity was detected at four of these sites and the exceedance results are shown in the table below.

Table 78. Chronic Toxicity Exceedances for 3-Species Screen for 2008

Site	Event	*Selenastrum*		*Ceriodaphnia*		
		Cell Growth Toxicity	% Growth Reduct.	Survival Toxicity	Reprod. Toxicity	Reprod. % Reduct.
05T_HONDO	4: Jan 2008	N	----	N	Y	**16.6**
06T_FC_BR	4: Jan 2008	Y	**39.5**	N	Y	**25.6**
S02T_ELLS	4: Jan 2008	N	----	N	Y	**32.4**
S02T_ELLS dup	4: Jan 2008	N	----	N	Y	**29.7**
S03T_TIMB	4: Jan 2008	Y	**14.7**	N	Y	**18.2**

[1] *Selenastrum capricornutum* (algae) is evaluated for the growth endpoint.
[2] *Ceriodaphnia dubia* (invertebrate – water flea) is evaluated for the survival and reproduction endpoints.
[3] *Pimephales promelas* (vertebrate – fathead minnow) is evaluated for survival and biomass endpoints.

Single-species tests were completed at five sites during the Event 4 sampling. Chronic toxicity exceedance results for single-species can be found in Table 79.

Table 79. Chronic Toxicity Exceedances for Single-Species Testing at Freshwater Sites for 2008

Site	Event	*Ceriodaphnia* [1]				TIE Triggered?
		Survival Toxicity	Survival % Reduction	Reproduction Toxicity	Reproduction % Reduction	
01T_ODD2_DCH	4: Jan 2008	Y	**100.0**	---	---	Y
S02T_TODD	4: Jan 2008	N		Y	**100.0**	N [2]
S03T_BOULD	4: Jan 2008	N		Y	**48.8**	N

[1] *Ceriodaphnia dubia* (invertebrate – water flea) is evaluated for the survival and reproduction endpoints.

[2] A TIE was not triggered for this sample since we are evaluating chronic toxicity and survival was not significantly different from the control.

Appendix C

Drainage Areas for VCAILG Monitoring Sites

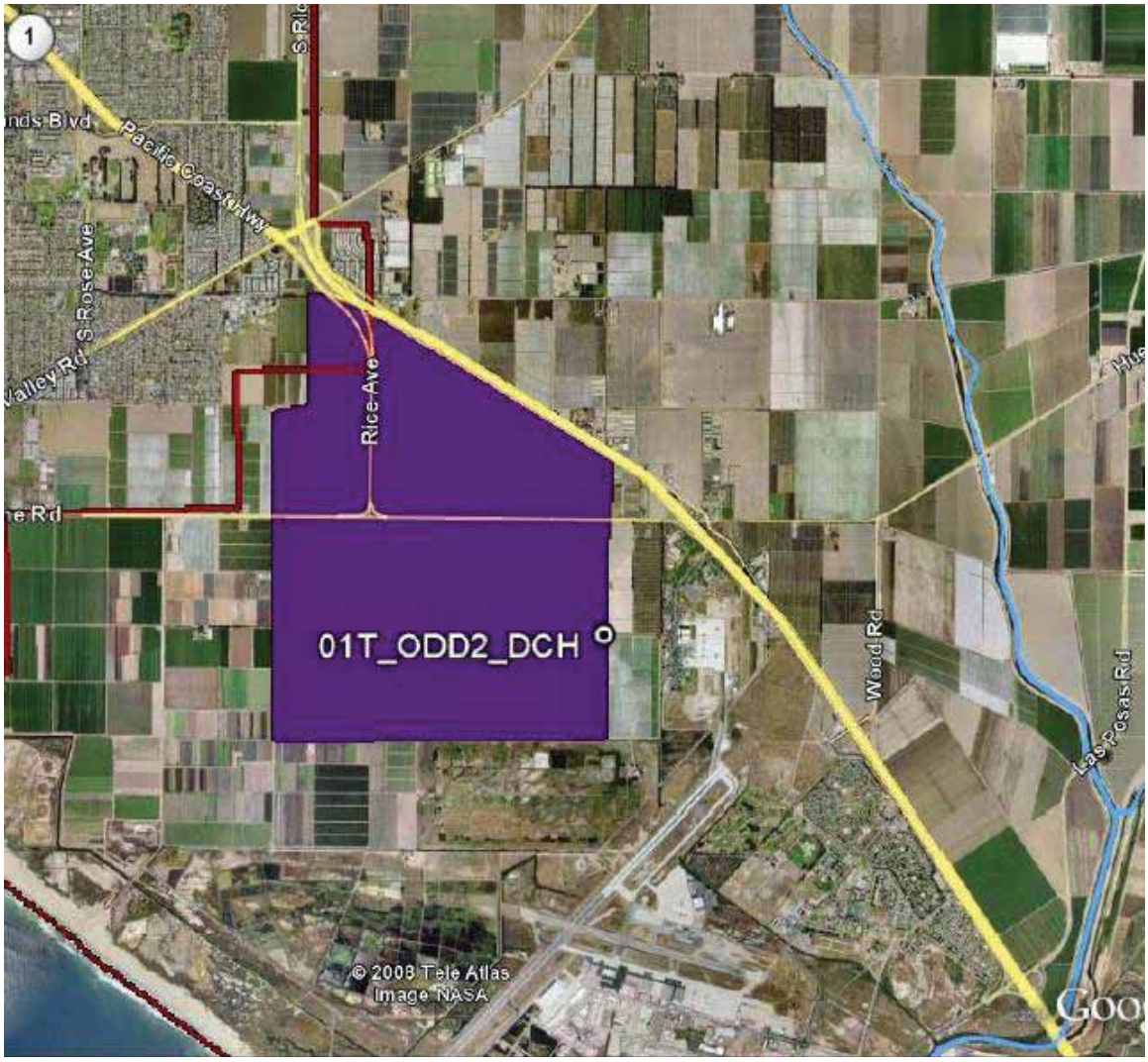


Figure 13. 01T_ODD2_DCH Drainage Area

Figure 14. 01T_ODD3_ARN Drainage Area

Figure 15. 02D_BROOM and 02D_CSUCI Drainage Areas

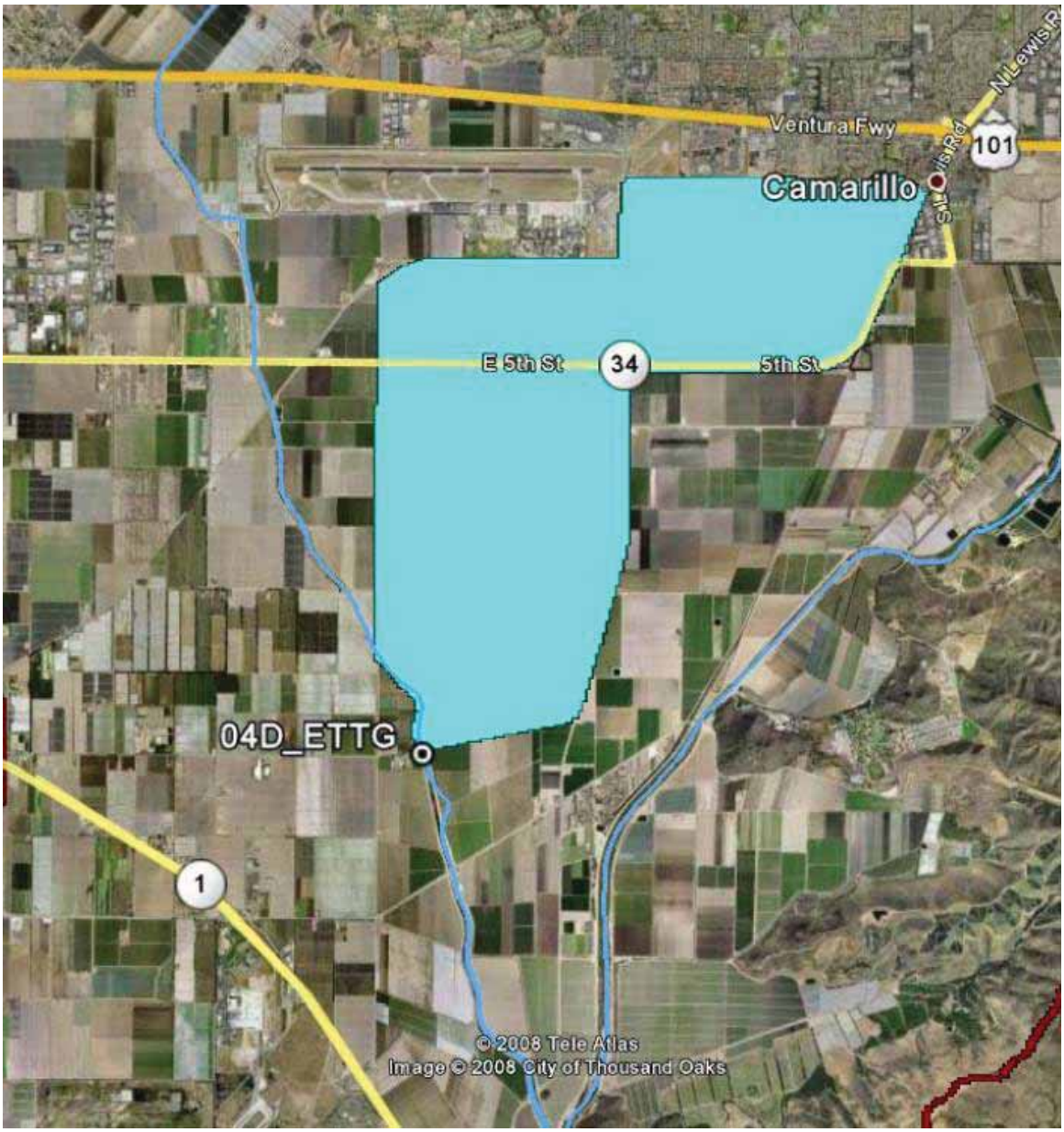


Figure 16. 04D_ETTG Drainage Area

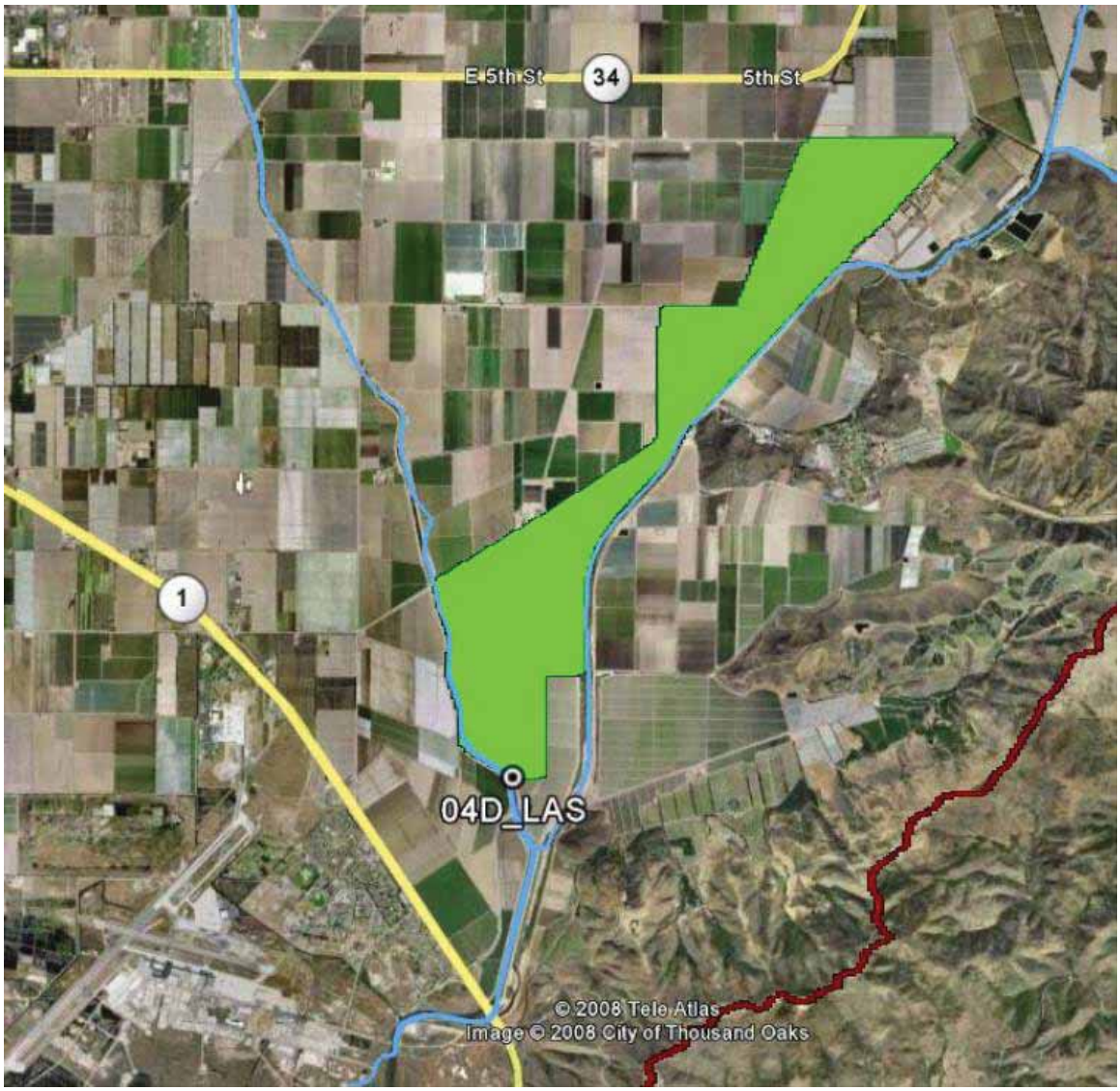


Figure 17. 04D_LAS Drainage Area

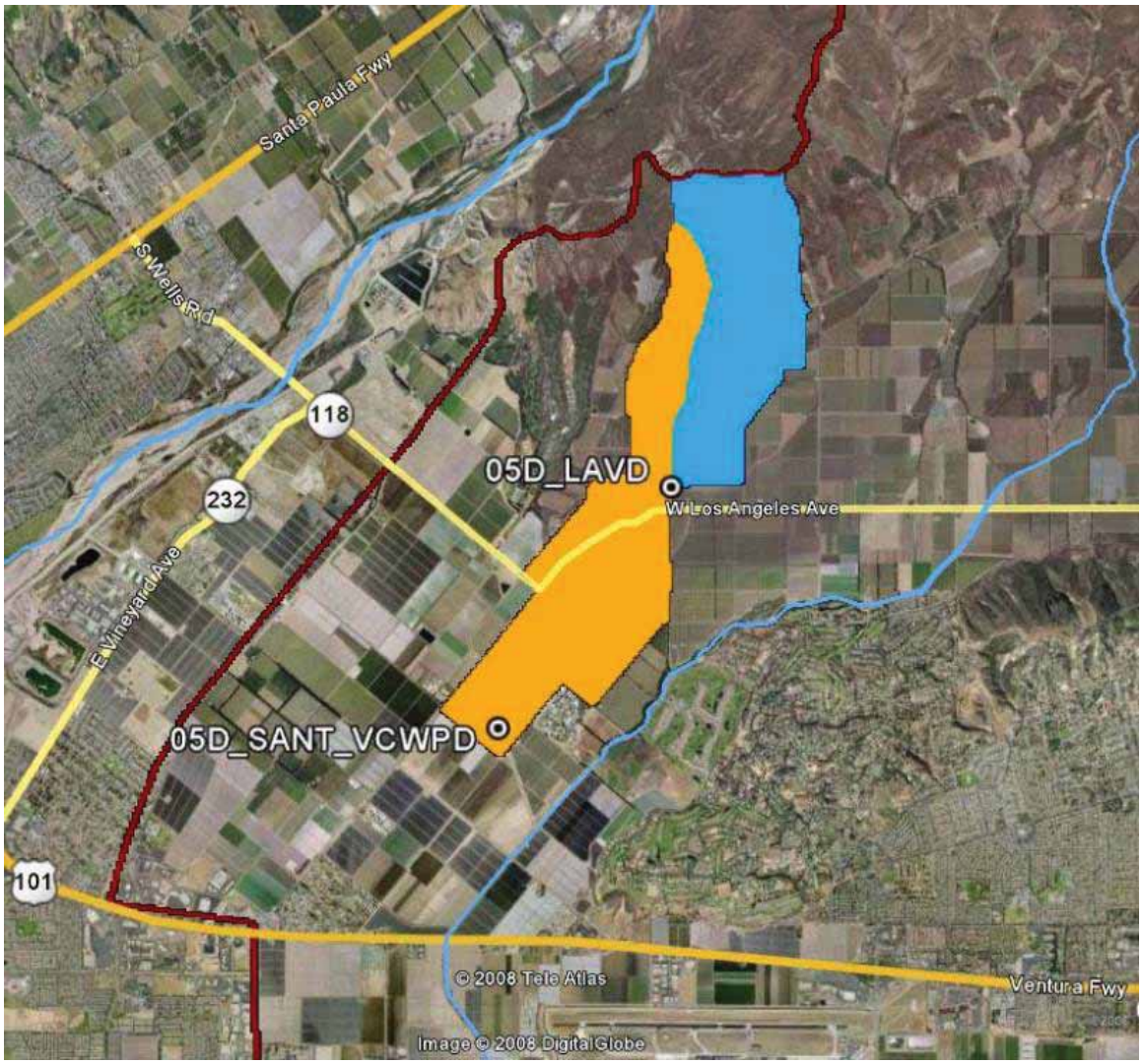


Figure 18. 05D_SANT_VCWPD and 05D_LAVD Drainage Areas

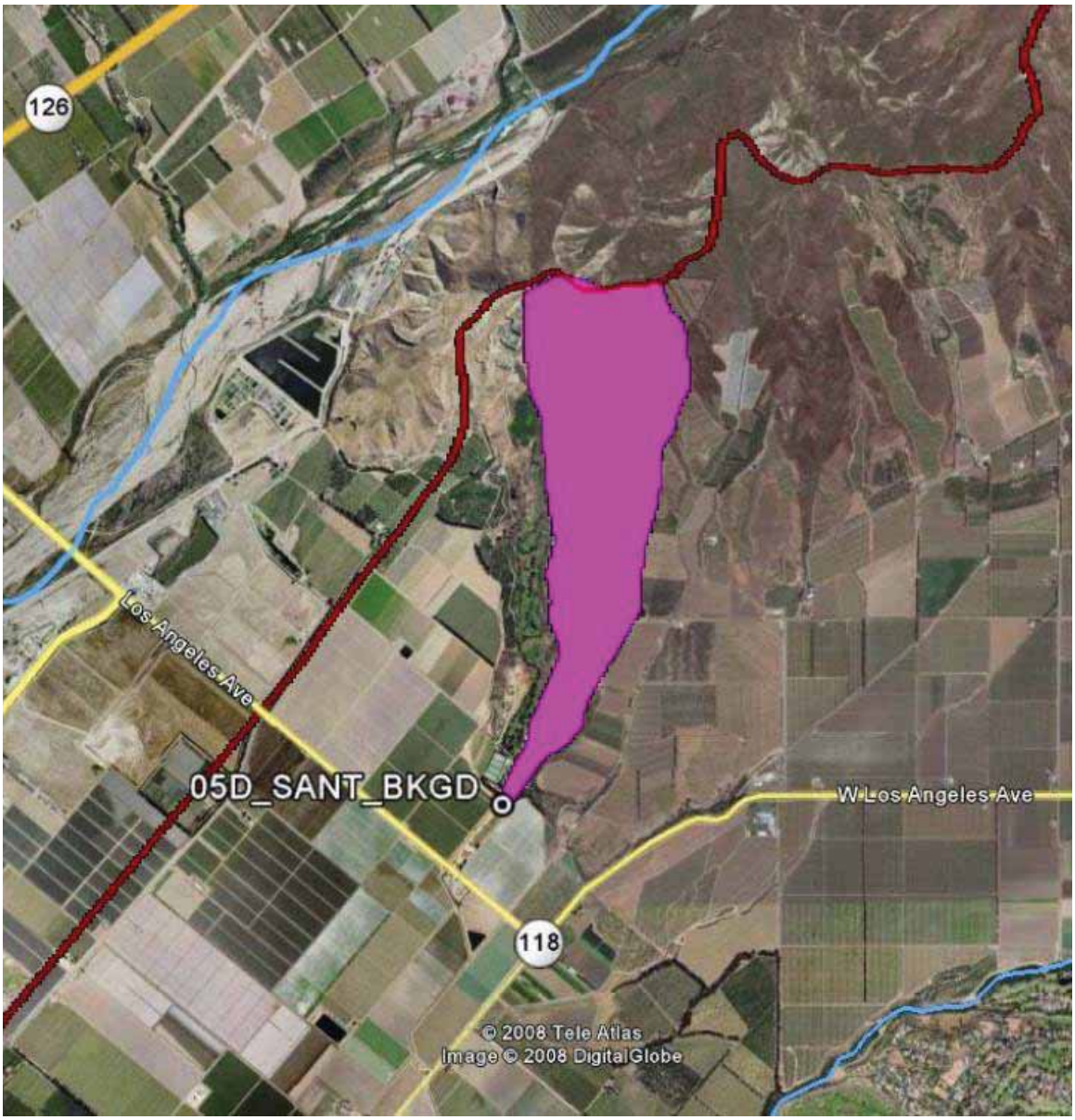


Figure 19. 05D_SANT_BKGD Drainage Area

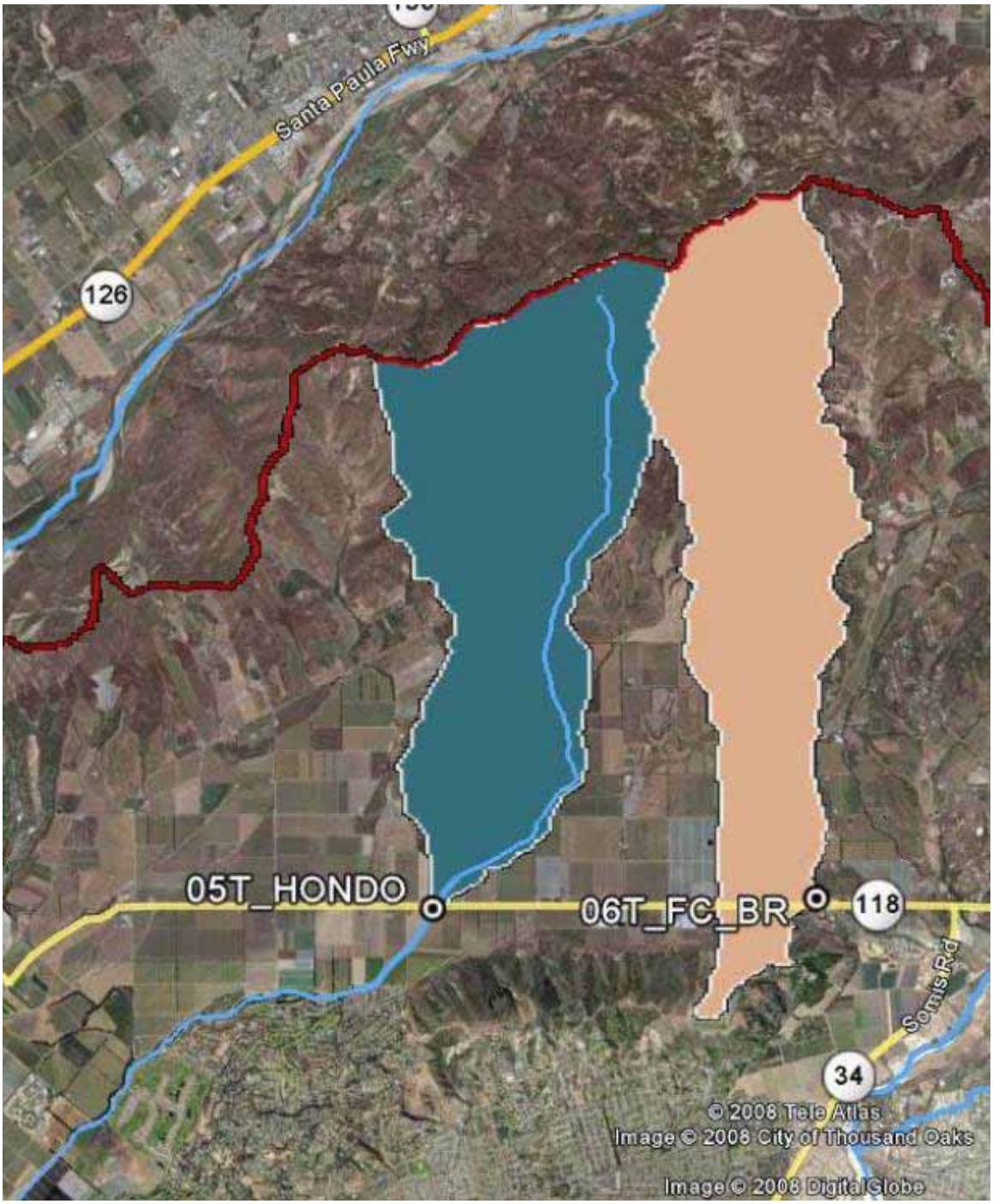


Figure 20. 05T_HONDO and 06T_FC_BR Drainage Areas

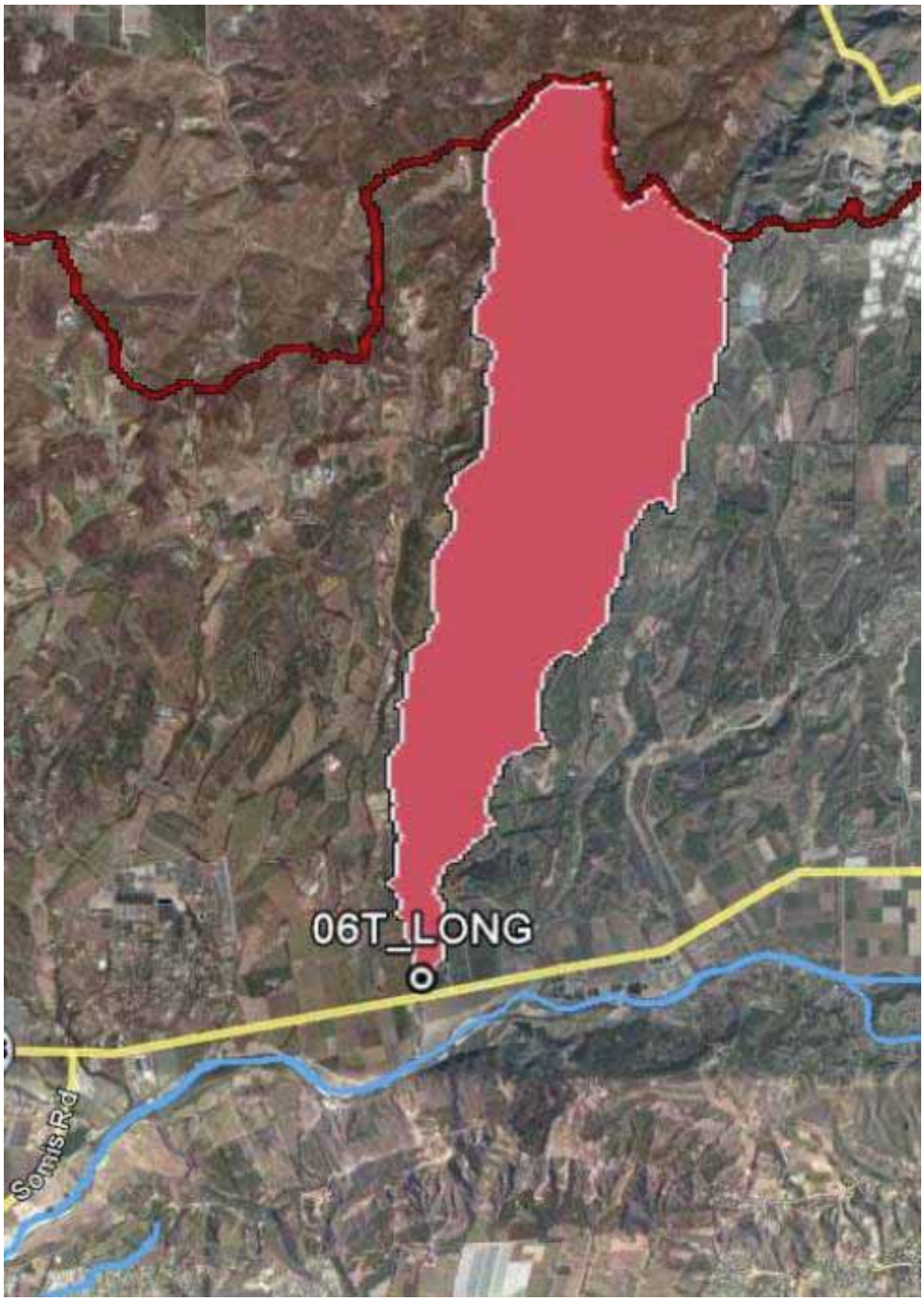


Figure 21. 06T_LONG Drainage Area

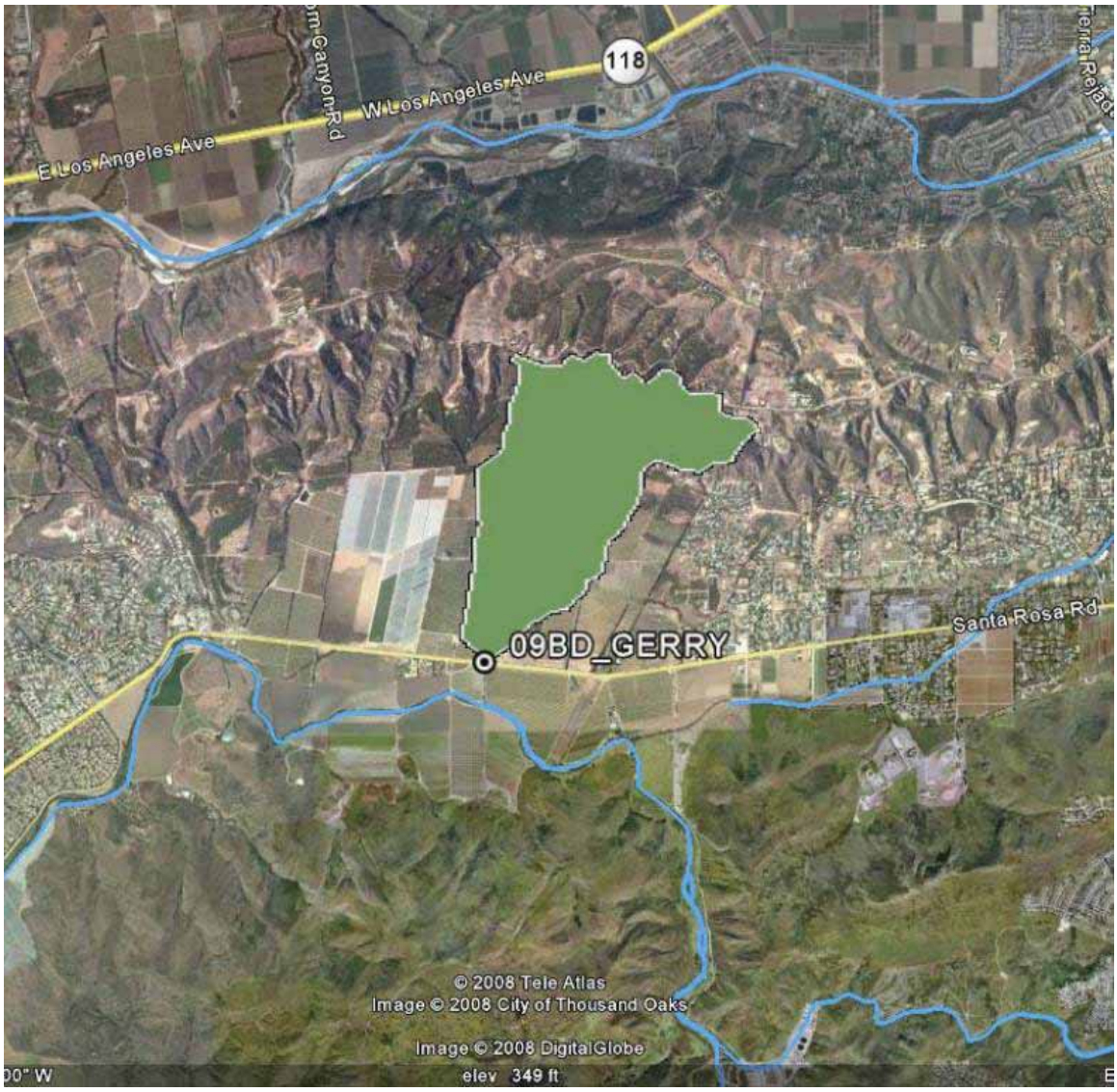


Figure 22. 09BD_GERRY Drainage Area

Figure 23. OXD_CENTR Drainage Area

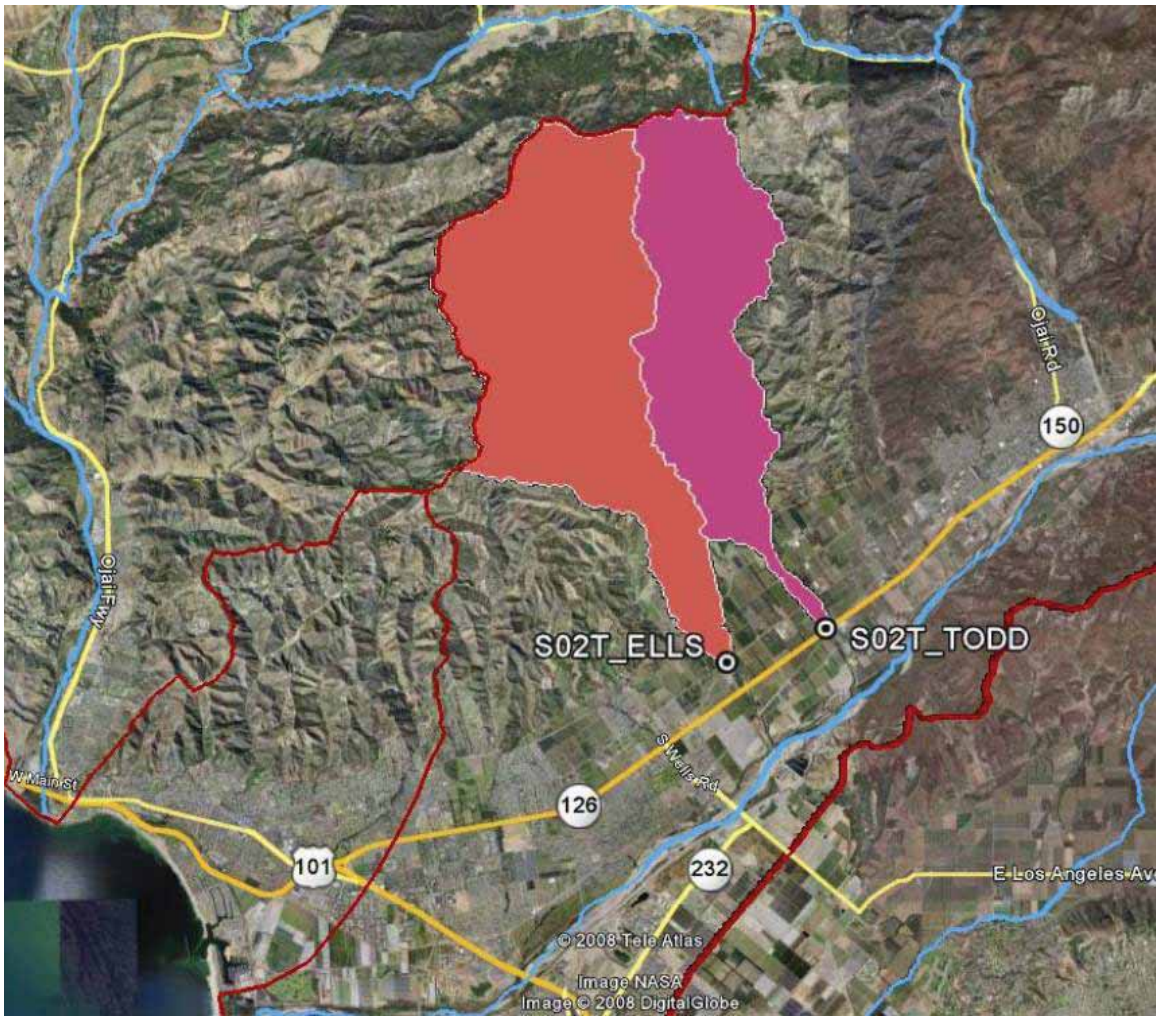


Figure 24. S02T_ELLS and S02T_TODD Drainage Areas

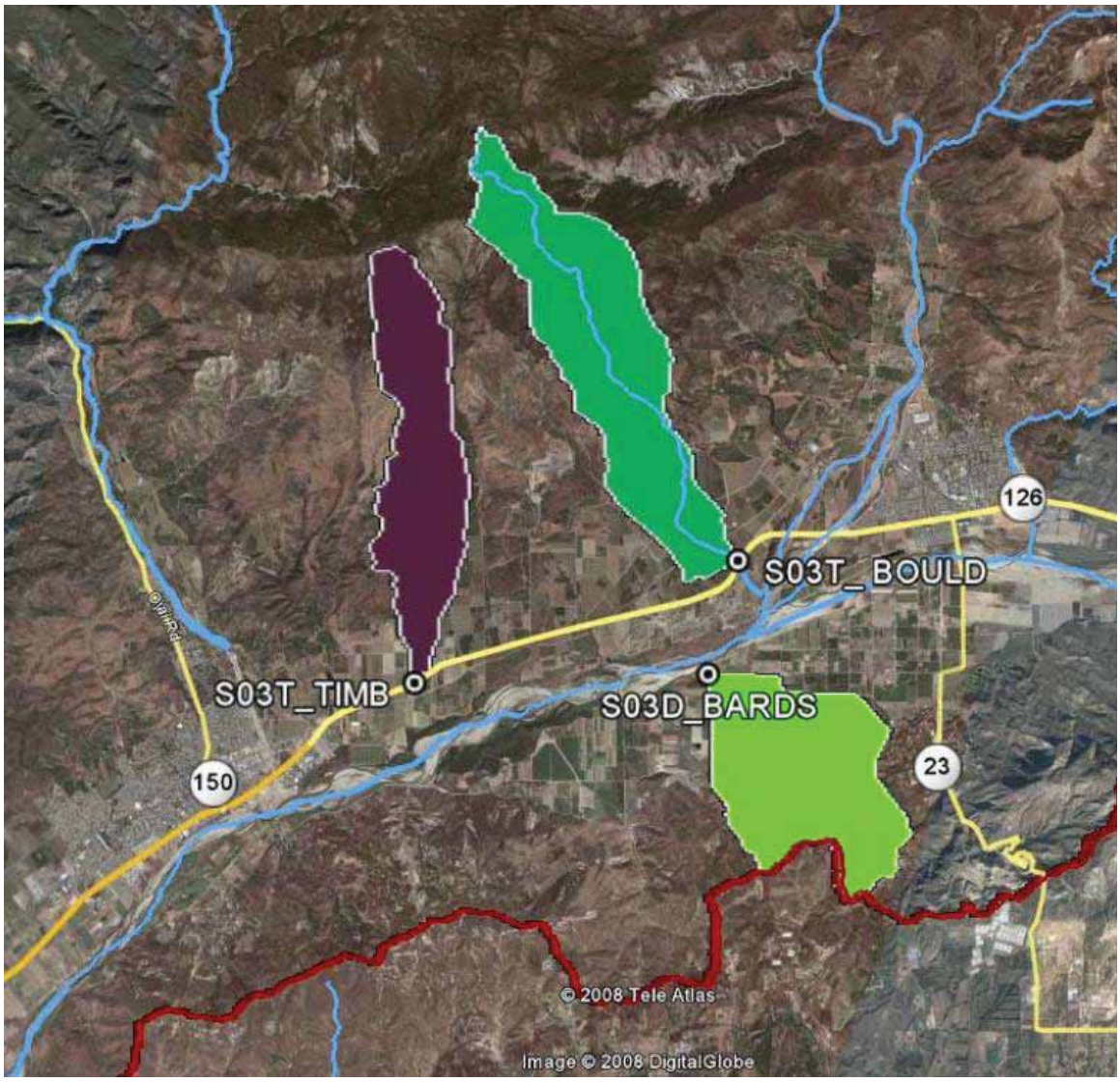


Figure 25. S03T_TIMB, S03T_BOULD, and S03D_BARDS Drainage Areas

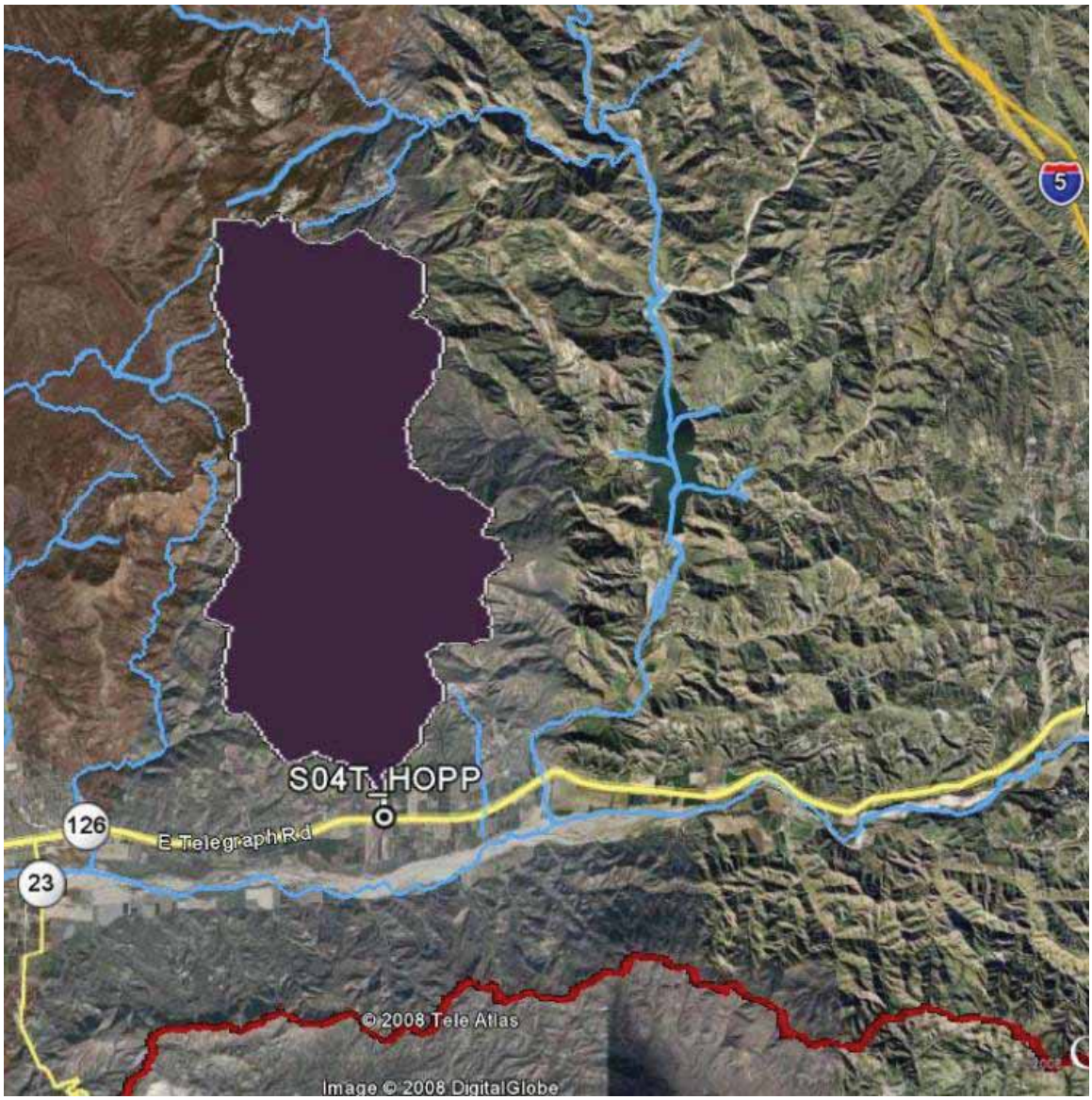


Figure 26. S04T_HOPP Drainage Area

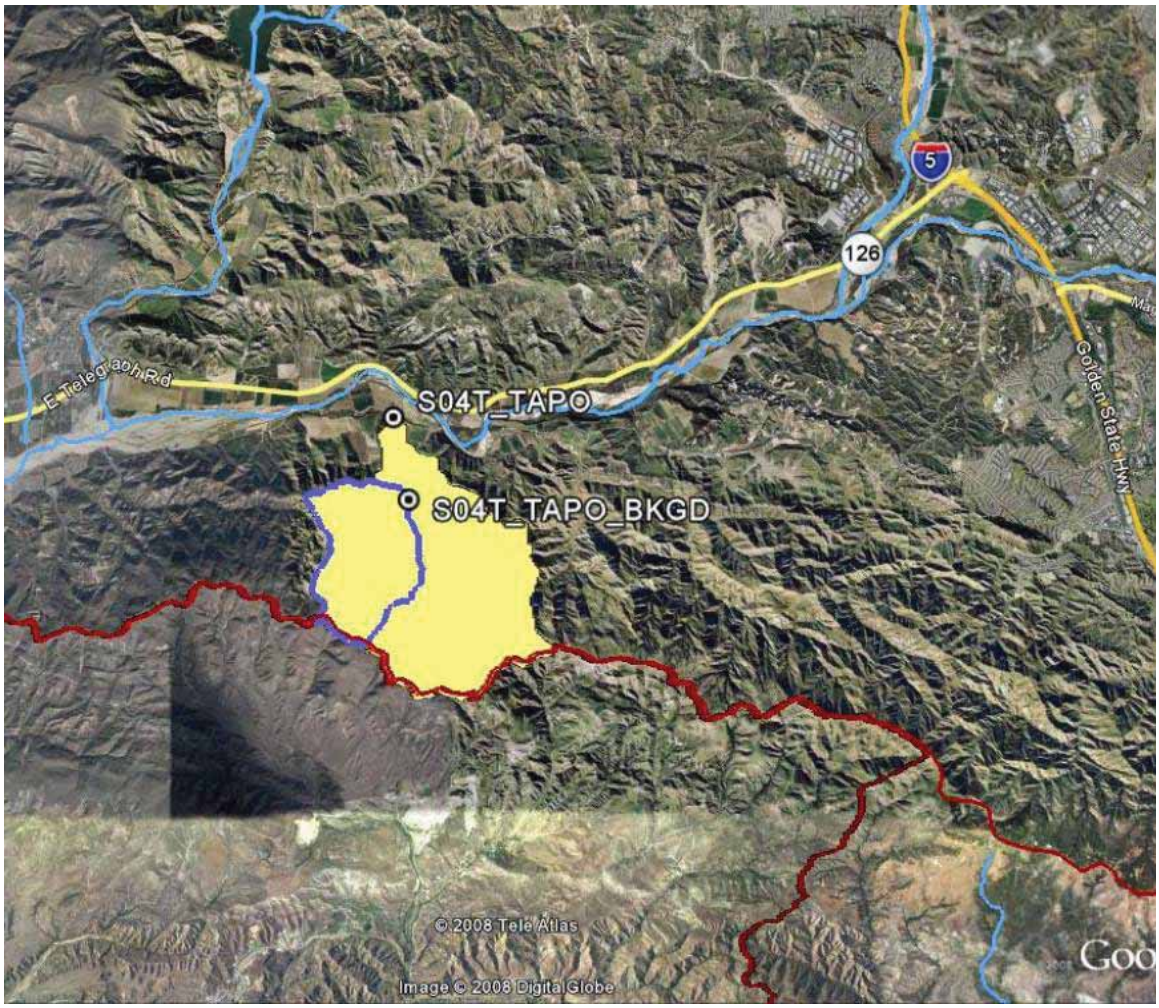


Figure 27. S04T_TAPO and S04T_TAPO_BKGD Drainage Areas

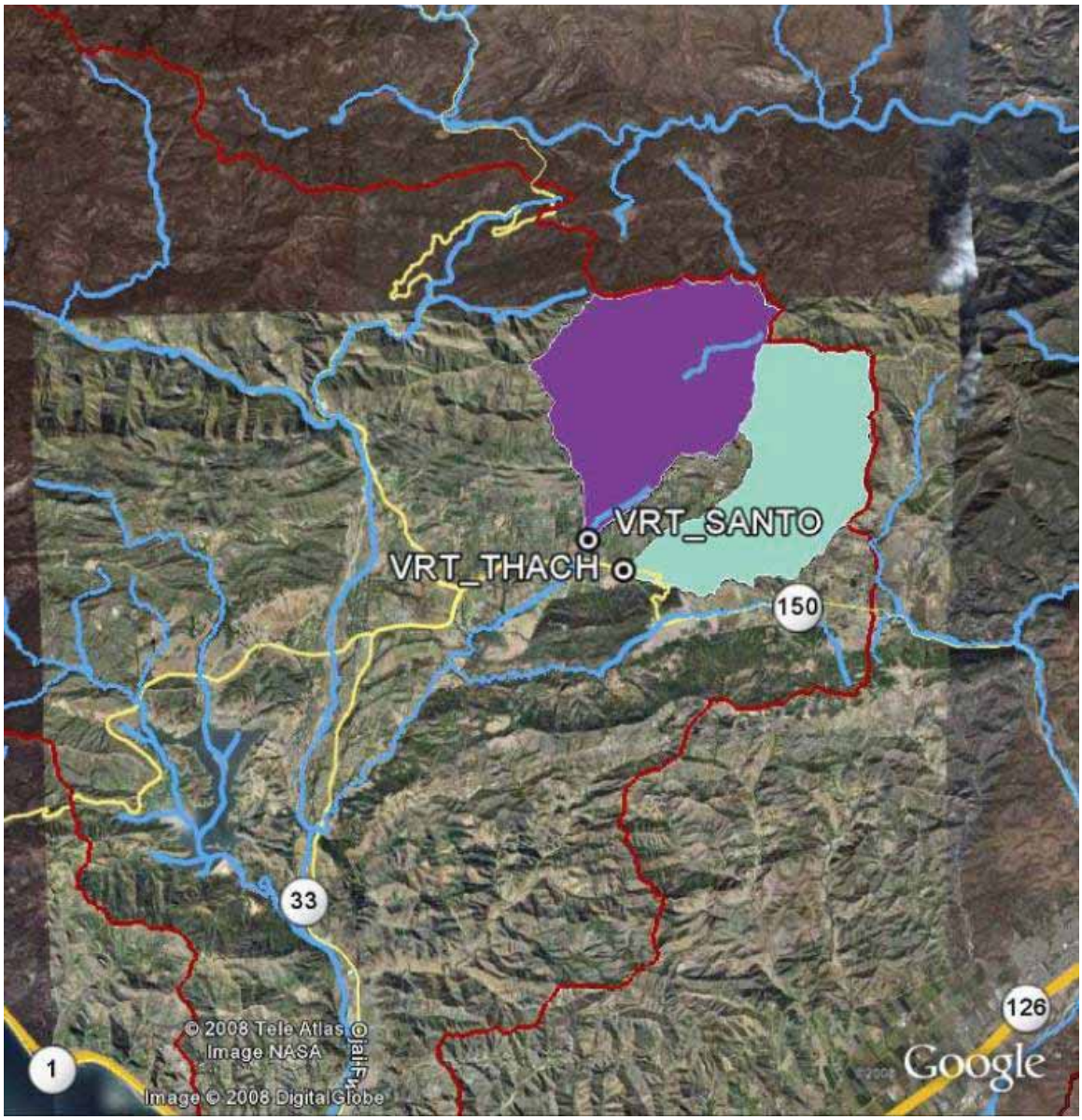


Figure 28. VRT_THACH and VRT_SANTO Drainage Areas

Appendix D

VCAILG Management Practice Survey

Management Practices		Practice Tracking					Pollutants Being Targeted/Controlled				
		Yes, Prior to Jan. 2008	Yes, New since Jan. 2008	Planned for future	No, Not currently used	N/A	Fertilization, Irrigation, & Runoff Control		Sediment Transport & Runoff Control [1]		
Sediment and Erosion Management							***Nitrogen***	***Salts***	***OC Pesticides***	***OP Pesticides***	***Metals***
1	Consult with local agencies (NRCS, RCD, UCCE, or county planning) to develop a soil conservation plan.								x	x	x
2	Know your soil series and its erosion hazard rating.								x	x	x
3	Consider erosion hazard rating and prevailing winds when choosing row orientation.								x	x	x
4	Long runs of production area are broken up by access roads or buffer strips.								x	x	x
5	Riparian areas or other areas of natural vegetation were retained or expanded during site development.						x	x	x	x	x
6	Avoid bare fields using cover crops, leaving plant debris, or planting subsequent crops.						x	x	x	x	x
7	Minimize compaction by using drive rows, reducing tractor passes, reducing cultivation, and avoiding driving on or tilling wet ground.								x	x	x
8	Apply mulch, compost, or green waste to improve soil characteristics, especially for sandy or clayey soils.						x	x	x	x	x
9	Windbreaks or shelterbelts are used in areas prone to wind erosion.								x	x	x

	Sediment and Erosion Management continued	**Yes, Prior to Jan. 2008**	**Yes, New since Jan. 2008**	**Planned for future**	**No, Not currently used**	**N/A**	***Nitrogen***	***Salts***	***OC Pesticides***	***OP Pesticides***	***Metals***
10	In sloped production areas, management practices to minimize erosion such as contour farming, contoured buffer strips, or terracing are used.						x	x	x	x	x
11	Berms, culverts, or flow channels are in place to divert water away from roads.						x	x	x	x	x
12	Road erosion is minimized by grading, using gravel or mulch on roads, or constructing water bars or drainways.								x	x	x
13	Erosion management practices such as terracing, water diversions, and critical area plantings are used for non-production areas that are sloped or hilly.						x	x	x	x	x
14	Ditch banks are protected from erosion with vegetation, rock protection, or geotextiles.						x	x	x	x	x
15	Non-cropped areas with bare soil are protected from erosion with vegetation, mulch, gravel, or by diverting water.						x	x	x	x	x
16	Irrigation runoff is captured or kept on the property.						x	x	x	x	x
17	Stormwater runoff is captured or kept on the property.						x	x	x	x	x
18	Sediment traps are used at the end of the field to retain sediments in runoff.						x	x	x	x	x
19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.						x	x	x	x	x

	Irrigation Management	Yes, Prior to Jan. 2008	Yes, New since Jan. 2008	Planned for future	No, Not currently used	N/A	*Nitrogen*	*Salts*	*OC Pesticides*	*OP Pesticides*	*Metals*
20	At least annually test the irrigation system for distribution uniformity by monitoring water delivery or pressure differences within a block.						x	x	x	x	x
21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.						x	x	x	x	x
22	Implement appropriate improvements based on your own irrigation system test or the recommendations of the Irrigation Mobile Lab or other appropriate irrigation professionals.						x	x	x	x	x
23	When drip irrigation is used, the distribution uniformity is 90% or better.						x	x	x	x	x
24	Irrigation main and lateral lines are regularly inspected for breaks, leaks, or clogs.						x	x	x	x	x
25	Filters are inspected and cleaned regularly.						x	x	x	x	x
26	Lines are flushed or cleaned chemically to prevent clogging.						x	x	x	x	x
27	Pressure regulators or pressure compensating emitters are used.						x	x	x	x	x
28	Sprinkler heads and drip emitters of the same gallonage are used within each block and replaced with the same heads or emitters when necessary.						x	x	x	x	x
29	Consistent riser heights are used.						x	x	x	x	x

	Irrigation Management continued	Yes, Prior to Jan. 2008	Yes, New since Jan. 2008	Planned for future	No, Not currently used	N/A	*Nitrogen*	*Salts*	*OC Pesticides*	*OP Pesticides*	*Metals*
30	Water is diverted from non-crop areas by adjusting sprinkler head arcs or using sprinkler guards.						x	x	x	x	x
31	When irrigating for frost protection, the proper timing and amount of irrigation is used.						x	x	x	x	x
32	Alternative equipment such as tunnels, air circulation, heaters, or smudge pots are used for frost protection.						x	x	x	x	x
33	The grower knows the infiltration rate of the soil, the available water holding capacity of the soil, and the crop rooting depth.						x	x	x	x	x
34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.						x	x	x	x	x
35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.						x	x	x	x	x
36	If irrigation must be based on a set schedule due to water availability, the amount of irrigation is varied according to the weather and plant growth stage.						x	x	x	x	x
37	Flow meters are used to measure actual water use and is coupled with known crop use values or other measurements to conserve water as appropriate.						x	x	x	x	x

	Irrigation Management continued	Yes, Prior to Jan. 2008	Yes, New since Jan. 2008	Planned for future	No, Not currently used	N/A	*Nitrogen*	*Salts*	*OC Pesticides*	*OP Pesticides*	*Metals*
38	Irrigation is halted if significant runoff occurs.						x	x	x	x	x
39	Harvested or unplanted areas are not irrigated.						x	x	x	x	x
40	Irrigation water quality is tested for parameters of interest including: pH, electrical conductivity (EC), sodium (Na), chloride (Cl), bicarbonate (HCO3), and boron (B).						x	x			
41	Well head is protected from surface contamination (located high in the landscape so that surface water drains away from well head; located away from potential contaminants; the space between the casing and sides of hole is grouted; casing regularly inspected for leaks; vermin-proof well cap with screened vent).						x	x	x	x	x
42	Irrigation duties are performed only by personnel who understand and practice appropriate irrigation scheduling, application, and crop management practices related to runoff management.						x	x	x	x	x

	Pest Management	Yes, Prior to Jan. 2008	Yes, New since Jan. 2008	Planned for future	No, Not currently used	N/A	Nitrogen	Salts	OC Pesticides	OP Pesticides	Metals
43	Proper scouting methods are used to determine the population densities of insect pests, snails, slugs, and weeds and the incidence of diseases. Methods include use of yellow sticky traps, use of pheromone traps, plant inspection, beating, or net sweeping or other appropriate scouting tools and methods .									x	x
44	Use weather data or degree days to determine when to control pests.									x	x
45	Use UC IPM guidelines as a resource (www.ipm.ucdavis.edu).									x	
46	Diagnostic lab services or other professional assistance is used to identify unknown pathogens, pests, or growth problems before implementing a control measure.									x	x
47	All transplants, plugs, or plant material is inspected for pests before planting or introduction in the growing area.									x	x
48	Natural enemy populations are considered when choosing pesticides, application rates, and timing.									x	x
49	Beneficial insects or mites are released in the field.									x	x
50	Personnel are aware of the causal agents of diseases in the field and their methods of spread.									x	x
51	Personnel are familiar with methods and timing of disease control.									x	x

	Pest Management continued	**Yes, Prior to Jan. 2008**	**Yes, New since Jan. 2008**	**Planned for future**	**No, Not currently used**	**N/A**	***Nitrogen***	***Salts***	***OC Pesticides***	***OP Pesticides***	***Metals***
52	Disease resistance or disease tolerant crop varieties are used.									x	x
53	Classes of pesticides are rotated to avoid resistance.									x	
54	The grower or pesticide applicator considers selectivity and effectiveness against the target organism before choosing a pesticide.									x	
55	Personnel are familiar with the UC online databases for comparing the risks of different pesticides moving with water and sediment and affecting non-target organisms (WaterTox or Pesticide Wise).									x	
56	Spray timing is based on economic thresholds of pest incidence.									x	x
57	Hot spots are identified and sprayed rather than treating an entire field.									x	x
58	Sprayers are routinely calibrated to ensure accurate application rates.									x	x
59	Worn nozzles and screens are replaced to ensure the best coverage of pesticide applications.									x	x
60	Treatment rate, water volume, and driving speed are optimized to attain the coverage needed for specific pests.									x	x
61	Pesticides are applied only according to the label and environmental hazards are followed.									x	x
62	Pesticides are applied at the lowest effective labeled rate.									x	x

	Pest Management continued	**Yes, Prior to Jan. 2008**	**Yes, New since Jan. 2008**	**Planned for future**	**No, Not currently used**	**N/A**	***Nitrogen***	***Salts***	***OC Pesticides***	***OP Pesticides***	***Metals***
63	Pesticide use records are submitted monthly to the county Agricultural Commissioner.									x	x
64	Pesticides are stored where they are protected from rain and contained on an impermeable pad with curb to contain spills or leaks.									x	x
65	Pesticide mixing and loading is done on an impermeable surface and more than 100 feet down slope from any wells.									x	x
66	Pesticide disposal methods are environmentally safe and in accordance to label instructions.									x	x
67	Reduced risk pesticides are used.									x	
68	Choose selective pesticides for the target pest species and avoid using broad-spectrum pesticides.									x	
69	Avoid applying pesticides when wind could move them off-target as drift.									x	x
70	Avoid applying pesticides when rain or scheduled irrigation will move the pesticides as runoff and ground percolation.									x	x
71	Copper sulfate is not applied prior to extensive irrigation or expected rainfall.							x			x
72	Copper containing pesticides are replaced with alternatives.										x

	Nutrient Management	Yes, Prior to Jan. 2008	Yes, New since Jan. 2008	Planned for future	No, Not currently used	N/A	*Nitrogen*	*Salts*	*OC Pesticides*	*OP Pesticides*	*Metals*
73	Most recent nutrient recommendations for your particular crops and growing practices are used.						x	x			
74	Chemical properties of the soil, including pH and electrical conductivity (EC), are routinely measured.						x	x			
75	Soil fertility is routinely monitored through measurements of nitrogen, phosphorus, potassium, and micronutrients.						x	x			
76	Fertilization rates are adjusted based on the results of soil fertility measurements.						x	x			
77	Crop plants are visually assessed for signs of nutrient deficiency or toxicity.						x	x			
78	Leaf or petiole analyses are used as a guide for fertilizer application.						x	x			
79	Fertilizer applications are split into multiple smaller applications rather than applying all that is required for a crop in one large application.						x	x			
80	Fertilizer levels in fertigation water are tested to ensure that injectors are correctly calibrated.						x	x			
81	Fertilizer applications are timed to maximize plant uptake, taking into consideration the life stage of the crop, potential rain events, and irrigation timing.						x	x			
82	Slow-release fertilizers are used.						x	x			

	Nutrient Management continued	**Yes, Prior to Jan. 2008**	**Yes, New since Jan. 2008**	**Planned for future**	**No, Not currently used**	**N/A**	***Nitrogen***	***Salts***	***OC Pesticides***	***OP Pesticides***	***Metals***
83	Fertilizer applications are adjusted to account for other nutrient sources, such as: irrigation water, cover crops, and residuals from previous fertilizations.						x	x			
84	Fertilizers are stored where they are protected from rain and on an impermeable pad with a curb to contain spills.						x	x			
85	Mixing and loading of fertilizers occurs in a covered area on an impermeable surface and more than 100 feet down slope from any wells.						x	x			
	Salinity Management and Leaching										
86	Leaching is performed only when necessary, as determined by measuring soil solution electrical conductivity (EC).						x	x			
87	Leaching is done only when fertilizer injectors are turned off.						x	x			
88	Fertilizers and amendments with a low salt index are used.							x			
89	Saline or high selenium wells are decommissioned and other sources of water are used.							x			

	Property Management	Yes, Prior to Jan. 2008	Yes, New since Jan. 2008	Planned for future	No, Not currently used	N/A	*Nitrogen*	*Salts*	*OC Pesticides*	*OP Pesticides*	*Metals*
90	Landowner, grower, or other personnel regularly attend UC Cooperative Extension, Commodity Board, or other industry educational meetings concerning management practices that protect water resources.						x	x	x	x	x
91	Landowner, grower, or other responsible personnel subscribe to and read farming, trade, and industry journals containing articles about water quality, fertilizer, pest and erosion management.						x	x	x	x	x
92	Employees receive training on the following: wearing protective clothing, understanding fertilizer/pesticide signage, MSDS and label information, personal hygiene and sanitation, trash disposal and recycling, use storage and disposal of fertilizers and pesticides, pest and disease scouting, spill cleanup, and irrigation.						x	x	x	x	x
93	Training is provided in the employees' native language.						x	x	x	x	x
94	Fuel tanks are checked and maintained to prevent leaks.										x
95	Spill cleanup materials are readily accessible and maintained for all potential types and sizes of spills.						x	x		x	x
96	All vehicles, trucks, and tractors are regularly maintained to detect and prevent fluid leaks.										x
97	Vehicles, machinery, and tanks no longer in use are drained of fluids, and those fluids properly disposed.										x

	Property Management continued	**Yes, Prior to Jan. 2008**	**Yes, New since Jan. 2008**	**Planned for future**	**No, Not currently used**	**N/A**	***Nitrogen***	***Salts***	***OC Pesticides***	***OP Pesticides***	***Metals***
98	The property is kept clean and free of debris.										
99	The property has an adequate number of waste containers that are regularly collected to prevent overflow and are kept covered to prevent scattering of trash.										
100	Restrooms or portable toilets are available where needed and regularly maintained.										

[1] Previous samplings have shown pesticides and metals to have caused toxicity. Therefore, BMPs that address these classes of constituents will also mitigate toxicity exceedances.

Appendix E

VCAILG Management Practice Survey Results

Salts Related Management Practices–Survey Results

		Current Status			Improvement		
		Percent of Applicable Acres Employing the BMP by the Time of the Survey			Percent of Applicable Acres Unmanaged Before Jan 2008 that Became Managed After Jan 2008		
	Sediment and Erosion Management	**05D_SANT _VCWPD**	**S02T_TODD**	**S04T_TAPO**	**05D_SANT _VCWPD**	**S02T_TODD**	**S04T_TAPO**
5	Riparian areas or other areas of natural vegetation were retained or expanded during site development.	36%	88%	100%	0%	0%	NA
6	Avoid bare fields using cover crops, leaving plant debris, or planting subsequent crops.	100%	100%	100%	NA	100%	NA
8	Apply mulch, compost, or green waste to improve soil characteristics, especially for sandy or clayey soils.	88%	77%	100%	0%	0%	NA
10	In sloped production areas, management practices to minimize erosion such as contour farming, contoured buffer strips, or terracing are used.	0%	100%	100%	0%	NA	NA
11	Berms, culverts, or flow channels are in place to divert water away from roads.	0%	96%	100%	0%	0%	NA
13	Erosion management practices such as terracing, water diversions, and critical area plantings are used for non-production areas that are sloped or hilly.	41%	100%	100%	0%	NA	NA
14	Ditch banks are protected from erosion with vegetation, rock protection, or geotextiles.	100%	100%	87%	0%	NA	0%
15	Non-cropped areas with bare soil are protected from erosion with vegetation, mulch, gravel, or by diverting water.	100%	68%	88%	0%	57%	0%
16	Irrigation runoff is captured or kept on the property.	17%	11%	7%	17%	0%	0%
17	Stormwater runoff is captured or kept on the property.	0%	0%	0%	0%	0%	0%
18	Sediment traps are used at the end of the field to retain sediments in runoff.	42%	20%	7%	0%	0%	0%
19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	0%	71%	0%	0%	0%	0%

	Irrigation Management	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO
20	At least annually test the irrigation system for distribution uniformity by monitoring water delivery or pressure differences within a block.	100%	75%	88%	100%	69%	0%
21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	12%	91%	0%	12%	87%	0%
22	Implement appropriate improvements based on your own irrigation system test or the recommendations of the Irrigation Mobile Lab or other appropriate irrigation professionals.	83%	96%	88%	41%	0%	0%
23	When drip irrigation is used, the distribution uniformity is 90% or better.	100%	90%	100%	100%	0%	NA
24	Irrigation main and lateral lines are regularly inspected for breaks, leaks, or clogs.	100%	100%	100%	NA	NA	NA
25	Filters are inspected and cleaned regularly.	100%	100%	100%	NA	NA	NA
26	Lines are flushed or cleaned chemically to prevent clogging.	71%	95%	88%	0%	0%	0%
27	Pressure regulators or pressure compensating emitters are used.	100%	95%	88%	100%	0%	0%
28	Sprinkler heads and drip emitters of the same gallonage are used within each block and replaced with the same heads or emitters when necessary.	100%	100%	100%	NA	NA	NA
29	Consistent riser heights are used.	100%	100%	100%	NA	NA	NA
30	Water is diverted from non-crop areas by adjusting sprinkler head arcs or using sprinkler guards.	100%	100%	100%	NA	NA	NA
31	When irrigating for frost protection, the proper timing and amount of irrigation is used.	100%	100%	100%	NA	NA	NA
32	Alternative equipment such as tunnels, air circulation, heaters, or smudge pots are used for frost protection.	83%	82%	100%	0%	0%	NA
33	The grower knows the infiltration rate of the soil, the available water holding capacity of the soil, and the crop rooting depth.	100%	96%	93%	0%	57%	0%
34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.	83%	21%	19%	0%	0%	0%

	Irrigation Management continued	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO
35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	12%	73%	12%	12%	0%	0%
36	If irrigation must be based on a set schedule due to water availability, the amount of irrigation is varied according to the weather and plant growth stage.	100%	100%	100%	NA	100%	NA
37	Flow meters are used to measure actual water use and is coupled with known crop use values or other measurements to conserve water as appropriate.	51%	100%	100%	45%	100%	NA
38	Irrigation is halted if significant runoff occurs.	100%	100%	100%	NA	100%	NA
39	Harvested or unplanted areas are not irrigated.	75%	100%	100%	0%	NA	NA
40	Irrigation water quality is tested for parameters of interest including: pH, electrical conductivity (EC), sodium (Na), chloride (Cl), bicarbonate (HCO3), and boron (B).	100%	95%	100%	99%	64%	NA
41	Well head is protected from surface contamination (located high in the landscape so that surface water drains away from well head; located away from potential contaminants; the space between the casing and sides of hole is grouted; casing regularly inspected for leaks; vermin-proof well cap with screened vent).	100%	100%	100%	NA	NA	NA
42	Irrigation duties are performed only by personnel who understand and practice appropriate irrigation scheduling, application, and crop management practices related to runoff management.	100%	100%	100%	NA	100%	NA
	Pest Management						
71	Copper sulfate is not applied prior to extensive irrigation or expected rainfall.	88%	95%	100%	0%	0%	NA

	Nutrient Management	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO
73	Most recent nutrient recommendations for your particular crops and growing practices are used.	83%	96%	100%	0%	0%	NA
74	Chemical properties of the soil, including pH and electrical conductivity (EC), are routinely measured.	12%	86%	19%	12%	0%	0%
75	Soil fertility is routinely monitored through measurements of nitrogen, phosphorus, potassium, and micronutrients.	83%	96%	100%	41%	0%	NA
76	Fertilization rates are adjusted based on the results of soil fertility measurements.	83%	100%	100%	41%	NA	NA
77	Crop plants are visually assessed for signs of nutrient deficiency or toxicity.	100%	100%	100%	NA	NA	NA
78	Leaf or petiole analyses are used as a guide for fertilizer application.	83%	100%	93%	0%	NA	0%
79	Fertilizer applications are split into multiple smaller applications rather than applying all that is required for a crop in one large application.	100%	100%	100%	100%	NA	NA
80	Fertilizer levels in fertigation water are tested to ensure that injectors are correctly calibrated.	100%	91%	7%	98%	86%	0%
81	Fertilizer applications are timed to maximize plant uptake, taking into consideration the life stage of the crop, potential rain events, and irrigation timing.	100%	100%	100%	NA	NA	NA
82	Slow-release fertilizers are used.	12%	69%	100%	0%	7%	NA
83	Fertilizer applications are adjusted to account for other nutrient sources, such as: irrigation water, cover crops, and residuals from previous fertilizations.	100%	95%	100%	100%	0%	NA
84	Fertilizers are stored where they are protected from rain and on an impermeable pad with a curb to contain spills.	100%	74%	100%	NA	0%	NA
85	Mixing and loading of fertilizers occurs in a covered area on an impermeable surface and more than 100 feet down slope from any wells.	61%	100%	81%	0%	NA	0%

	Salinity Management and Leaching	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO	05D_SANT _VCWPD	S02T_TODD	S04T_TAPO
86	Leaching is performed only when necessary, as determined by measuring soil solution electrical conductivity (EC).	83%	42%	36%	41%	11%	0%
87	Leaching is done only when fertilizer injectors are turned off.	69%	42%	100%	28%	0%	NA
88	Fertilizers and amendments with a low salt index are used.	69%	100%	100%	0%	NA	NA
89	Saline or high selenium wells are decommissioned and other sources of water are used.	0%	100%	100%	0%	NA	NA
	Property Management						
90	Landowner, grower, or other personnel regularly attend UC Cooperative Extension, Commodity Board, or other industry educational meetings concerning management practices that protect water resources.	51%	100%	100%	0%	100%	NA
91	Landowner, grower, or other responsible personnel subscribe to and read farming, trade, and industry journals containing articles about water quality, fertilizer, pest and erosion management.	100%	100%	100%	0%	NA	NA
92	Employees receive training on the following: wearing protective clothing, understanding fertilizer/pesticide signage, MSDS and label information, personal hygiene and sanitation, trash disposal and recycling, use storage and disposal of fertilizers and pesticides, pest and disease scouting, spill cleanup, and irrigation.	100%	100%	100%	NA	100%	NA
93	Training is provided in the employees' native language.	100%	100%	100%	NA	100%	NA
95	Spill cleanup materials are readily accessible and maintained for all potential types and sizes of spills.	69%	78%	100%	0%	0%	NA

Nitrogen Related Management Practices–Survey Results

		Current Status				Improvement			
		Percent of Applicable Acres Employing the BMP by the Time of the Survey				Percent of Applicable Acres Unmanaged Before Jan 2008 that Became Managed After Jan 2008			
	Sediment and Erosion Management	**05D_SANT _VCWPD**	**S02T_ TODD**	**OXD_ CENTR**	**S04T_ TAPO**	**05D_SANT _VCWPD**	**S02T_ TODD**	**OXD_ CENTR**	**S04T_ TAPO**
5	Riparian areas or other areas of natural vegetation were retained or expanded during site development.	36%	88%	100%	100%	0%	0%	100%	NA
6	Avoid bare fields using cover crops, leaving plant debris, or planting subsequent crops.	100%	100%	100%	100%	NA	100%	100%	NA
8	Apply mulch, compost, or green waste to improve soil characteristics, especially for sandy or clayey soils.	88%	77%	93%	100%	0%	0%	38%	NA
10	In sloped production areas, management practices to minimize erosion such as contour farming, contoured buffer strips, or terracing are used.	0%	100%	100%	100%	0%	NA	NA	NA
11	Berms, culverts, or flow channels are in place to divert water away from roads.	0%	96%	93%	100%	0%	0%	0%	NA
13	Erosion management practices such as terracing, water diversions, and critical area plantings are used for non-production areas that are sloped or hilly.	41%	100%	100%	100%	0%	NA	NA	NA
14	Ditch banks are protected from erosion with vegetation, rock protection, or geotextiles.	100%	100%	76%	87%	0%	NA	0%	0%
15	Non-cropped areas with bare soil are protected from erosion with vegetation, mulch, gravel, or by diverting water.	100%	68%	93%	88%	0%	57%	0%	0%
16	Irrigation runoff is captured or kept on the property.	17%	11%	7%	7%	17%	0%	0%	0%
17	Stormwater runoff is captured or kept on the property.	0%	0%	7%	0%	0%	0%	0%	0%
18	Sediment traps are used at the end of the field to retain sediments in runoff.	42%	20%	39%	7%	0%	0%	0%	0%
19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	0%	71%	76%	0%	0%	0%	0%	0%

	Irrigation Management	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO
20	At least annually test the irrigation system for distribution uniformity by monitoring water delivery or pressure differences within a block.	100%	75%	90%	88%	100%	69%	0%	0%
21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	12%	91%	80%	0%	12%	87%	30%	0%
22	Implement appropriate improvements based on your own irrigation system test or the recommendations of the Irrigation Mobile Lab or other appropriate irrigation professionals.	83%	96%	93%	88%	41%	0%	38%	0%
23	When drip irrigation is used, the distribution uniformity is 90% or better.	100%	90%	93%	100%	100%	0%	0%	NA
24	Irrigation main and lateral lines are regularly inspected for breaks, leaks, or clogs.	100%	100%	93%	100%	NA	NA	0%	NA
25	Filters are inspected and cleaned regularly.	100%	100%	93%	100%	NA	NA	0%	NA
26	Lines are flushed or cleaned chemically to prevent clogging.	71%	95%	89%	88%	0%	0%	0%	0%
27	Pressure regulators or pressure compensating emitters are used.	100%	95%	100%	88%	100%	0%	NA	0%
28	Sprinkler heads and drip emitters of the same gallonage are used within each block and replaced with the same heads or emitters when necessary.	100%	100%	100%	100%	NA	NA	NA	NA
29	Consistent riser heights are used.	100%	100%	100%	100%	NA	NA	NA	NA
30	Water is diverted from non-crop areas by adjusting sprinkler head arcs or using sprinkler guards.	100%	100%	97%	100%	NA	NA	0%	NA
31	When irrigating for frost protection, the proper timing and amount of irrigation is used.	100%	100%	100%	100%	NA	NA	NA	NA
32	Alternative equipment such as tunnels, air circulation, heaters, or smudge pots are used for frost protection.	83%	82%	28%	100%	0%	0%	0%	NA

	Irrigation Management continued	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO
33	The grower knows the infiltration rate of the soil, the available water holding capacity of the soil, and the crop rooting depth.	100%	96%	91%	93%	0%	57%	0%	0%
34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.	83%	21%	20%	19%	0%	0%	0%	0%
35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	12%	73%	0%	12%	12%	0%	0%	0%
36	If irrigation must be based on a set schedule due to water availability, the amount of irrigation is varied according to the weather and plant growth stage.	100%	100%	100%	100%	NA	100%	NA	NA
37	Flow meters are used to measure actual water use and is coupled with known crop use values or other measurements to conserve water as appropriate.	51%	100%	97%	100%	45%	100%	58%	NA
38	Irrigation is halted if significant runoff occurs.	100%	100%	93%	100%	NA	100%	38%	NA
39	Harvested or unplanted areas are not irrigated.	75%	100%	97%	100%	0%	NA	0%	NA
40	Irrigation water quality is tested for parameters of interest including: pH, electrical conductivity (EC), sodium (Na), chloride (Cl), bicarbonate (HCO3), and boron (B).	100%	95%	100%	100%	99%	64%	NA	NA
41	Well head is protected from surface contamination (located high in the landscape so that surface water drains away from well head; located away from potential contaminants; the space between the casing and sides of hole is grouted; casing regularly inspected for leaks; vermin-proof well cap with screened vent).	100%	100%	100%	100%	NA	NA	NA	NA

	Irrigation Management continued	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO
42	Irrigation duties are performed only by personnel who understand and practice appropriate irrigation scheduling, application, and crop management practices related to runoff management.	100%	100%	100%	100%	NA	100%	NA	NA
	Nutrient Management								
73	Most recent nutrient recommendations for your particular crops and growing practices are used.	83%	96%	100%	100%	0%	0%	100%	NA
74	Chemical properties of the soil, including pH and electrical conductivity (EC), are routinely measured.	12%	86%	100%	19%	12%	0%	NA	0%
75	Soil fertility is routinely monitored through measurements of nitrogen, phosphorus, potassium, and micronutrients.	83%	96%	100%	100%	41%	0%	100%	NA
76	Fertilization rates are adjusted based on the results of soil fertility measurements.	83%	100%	100%	100%	41%	NA	100%	NA
77	Crop plants are visually assessed for signs of nutrient deficiency or toxicity.	100%	100%	100%	100%	NA	NA	NA	NA
78	Leaf or petiole analyses are used as a guide for fertilizer application.	83%	100%	97%	93%	0%	NA	0%	0%
79	Fertilizer applications are split into multiple smaller applications rather than applying all that is required for a crop in one large application.	100%	100%	100%	100%	100%	NA	NA	NA
80	Fertilizer levels in fertigation water are tested to ensure that injectors are correctly calibrated.	100%	91%	100%	7%	98%	86%	100%	0%
81	Fertilizer applications are timed to maximize plant uptake, taking into consideration the life stage of the crop, potential rain events, and irrigation timing.	100%	100%	93%	100%	NA	NA	0%	NA
82	Slow-release fertilizers are used.	12%	69%	89%	100%	0%	7%	0%	NA
83	Fertilizer applications are adjusted to account for other nutrient sources, such as: irrigation water, cover crops, and residuals from previous fertilizations.	100%	95%	89%	100%	100%	0%	0%	NA

	Nutrient Management continued	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO	05D_SANT _VCWPD	S02T_ TODD	OXD_ CENTR	S04T_ TAPO
84	Fertilizers are stored where they are protected from rain and on an impermeable pad with a curb to contain spills.	100%	74%	97%	100%	NA	0%	58%	NA
85	Mixing and loading of fertilizers occurs in a covered area on an impermeable surface and more than 100 feet down slope from any wells.	61%	100%	54%	81%	0%	NA	0%	0%
	Salinity Management and Leaching								
86	Leaching is performed only when necessary, as determined by measuring soil solution electrical conductivity (EC).	83%	42%	100%	36%	41%	11%	NA	0%
87	Leaching is done only when fertilizer injectors are turned off.	69%	42%	93%	100%	28%	0%	0%	NA
	Property Management								
90	Landowner, grower, or other personnel regularly attend UC Cooperative Extension, Commodity Board, or other industry educational meetings concerning management practices that protect water resources.	51%	100%	100%	100%	0%	100%	100%	NA
91	Landowner, grower, or other responsible personnel subscribe to and read farming, trade, and industry journals containing articles about water quality, fertilizer, pest and erosion management.	100%	100%	100%	100%	0%	NA	100%	NA
92	Employees receive training on the following: wearing protective clothing, understanding fertilizer/pesticide signage, MSDS and label information, personal hygiene and sanitation, trash disposal and recycling, use storage and disposal of fertilizers and pesticides, pest and disease scouting, spill cleanup, and irrigation.	100%	100%	100%	100%	NA	100%	NA	NA
93	Training is provided in the employees' native language.	100%	100%	100%	100%	NA	100%	NA	NA
95	Spill cleanup materials are readily accessible and maintained for all potential types and sizes of spills.	69%	78%	91%	100%	0%	0%	34%	NA

OC Pesticides Management Practices–Survey Results

		Current Status				Improvement			
		Percent of Applicable Acres Employing the BMP by the Time of the Survey				Percent of Applicable Acres Unmanaged Before Jan 2008 that Became Managed After Jan 2008			
	Sediment and Erosion Management	**05D_ LAVD**	**05D_SANT _VCWPD**	**OXD_ CENTR**	**S04T_ TAPO**	**05D_ LAVD**	**05D_SANT _VCWPD**	**OXD_ CENTR**	**S04T_ TAPO**
1	Consult with local agencies (NRCS, RCD, UCCE, or county planning) to develop a soil conservation plan.	29%	12%	43%	0%	0%	0%	0%	0%
2	Know your soil series and its erosion hazard rating.	82%	51%	40%	18%	0%	0%	0%	0%
3	Consider erosion hazard rating and prevailing winds when choosing row orientation.	100%	100%	89%	0%	NA	0%	0%	0%
4	Long runs of production area are broken up by access roads or buffer strips.	100%	88%	100%	100%	NA	0%	NA	NA
5	Riparian areas or other areas of natural vegetation were retained or expanded during site development.	66%	36%	100%	100%	35%	0%	100%	NA
6	Avoid bare fields using cover crops, leaving plant debris, or planting subsequent crops.	100%	100%	100%	100%	100%	NA	100%	NA
7	Minimize compaction by using drive rows, reducing tractor passes, reducing cultivation, and avoiding driving on or tilling wet ground.	100%	100%	100%	100%	100%	NA	NA	NA
8	Apply mulch, compost, or green waste to improve soil characteristics, especially for sandy or clayey soils.	100%	88%	93%	100%	100%	0%	38%	NA
9	Windbreaks or shelterbelts are used in areas prone to wind erosion.	100%	83%	40%	1%	NA	0%	0%	0%
10	In sloped production areas, management practices to minimize erosion such as contour farming, contoured buffer strips, or terracing are used.	100%	0%	100%	100%	100%	0%	NA	NA
11	Berms, culverts, or flow channels are in place to divert water away from roads.	100%	100%	93%	100%	100%	NA	0%	NA
12	Road erosion is minimized by grading, using gravel or mulch on roads, or constructing water bars or drainways.	85%	100%	93%	99%	54%	NA	0%	0%

	Sediment and Erosion Management	05D_ LAVD	05D_SANT _VCWPD	OXD_ CENTR	S04T_ TAPO	05D_ LAVD	05D_SANT _VCWPD	OXD_ CENTR	S04T_ TAPO
13	Erosion management practices such as terracing, water diversions, and critical area plantings are used for non-production areas that are sloped or hilly.	100%	1%	100%	100%	100%	0%	NA	NA
14	Ditch banks are protected from erosion with vegetation, rock protection, or geotextiles.	100%	95%	76%	87%	NA	0%	0%	0%
15	Non-cropped areas with bare soil are protected from erosion with vegetation, mulch, gravel, or by diverting water.	100%	92%	93%	88%	100%	0%	0%	0%
16	Irrigation runoff is captured or kept on the property.	0%	0%	7%	7%	0%	0%	0%	0%
17	Stormwater runoff is captured or kept on the property.	0%	0%	7%	0%	0%	0%	0%	0%
18	Sediment traps are used at the end of the field to retain sediments in runoff.	19%	28%	39%	7%	6%	0%	0%	0%
19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	19%	0%	76%	0%	0%	0%	0%	0%
	Irrigation Management								
20	At least annually test the irrigation system for distribution uniformity by monitoring water delivery or pressure differences within a block.	100%	95%	90%	88%	100%	89%	0%	0%
21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	38%	0%	80%	0%	26%	0%	30%	0%
22	Implement appropriate improvements based on your own irrigation system test or the recommendations of the Irrigation Mobile Lab or other appropriate irrigation professionals.	100%	84%	93%	88%	100%	41%	38%	0%
23	When drip irrigation is used, the distribution uniformity is 90% or better.	100%	100%	93%	100%	NA	100%	0%	NA
24	Irrigation main and lateral lines are regularly inspected for breaks, leaks, or clogs.	100%	100%	93%	100%	100%	NA	0%	NA
25	Filters are inspected and cleaned regularly.	100%	100%	93%	100%	100%	NA	0%	NA

	Irrigation Management continued	05D_ LAVD	05D_SANT _VCWPD	OXD_ CENTR	S04T_ TAPO	05D_ LAVD	05D_SANT _VCWPD	OXD_ CENTR	S04T_ TAPO
26	Lines are flushed or cleaned chemically to prevent clogging.	81%	83%	89%	88%	0%	0%	0%	0%
27	Pressure regulators or pressure compensating emitters are used.	100%	100%	100%	88%	100%	100%	NA	0%
28	Sprinkler heads and drip emitters of the same gallonage are used within each block and replaced with the same heads or emitters when necessary.	85%	100%	100%	100%	54%	NA	NA	NA
29	Consistent riser heights are used.	100%	100%	100%	100%	100%	NA	NA	NA
30	Water is diverted from non-crop areas by adjusting sprinkler head arcs or using sprinkler guards.	100%	100%	97%	100%	NA	NA	0%	NA
31	When irrigating for frost protection, the proper timing and amount of irrigation is used.	53%	100%	100%	100%	0%	NA	NA	NA
32	Alternative equipment such as tunnels, air circulation, heaters, or smudge pots are used for frost protection.	66%	82%	28%	100%	35%	0%	0%	NA
33	The grower knows the infiltration rate of the soil, the available water holding capacity of the soil, and the crop rooting depth.	66%	56%	91%	93%	44%	0%	0%	0%
34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.	81%	78%	20%	19%	36%	0%	0%	0%
35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	32%	0%	0%	12%	11%	0%	0%	0%
36	If irrigation must be based on a set schedule due to water availability, the amount of irrigation is varied according to the weather and plant growth stage.	100%	100%	100%	100%	NA	NA	NA	NA
37	Flow meters are used to measure actual water use and is coupled with known crop use values or other measurements to conserve water as appropriate.	100%	40%	97%	100%	100%	39%	58%	NA
38	Irrigation is halted if significant runoff occurs.	90%	100%	93%	100%	66%	NA	38%	NA

	Irrigation Management continued	05D_ LAVD	05D_SANT _VCWPD	OXD_ CENTR	S04T_ TAPO	05D_ LAVD	05D_SANT _VCWPD	OXD_ CENTR	S04T_ TAPO
39	Harvested or unplanted areas are not irrigated.	66%	72%	97%	100%	35%	0%	0%	NA
41	Well head is protected from surface contamination (located high in the landscape so that surface water drains away from well head; located away from potential contaminants; the space between the casing and sides of hole is grouted; casing regularly inspected for leaks; vermin-proof well cap with screened vent).	100%	100%	100%	100%	100%	NA	NA	NA
42	Irrigation duties are performed only by personnel who understand and practice appropriate irrigation scheduling, application, and crop management practices related to runoff management.	100%	100%	100%	100%	100%	NA	NA	NA
	Property Management								
90	Landowner, grower, or other personnel regularly attend UC Cooperative Extension, Commodity Board, or other industry educational meetings concerning management practices that protect water resources.	90%	51%	100%	100%	68%	0%	100%	NA
91	Landowner, grower, or other responsible personnel subscribe to and read farming, trade, and industry journals containing articles about water quality, fertilizer, pest and erosion management.	100%	100%	100%	100%	100%	0%	100%	NA
92	Employees receive training on the following: wearing protective clothing, understanding fertilizer/pesticide signage, MSDS and label information, personal hygiene and sanitation, trash disposal and recycling, use storage and disposal of fertilizers and pesticides, pest and disease scouting, spill cleanup, and irrigation.	100%	100%	100%	100%	100%	NA	NA	NA
93	Training is provided in the employees' native language.	91%	100%	100%	100%	68%	NA	NA	NA

OP Pesticides Management Practices–Survey Results

		Current Status			Improvement		
		Percent of Applicable Acres Employing the BMP by the Time of the Survey			Percent of Applicable Acres Unmanaged Before Jan 2008 that Became Managed After Jan 2008		
	Sediment and Erosion Management	**05D_LAVD**	**05D_SANT_ VCWPD**	**OXD_ CENTR**	**05D_LAVD**	**05D_SANT_ VCWPD**	**OXD_ CENTR**
1	Consult with local agencies (NRCS, RCD, UCCE, or county planning) to develop a soil conservation plan.	29%	12%	43%	0%	0%	0%
2	Know your soil series and its erosion hazard rating.	82%	51%	40%	0%	0%	0%
3	Consider erosion hazard rating and prevailing winds when choosing row orientation.	100%	100%	89%	NA	0%	0%
4	Long runs of production area are broken up by access roads or buffer strips.	100%	88%	100%	NA	0%	NA
5	Riparian areas or other areas of natural vegetation were retained or expanded during site development.	66%	36%	100%	35%	0%	100%
6	Avoid bare fields using cover crops, leaving plant debris, or planting subsequent crops.	100%	100%	100%	100%	NA	100%
7	Minimize compaction by using drive rows, reducing tractor passes, reducing cultivation, and avoiding driving on or tilling wet ground.	100%	100%	100%	100%	NA	NA
8	Apply mulch, compost, or green waste to improve soil characteristics, especially for sandy or clayey soils.	100%	88%	93%	100%	0%	38%
9	Windbreaks or shelterbelts are used in areas prone to wind erosion.	100%	83%	40%	NA	0%	0%
10	In sloped production areas, management practices to minimize erosion such as contour farming, contoured buffer strips, or terracing are used.	100%	0%	100%	100%	0%	NA
11	Berms, culverts, or flow channels are in place to divert water away from roads.	100%	100%	93%	100%	NA	0%
12	Road erosion is minimized by grading, using gravel or mulch on roads, or constructing water bars or drainways.	85%	100%	93%	54%	NA	0%
13	Erosion management practices such as terracing, water diversions, and critical area plantings are used for non-production areas that are sloped or hilly.	100%	1%	100%	100%	0%	NA

	Sediment and Erosion Management	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR
14	Ditch banks are protected from erosion with vegetation, rock protection, or geotextiles.	100%	95%	76%	NA	0%	0%
15	Non-cropped areas with bare soil are protected from erosion with vegetation, mulch, gravel, or by diverting water.	100%	92%	93%	100%	0%	0%
16	Irrigation runoff is captured or kept on the property.	0%	0%	7%	0%	0%	0%
17	Stormwater runoff is captured or kept on the property.	0%	0%	7%	0%	0%	0%
18	Sediment traps are used at the end of the field to retain sediments in runoff.	19%	28%	39%	6%	0%	0%
19	Devices are in place to treat runoff before it leaves the property, such as grassed waterways, vegetated filter strips, and tailwater recycling systems.	19%	0%	76%	0%	0%	0%
	Irrigation Management						
20	At least annually test the irrigation system for distribution uniformity by monitoring water delivery or pressure differences within a block.	100%	95%	90%	100%	89%	0%
21	Utilize the services of the Irrigation Mobile Lab or a professional irrigation consultant for evaluating irrigation system performance.	38%	0%	80%	26%	0%	30%
22	Implement appropriate improvements based on your own irrigation system test or the recommendations of the Irrigation Mobile Lab or other appropriate irrigation professionals.	100%	84%	93%	100%	41%	38%
23	When drip irrigation is used, the distribution uniformity is 90% or better.	100%	100%	93%	NA	100%	0%
24	Irrigation main and lateral lines are regularly inspected for breaks, leaks, or clogs.	100%	100%	93%	100%	NA	0%
25	Filters are inspected and cleaned regularly.	100%	100%	93%	100%	NA	0%
26	Lines are flushed or cleaned chemically to prevent clogging.	81%	83%	89%	0%	0%	0%
27	Pressure regulators or pressure compensating emitters are used.	100%	100%	100%	100%	100%	NA

	Irrigation Management continued	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR
28	Sprinkler heads and drip emitters of the same gallonage are used within each block and replaced with the same heads or emitters when necessary.	85%	100%	100%	54%	NA	NA
29	Consistent riser heights are used.	100%	100%	100%	100%	NA	NA
30	Water is diverted from non-crop areas by adjusting sprinkler head arcs or using sprinkler guards.	100%	100%	97%	NA	NA	0%
31	When irrigating for frost protection, the proper timing and amount of irrigation is used.	53%	100%	100%	0%	NA	NA
32	Alternative equipment such as tunnels, air circulation, heaters, or smudge pots are used for frost protection.	66%	82%	28%	35%	0%	0%
33	The grower knows the infiltration rate of the soil, the available water holding capacity of the soil, and the crop rooting depth.	66%	56%	91%	44%	0%	0%
34	Soil moisture is measured with equipment such as gypsum block soil moisture sensors (such as Watermarks), tensiometers, soil probe, or neutron probe.	81%	78%	20%	37%	0%	0%
35	Evapotranspiration (ET) values are used to determine irrigation requirements. Values are obtained from CIMIS, onsite atmometers, or other appropriate devices.	32%	0%	0%	11%	0%	0%
36	If irrigation must be based on a set schedule due to water availability, the amount of irrigation is varied according to the weather and plant growth stage.	100%	100%	100%	NA	NA	NA
37	Flow meters are used to measure actual water use and is coupled with known crop use values or other measurements to conserve water as appropriate.	100%	40%	97%	100%	39%	58%
38	Irrigation is halted if significant runoff occurs.	90%	100%	93%	66%	NA	38%
39	Harvested or unplanted areas are not irrigated.	66%	72%	97%	35%	0%	0%

	Irrigation Management continued	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR
41	Well head is protected from surface contamination (located high in the landscape so that surface water drains away from well head; located away from potential contaminants; the space between the casing and sides of hole is grouted; casing regularly inspected for leaks; vermin-proof well cap with screened vent).	100%	100%	100%	100%	NA	NA
42	Irrigation duties are performed only by personnel who understand and practice appropriate irrigation scheduling, application, and crop management practices related to runoff management.	100%	100%	100%	100%	NA	NA
	Pest Management						
43	Proper scouting methods are used to determine the population densities of insect pests, snails, slugs, and weeds and the incidence of diseases. Methods include use of yellow sticky traps, use of pheromone traps, plant inspection, beating, or net sweeping or other appropriate scouting tools and methods .	100%	100%	100%	100%	NA	NA
44	Use weather data or degree days to determine when to control pests.	100%	69%	100%	100%	0%	100%
45	Use UC IPM guidelines as a resource (www.ipm.ucdavis.edu).	32%	61%	40%	0%	0%	0%
46	Diagnostic lab services or other professional assistance is used to identify unknown pathogens, pests, or growth problems before implementing a control measure.	100%	100%	90%	100%	NA	0%
47	All transplants, plugs, or plant material is inspected for pests before planting or introduction in the growing area.	100%	100%	100%	100%	NA	NA
48	Natural enemy populations are considered when choosing pesticides, application rates, and timing.	100%	100%	100%	100%	NA	100%
49	Beneficial insects or mites are released in the field.	82%	39%	93%	50%	0%	38%
50	Personnel are aware of the causal agents of diseases in the field and their methods of spread.	100%	100%	90%	100%	NA	0%
51	Personnel are familiar with methods and timing of disease control in the growing region.	100%	100%	90%	100%	NA	0%

	Pest Management continued	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR
52	Disease resistance or disease tolerant crop varieties are used.	100%	100%	96%	100%	NA	0%
53	Classes of pesticides are rotated to avoid resistance.	82%	100%	100%	0%	NA	100%
54	The grower or pesticide applicator considers selectivity and effectiveness against the target organism before choosing a pesticide.	100%	100%	100%	100%	NA	NA
55	Personnel are familiar with the UC online databases for comparing the risks of different pesticides moving with water and sediment and affecting non-target organisms (WaterTox or Pesticide Wise).	14%	12%	85%	5%	0%	0%
56	Spray timing is based on economic thresholds of pest incidence.	100%	100%	96%	100%	NA	62%
57	Hot spots are identified and sprayed rather than treating an entire field.	85%	39%	100%	80%	39%	100%
58	Sprayers are routinely calibrated to ensure accurate application rates.	91%	100%	100%	68%	NA	NA
59	Worn nozzles and screens are replaced to ensure the best coverage of pesticide applications.	100%	100%	100%	100%	NA	NA
60	Treatment rate, water volume, and driving speed are optimized to attain the coverage needed for specific pests.	100%	100%	100%	100%	NA	100%
61	Pesticides are applied only according to the label and environmental hazards are followed.	100%	100%	100%	100%	NA	NA
62	Pesticides are applied at the lowest effective labeled rate.	90%	83%	89%	66%	0%	22%
63	Pesticide use records are submitted monthly to the county Agricultural Commissioner.	91%	100%	100%	68%	NA	100%
64	Pesticides are stored where they are protected from rain and contained on an impermeable pad with curb to contain spills or leaks.	100%	100%	100%	100%	NA	NA
65	Pesticide mixing and loading is done on an impermeable surface and more than 100 feet down slope from any wells.	56%	61%	97%	29%	0%	69%

	Pest Management continued	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR	05D_LAVD	05D_SANT_ VCWPD	OXD_ CENTR
66	Pesticide disposal methods are environmentally safe and in accordance to label instructions.	100%	100%	100%	100%	NA	100%
67	Reduced risk pesticides are used.	100%	100%	100%	100%	NA	100%
68	Choose selective pesticides for the target pest species and avoid using broad-spectrum pesticides.	100%	100%	100%	100%	NA	100%
69	Avoid applying pesticides when wind could move them off-target as drift.	100%	100%	100%	100%	NA	NA
70	Avoid applying pesticides when rain or scheduled irrigation will move the pesticides as runoff and ground percolation.	100%	100%	100%	100%	NA	100%
	Property Management						
90	Landowner, grower, or other personnel regularly attend UC Cooperative Extension, Commodity Board, or other industry educational meetings concerning management practices that protect water resources.	90%	51%	100%	68%	0%	100%
91	Landowner, grower, or other responsible personnel subscribe to and read farming, trade, and industry journals containing articles about water quality, fertilizer, pest and erosion management.	100%	100%	100%	100%	0%	100%
92	Employees receive training on the following: wearing protective clothing, understanding fertilizer/pesticide signage, MSDS and label information, personal hygiene and sanitation, trash disposal and recycling, use storage and disposal of fertilizers and pesticides, pest and disease scouting, spill cleanup, and irrigation.	100%	100%	100%	100%	NA	NA
93	Training is provided in the employees' native language.	91%	100%	100%	68%	NA	NA
95	Spill cleanup materials are readily accessible and maintained for all potential types and sizes of spills.	82%	69%	81%	50%	0%	19%

Appendix F

Management Practice Survey Cover Sheets

Management Practice Survey:
Supplemental Information for the Duck Pond (01T_ODD2_DCH)

The VCAILG developed a Water Quality Management Plan to address exceedances in water quality objectives found during 2007 and 2008 water sampling. Because your property drains to one of the high priority areas, the VCAILG is asking that you comply with the Water Quality Management Plan by doing the following:

- Review the information on this sheet to become familiar with the water quality issues in your area.
- Complete the Management Practice Survey.
- Pay particular attention to management practices you are not currently implementing and start using new practices to address the water quality exceedances listed below.

Your property drains to the Duck Pond/Oxnard Drain #2 monitoring site

These are the water quality benchmark exceedances found at 01T_ODD2_DCH:

Dry Weather

- Nitrogen
- OC Pesticides (ie. DDT)

Wet Weather

- Nitrogen
- OC Pesticides (ie. DDT)
- OP Pesticides (chlorpyrifos/lorsban)
- Chronic Toxicity

Management Practice Survey:
Supplemental Information for Oxnard Drain #3 at Arnold Road (01T_ODD3_ARN)

The VCAILG developed a Water Quality Management Plan to address exceedances in water quality objectives found during 2007 and 2008 water sampling. Because your property drains to one of the high priority areas, the VCAILG is asking that you comply with the Water Quality Management Plan by doing the following:

- Review the information on this sheet to become familiar with the water quality issues in your area.
- Complete the Management Practice Survey.
- Pay particular attention to management practices you are not currently implementing and start using new practices to address the water quality exceedances listed below.

Your property drains to the Oxnard Drain #3 at Arnold Road monitoring site

These are the water quality benchmark exceedances found at 01T_ODD3_ARN:

Dry Weather

- Nitrogen
- OC Pesticides (ie. DDT, toxaphene)

Wet Weather

- Nitrogen
- OC Pesticides (ie. DDT)

Management Practice Survey:
Supplemental Information for the Central Ditch (02D_BROOM)

The VCAILG developed a Water Quality Management Plan to address exceedances in water quality objectives found during 2007 and 2008 water sampling. Because your property drains to one of the high priority areas, the VCAILG is asking that you comply with the Water Quality Management Plan by doing the following:

- Review the information on this sheet to become familiar with the water quality issues in your area.
- Complete the Management Practice Survey.
- Pay particular attention to management practices you are not currently implementing and start using new practices to address the water quality exceedances listed below.

Your property drains to the Broome Ranch Road monitoring site

These are the water quality benchmark exceedances found at 02D_BROOM:

Dry Weather

- Nitrogen
- OC Pesticides (ie. DDT)
- Dissolved Oxygen

Wet Weather

- Nitrogen
- OC Pesticides (ie. DDT)

Management Practice Survey:
Supplemental Information for Revolon Slough at Etting Road (04D_ETTG)

The VCAILG developed a Water Quality Management Plan to address exceedances in water quality objectives found during 2007 and 2008 water sampling. Because your property drains to one of the high priority areas, the VCAILG is asking that you comply with the Water Quality Management Plan by doing the following:

- Review the information on this sheet to become familiar with the water quality issues in your area.
- Complete the Management Practice Survey.
- Pay particular attention to management practices you are not currently implementing and start using new practices to address the water quality exceedances listed below.

Your property drains to Revolon Slough at Etting Road

These are the water quality benchmark exceedances found at 04D_ETTG:

Dry Weather

- Nitrogen
- OC Pesticides (ie. DDT)
- OP Pesticides (chlorpyrifos/lorsban)

Wet Weather

- Nitrogen
- OC Pesticides (ie. DDT)
- OP Pesticides (chlorpyrifos/lorsban)

Management Practice Survey:
Supplemental Information for Revolon Slough at S. Las Posas Road (04D_LAS)

The VCAILG developed a Water Quality Management Plan to address exceedances in water quality objectives found during 2007 and 2008 water sampling. Because your property drains to one of the high priority areas, the VCAILG is asking that you comply with the Water Quality Management Plan by doing the following:

- Review the information on this sheet to become familiar with the water quality issues in your area.
- Complete the Management Practice Survey.
- Pay particular attention to management practices you are not currently implementing and start using new practices to address the water quality exceedances listed below.

Your property drains to Revolon Slough at South Las Posas Road

These are the water quality benchmark exceedances found at 04D_LAS:

Dry Weather

- Nitrogen
- OC Pesticides (DDT, toxaphene)
- OP Pesticides (chlorpyrifos, diazinon)
- Temperature

Wet Weather

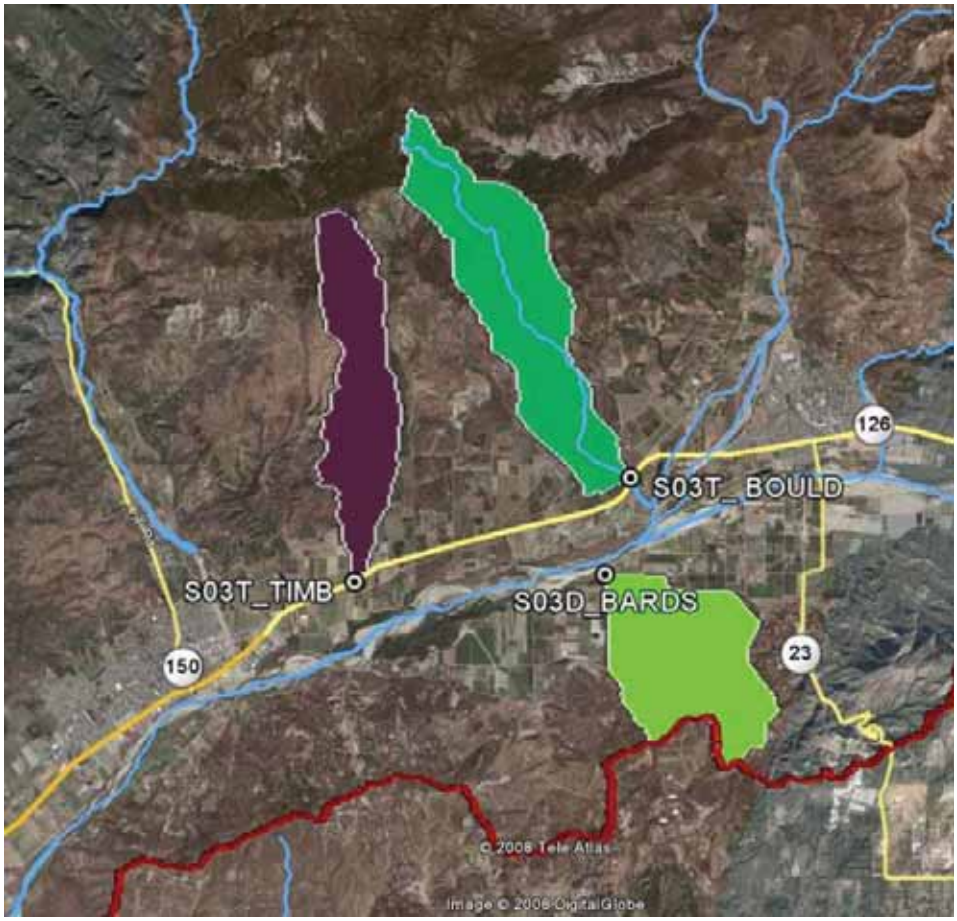
- Nitrogen
- OC Pesticides (DDT, chlordane)
- OP Pesticides (chlorpyrifos/lorsban)

Management Practice Survey:
Supplemental Information for Boulder Creek (S03T_BOULD)

The VCAILG developed a Water Quality Management Plan to address exceedances in water quality objectives found during 2007 and 2008 water sampling. Because your property drains to one of the high priority areas, the VCAILG is asking that you comply with the Water Quality Management Plan by doing the following:

- Review the information on this sheet to become familiar with the water quality issues in your area.
- Complete the Management Practice Survey.
- Pay particular attention to management practices you are not currently implementing and start using new practices to address the water quality exceedances listed below.

Your property drains to the Boulder Creek monitoring site.



These are the water quality benchmark exceedances found at S03T_BOULD:

Dry Weather

- Nitrogen
- Salts

Wet Weather

- Chronic Toxicity
- OC Pesticides (chlordane)

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Appendix N

Federal Primary and Secondary Drinking Water Standards

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National Primary Drinking Water Regulations

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC	Acrylamide	TT[4]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
OC	Alachlor	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
R	Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
IOC	Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
IOC	Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
IOC	Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
OC	Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
IOC	Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
OC	Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
OC	Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
IOC	Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
R	Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
DBP	Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
IOC	Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
OC	Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
OC	Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
D	Chloramines (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4[1]
OC	Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
D	Chlorine (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4[1]
D	Chlorine dioxide (as ClO_2)	MRDL=0.8[1]	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8[1]
DBP	Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
OC	Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
IOC	Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
IOC	Copper	TT[5]; Action Level = 1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
M	*Cryptosporidium*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero

LEGEND

- D — Disinfectant
- DBP — Disinfection Byproduct
- IOC — Inorganic Chemical
- M — Microorganism
- OC — Organic Chemical
- R — Radionuclides

	Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
IOC	Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
OC	2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
OC	Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
OC	1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
OC	o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
OC	p-Dichlorobenzene	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
OC	1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
OC	cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
OC	trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
OC	Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories	zero
OC	1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	Di(2-ethylhexyl) adipate	0.4	Weight loss, liver problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
OC	Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
OC	Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
OC	Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
OC	Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
OC	Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1
OC	Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
OC	Epichlorohydrin	TT[4]	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
OC	Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	0.7
OC	Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero
M	Fecal coliform and *E. coli*	MCL[6]	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	zero[6]
IOC	Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
M	*Giardia lamblia*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC	Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
DBP	Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC	Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
OC	Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
M	Heterotrophic plate count (HPC)	TT[7]	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a

LEGEND

D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC	Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
OC	Hexachlorocyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
IOC	Lead	TT5; Action Level=0.015	Infants and children: Delays in physical or or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
M	*Legionella*	TT7	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
OC	Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
IOC	Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
OC	Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
IOC	Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
IOC	Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
OC	Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
OC	Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
OC	Picloram	0.5	Liver problems	Herbicide runoff	0.5
OC	Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
R	Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
IOC	Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
OC	Simazine	0.004	Problems with blood	Herbicide runoff	0.004
OC	Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
OC	Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
IOC	Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
OC	Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
M	Total Coliforms	5.0 percent[8]	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and *E. coli*	Naturally present in the environment	zero
DBP	Total Trihalomethanes (TTHMs)	0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC	Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
OC	2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
OC	1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07
OC	1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
OC	1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
OC	Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero

LEGEND

- D — Disinfectant
- DBP — Disinfection Byproduct
- IOC — Inorganic Chemical
- M — Microorganism
- OC — Organic Chemical
- R — Radionuclides

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
M Turbidity	TT[7]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
R Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
OC Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
M Viruses (enteric)	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

LEGEND

D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

NOTES

1 Definitions

- Maximum Contaminant Level Goal (MCLG)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG)—The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL)—The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or *E. coli*-positive triggers repeat samples--if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or *E. coli*-negative triggers repeat samples--if any repeat sample is fecal coliform-positive or *E. coli*-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- *Cryptosporidium*: 99 percent removal for systems that filter. Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.
- Giardia lamblia: 99.9 percent removal/inactivation
- Viruses: 99.99 percent removal/inactivation
- *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
- Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelolometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- HPC: No more than 500 bacterial colonies per milliliter
- Long Term 1 Enhanced Surface Water Treatment; Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- Long Term 2 Enhanced Surface Water Treatment; This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
- Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli*. If two consecutive TC-positive samples, and one is also positive for *E. coli* or fecal coliforms, system has an acute MCL violation.

9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

National Secondary Drinking Water Regulation

National Secondary Drinking Water Regulations are non-enforceable guidelines regarding contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, some states may choose to adopt them as enforceable standards.

Contaminant	Secondary Maximum Contaminant Level
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

For More Information

EPA's Safe Drinking Water Web site:
http://www.epa.gov/safewater/

EPA's Safe Drinking Water Hotline:
(800) 426-4791

To order additional posters or other ground water and drinking water publications, please contact the National Service Center for Environmental Publications at :
(800) 490-9198, or
email: nscep@bps-lmit.com.

United States Environmental Protection Agency

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Appendix O

Water Quality Data

City of Ventura

Table O-1A 2006-10 Watershed Monitoring Results
Table O-2A & 2B 2010 Total Halocetic Acids and Trihalomethane Quarterly Monitoring Summary
Table O-2C 2006 Initial Distribution System Evaluation Plan

Ojai Valley Sanitary District

Table O-3A 2005-10 Monthly Effluent & River Results
Table O-3B 2005-10 Toxicity Data
Table O-3C 2005-10 Annual River Results

Table O-4 Southern California Costal Water Research Project 2009 Bioassessment

Table O-5 Regional Board Surface Water Ambient Monitoring Program

Table O-6 US EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWT)

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TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
San Antonio Creek (SA1)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.4	NS	0.5									
NH4	ppm	0.3		0.1									
NO3	ppm	1.9		1.9	NS	2.4	2.4	2.9	0.4	1.1	1.1	0.8	1.00
NO2	ppm	<0.4		ND	ND	ND	ND	ND	0.07	0.006	ND	<0.4	<0.4
PO4	ppm	<0.05		<0.05	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	75		70	NS	50	50	53	29	57	60	64	67.00
Cond.	umho/cm+	1257		1206	NS	1134	1467	1113	1138	1118	1158	1169	1,193.00
T. Coli	MPN	3080		5794	NS	1789	>2420	1733	2602	2987	2147	2382	1,236.00
F. Coli	MPN	30		156	NS	74	64	28	<1	50	52	52	31.00
F. Strep	MPN	65		548	NS								
Giardia				<0.05	NS			<0.09	<0.026		<0.09	<0.07	<0.05
Crypto				<0.05	NS			<0.09	<0.026		<0.09	<0.07	<0.05
E. Coli													31.00

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	0.8	0.7	0.4	<0.4	,0.4	<.4	<.4	<0.4	<0.4	<0.4	<0.4	<0.4
NO2	ppm	ND	ND	ND	ND	ND	<0.4	<0.4	<0.4	<0.04	<0.4	<0.4	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<.05	<.05	<0.5	<0.05	<0.05
Chloride	ppm	74	80	83	80	91.4	88	91.3	93.2	98.7	101	99	97.5
Cond.	umho/cm+	1243	1146	1253	1269	1301	1394	1353	1355	1393	1398	1434	1338
T. Coli	MPN	766	2615	1616	1725	1664	24192	2142	11199	7270	15531	5170	1439
F. Coli	MPN	10	<10	<1	10	41	41	51	20	74	816	10	86
Giardia		<0.05	0.2	<0.02	0	0		0	0	0	0	0	0
Crypto		<0.05	<0.05	<0.02	0	1		0	0	1	0	0	0
E. Coli													

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	2.9	2.9	1.6	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
NO2	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	71.4	57.8	65.7	76.4	78	77	82.1	85	82.9	39.6	90.7	83.9
Cond.	umho/cm+	1182	1184	1209	1296	1371	1179	1319	1285	1282	1371	1299	1361
T. Coli	MPN	2419	52	1017	1669	1726	3076	3130	4884	5172	2247	2613	1483
F. Coli	MPN	816.4	6.3	100	<10	41	20	52	20	62	41	63	<1.0
Giardia		0	0	0	0	0	0	0	0	0	0	0	0
Crypto		1	0	0	0	0	0	0	0	0	0	0	0
E. Coli													

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	NS	NS	NS	NS
NO2	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4				
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
Chloride	ppm	92.2	94.2	115	105	107	111	117	122				
Cond.	umho/cm+	1299	1401	1332	1373	1649	1411	1488	1494				
T. Coli	MPN	860	933	3255	1313	3873	3076	15531	15531				
F. Coli	MPN	<10	<10.0	73	63	20	41	41	73				
Giardia		0	0	0	0	0	0	0	NS	NS			0
Crypto		0	0	0	0	0	1	0	NS	NS			0
E. Coli													

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	NS	1.9	1.4	0.5	<0.4	<0.4	<0.4	<0.04	<0.4	<0.4		
NO2	ppm		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.04	<0.4	<0.4		
PO4	ppm		<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	ppm		100	77	106	100	104	107	111	113	113		
Cond.	umho/cm+		1448	1309	1353	1429	1398	1464	1651	1510	1522		
T. Coli	MPN		2359	2755	7270	2187	4106	2382	2602	6130	1046		
F. Coli	MPN		31	243	226	160	63	243	<10	74	3.1		
Giardia			0	0	0	0	0	0	0	0	0		
Crypto			0	2	4	1	0	0	0	0	0		
E. Coli													

Not Sampled (NS)
Not Detected (ND)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2002-2006
Thacher/San Antonio Creek (SA2)

Year: 2002	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm					0.6			2.53				1.07
NH4	ppm					0.6			0.7				1.07
NO3	ppm					4.9			4.7				3.90
NO2	ppm					<.4			<0.4				<0.40
PO4	ppm					0.06			0.06				0.08
Chloride	ppm					90			126				117
Conductivity	umho/cm+					1199			1247				1235
T. Coli	MPN					6000			17330				>2419
F. Coli	MPN					120			60				120
F. Strep	MPN					86.00			119.00				

Year 2003	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.6	-	1.03	-	1.6	-	2.1		0.6		2.8	
NH4	ppm	0.3		1.08		0.4		0.7		0.9		<.4	
NO3	ppm	4.3		3.7		2.6		2.6		3.1		<.4	
NO2	ppm	<0.4		<0.4		nd		<0.4		nd		nd	
PO4	ppm	0.3		0.05		0.07		0.26		0.07		0.09	
Chloride	ppm	107		107		79		134		133		129	
Cond.	umho/cm+	1195		1207		1066		1313		1371		1314	
T. Coli	MPN	2000		>24,000		2400		5750		2412		13000	
F. Coli	MPN	20		130		130		180		246		130	
F. Strep	MPN	*		<10		70.00		146.00		74.00		520.00	

Year 2004	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm			1.7		0.5		0.4	0.3			0.3	
NH4	ppm			0.4		0.3		<.1	0.4			0.3	
NO3	ppm			2.0		1.2		<0.4	2.5			2.6	
NO2	ppm			ND		0.01		ND	ND			ND	
PO4	ppm			0.22		0.33		0.15	0.06			0.09	
Chloride	ppm			216		147		104	156			135	
Cond.	umho/cm+			1701		1620		1558	1377			1331	
T. Coli	MPN			4,110		2,100		6490	2850			5750	
F. Coli	MPN			130		105		<10	31			110	
F. Strep	MPN			510.00		180.00		540.00	345.00			70.00	

Year 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	2.7	NS	NS	0.3	NS	0.4		0.6	NS	NS	NS
NH4	ppm		1.2			0.13		0.2		<.2			
NO3	ppm		3.3			7		7.1		4.2			
NO2	ppm		0.01			ND		0.01		ND			
PO4	ppm		0.07			<.05		<0.05		<0.05			
Chloride	ppm		80			40		45		64			
Cond.	umho/cm+		1384			1078		1132		1154			
T. Coli	MPN		1396			19180		4352		1413			
F. Coli	MPN		84			41		63		18			
F. Strep	MPN		10.00			31.00		489.00		22.00			

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.4	NS	0.2									
NH4	ppm	0.3		0.3									
NO3	ppm	5.3		5									
NO2	ppm	<0.04		ND									
PO4	ppm	<0.05		<0.05									
Chloride	ppm	52		46									
Cond.	umho/cm+	1052		995									
T. Coli	MPN	2990		2602									
F. Coli	MPN	20		52									
F. Strep	MPN	NS		130.00									

Not Sampled (NS)
Not Detected (ND)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2002-2005
San Antonio Creek @ Soule Park (SA3)

Year 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	0.5	NS	0.4	0.5	0.2						
NH4	ppm		0.4		0.2	0.1	0.2						
NO3	ppm		6.30		5.7	6.9	8.5						
NO2	ppm		0.01		ND	ND	ND						
PO4	ppm		0.1		<.05	<.05	<.05						
Chloride	ppm		35		27	31	52						
Cond.	umho/cm+		1022		985	1033	1180						
T. Coli	MPN		663		2595	3873	2280						
F. Coli	MPN		20		10	20	<10						
F. Strep	MPN		<10		14	22	3650						

Not Sampled (NS)
Only sampled for 2005.
Terminated sampling in July 2005 due to problems at the golf course.

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2005-2006
Upper San Antonio Creek @ Grand Avenue (SA4)

Year 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	2	0.5	0.24	1.3	0.5	NS	NS	NS	NS	NS	NS	NS
NH4	ppm	0.3	0.8	0.15	0.2	0.1							
NO3	ppm	0.9	0.3	0.4	0.5	<.4							
NO2	ppm	<.4	ND	ND	ND	ND							
PO4	ppm	0.34	0.1	0.06	<.05	<.05							
Chloride	ppm	14	14	11	12	12							
Conductivity	umho/cm+	416	783	729	792	774							
T. Coli	MPN	>2400	457	320	218	>2419							
F. Coli	MPN	>2400	97	<10	<10	15							
F. Strep	MPN	NS	31	<10	6	33							

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	NS	0.5									
NH4	ppm	NS		0.1									
NO3	ppm	1.9		0.5									
NO2	ppm	<0.4		ND									
PO4	ppm	<0.05		<0.05									
Chloride	ppm	75		15									
Conductivity	umho/cm+	NS		751									
T. Coli	MPN	NS		373									
F. Coli	MPN	NS		<10									
F. Strep	MPN	NS		28									

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2005-2006
Thacher Creek @ Soule Park (TC1)

Year 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	0.5	NS	0.4	0.4	0.2	NS	NS	NS	NS	NS	NS
NH4	ppm		0.3		0.2	0.1	0.2						
NO3	ppm		6.3		7.4	7.8	4.6						
NO2	ppm		ND		ND	ND	ND						
PO4	ppm		0.02		<.05	<.05	<0.05						
Chloride	ppm		35		25	26	52						
Conductivity	umho/cm+		1020		1001	1030	1180						
T. Coli	MPN		733		2987	5475	2280						
F. Coli	MPN		52		<10	109	<10						
F. Strep	MPN		<10		10.00	130.00	58.00						

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	NS	NS									
NH4	ppm												
NO3	ppm												
NO2	ppm												
PO4	ppm												
Chloride	ppm												
Conductivity	umho/cm+												
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												

Not Detected (ND)
Not Sampled (NS)
Only sampled for 2005.

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2002-2005
Lion Canyon Creek (LC1)

Year: 2002	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm						1.40						0.99
NH4	ppm						0.60						0.85
NO3	ppm						<.4						<0.40
NO2	ppm						<.4						<0.40
PO4	ppm						0.27						0.39
Chloride	ppm						134.00						171.00
Conductivity	umho/cm+						1725.00						2010.00
T. Coli	MPN						3100.00						>2419
F. Coli	MPN						10.00						68.00
F. Strep	MPN						36.00						

Year: 2003	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.60		0.75		0.70		1.60					
NH4	ppm	0.60		0.80		0.40		0.60					
NO3	ppm	<0.4		<0.4		ND		<0.4					
NO2	ppm	<0.4		<0.4		ND		<0.4					
PO4	ppm	0.31		0.29		0.44		0.48					
Chloride	ppm	173.00		129.00		85.00		122.00					
Conductivity	umho/cm+	2200.00		1814.00		1591.00		2040.00					
T. Coli	MPN	4600.00		6500.00		11000.00		5170.00					
F. Coli	MPN	<10		220.00		800.00		488.00					
F. Strep	MPN	NS		<10		100.00		135.00					

Year: 2004	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	1.73		1.00		0.50		2.10			0.50		0.50
NH4	ppm	0.21		0.20		0.40		<.1			0.10		0.40
NO3	ppm	0.60		0.60		1.20		<0.4			<0.4		<.4
NO2	ppm	ND		ND		ND		ND			ND		0.04
PO4	ppm	0.16		0.24		0.27		<.01			0.09		0.05
Chloride	ppm	136.00		136.00		132.00		130.00			195.00		155.00
Conductivity	umho/cm+	1516.00		1404.00		2020.00		2220.00			1575.00		2080.00
T. Coli	MPN	3080.00		2480.00		1612.00		14140.00			4350.00		1607.00
F. Coli	MPN	50.00		60.00		340.00		<10			20.00		20.00
F. Strep	MPN	220.00		80.00		150.00		390.00			61.00		<10

Year: 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	2.20	NS	0.70	NS	0.80	NS						
NH4	ppm	0.10		0.20		0.10							
NO3	ppm	0.60		2.30		0.60							
NO2	ppm	<.4		ND		ND							
PO4	ppm	1.01		0.97		<.05							
Chloride	ppm	14.00		43.00		62.00							
Conductivity	umho/cm+	410.00		1784.00		1776.00							
T. Coli	MPN	>2400		19860.00		1898.00							
F. Coli	MPN	>2400		170.00		98.00							
F. Strep	MPN	NS		90.00		31.00							

Not Detected (ND)
Not Sampled (NS)

Terminated sampling in July 2005 due to property access.

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2002-2006
Stewart/Fox Creek (PC1)

Year: 2002	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm						0.80		1.88				0.75
NH4	ppm						0.40		0.17				1.22
NO3	ppm						1.60		0.70				0.90
NO2	ppm						<.4		<0.4				<0.40
PO4	ppm						0.34		0.41				0.37
Chloride	ppm						130.00		161.00				215.00
Conductivity	umho/cm+						1498.00		1474.00				1774.00
T. Coli	MPN						9800.00		9800.00				>2419
F. Coli	MPN						31.00		10.00				130.00
F. Strep	MPN						160.00		118.00				

Year: 2003	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.50		1.47		1.10		1.20		0.90		0.50	
NH4	ppm	0.40		0.76		0.40		1.00		0.80		<0.4	
NO3	ppm	1.40		1.40		1.50		1.20		0.50		1.00	
NO2	ppm	<.4		<0.4		ND		<0.4		ND		ND	
PO4	ppm	0.29		0.24		0.24		0.56		0.37		0.30	
Chloride	ppm	195.00		171.00		134.00		153.00		137.00		165.00	
Conductivity	umho/cm+	1788.00		1705.00		1505.00		1638.00		1599.00		1650.00	
T. Coli	MPN	3100.00		14000.00		6500.00		2480.00		5794.00		>24190	
F. Coli	MPN	120.00		260.00		380.00		110.00		97.00		640.00	
F. Strep	MPN	NS		110.00		170.00		197.00		41.00		1070.00	

Year: 2004	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.45		1.10		0.40		0.50	0.70		0.30		NS
NH4	ppm	0.13		0.20		0.50		<.1	0.10		0.10		
NO3	ppm	2.30		3.80		<.4		2.90	0.40		<0.4		
NO2	ppm	ND		ND		ND		ND	ND		ND		
PO4	ppm	0.15		0.18		0.36		<.01	0.35		0.34		
Chloride	ppm	139.00		142.00		147.00		125.00	141.00		120.00		
Conductivity	umho/cm+	1361.00		1338.00		1612.00		1398.00	1428.00		1478.00		
T. Coli	MPN	1730.00		4110.00		2250.00		3130.00	4540.00		1670.00		
F. Coli	MPN	50.00		50.00		70.00		70.00	150.00		210.00		
F. Strep	MPN	40.00		230.00		210.00		670.00	640.00		90.00		

Year: 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	2.20	NS	0.50	NS	1.00	NS	0.30	NS	1.40	NS	0.90	NS
NH4	ppm	0.10		0.20		0.10		0.20		<.2		0.10	
NO3	ppm	1.50		1.80		2.20		2.60		1.90		1.70	
NO2	ppm	<.4		ND		ND		0.00		ND		ND	
PO4	ppm	1.00		0.13		<.05		<0.05		<0.05		0.10	
Chloride	ppm	23.00		52.00		93.00		134.00		145.00		153.00	
Conductivity	umho/cm+	381.00		1031.00		1370.00		1591.00		1622.00		1665.00	
T. Coli	MPN	>2400		3870.00		2400.00		9208.00		3448.00		2419.00	
F. Coli	MPN	>2400		120.00		712.00		97.00		146.00		147.00	
F. Strep	MPN	NS		100.00		172.00		649.00		42.00		613.00	

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	6.8	NS	0.5									
NH4	ppm	4.1		0.4									
NO3	ppm	2.1		1.8									
NO2	ppm	<0.4		ND									
PO4	ppm	<0.05		<0.05									
Chloride	ppm	176		141									
Cond.	umho/cm+	1725		1464									
T. Coli	MPN	3040		14136									
F. Coli	MPN	85		413									
F. Strep	MPN	NS		1733.00									

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2002-2006
Ventura River @ Casitas Springs (VR1)

Year: 2002	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm						0.90						
NH4	ppm						0.50						
NO3	ppm						1.30						
NO2	ppm						<.4						
PO4	ppm						0.08						
Chloride	ppm						38.00						
Conductivity	umho/cm+						947.00						
T. Coli	MPN						3200.00						
F. Coli	MPN						31.00						
F. Strep	MPN						20.00						

Year: 2003	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm					0.50		2.50		1.00			
NH4	ppm					0.40		0.50		0.80			
NO3	ppm					0.90		<0.4		0.40			
NO2	ppm					ND		<0.4		ND			
PO4	ppm					0.18		0.29		0.06			
Chloride	ppm					37.00		40.00		29.00			
Conductivity	umho/cm+					892.00		896.00		932.00			
T. Coli	MPN					7000.00		>24000		4884.00			
F. Coli	MPN					110.00		20.00		30.00			
F. Strep	MPN					2.00		108.00		41.00			

Year: 2004	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.42		1.10		0.30			0.20		0.60		NS
NH4	ppm	0.17		0.40		0.70			0.30		0.10		
NO3	ppm	0.10		0.70		1.40			0.90		1.10		
NO2	ppm	ND		ND		0.02			ND		ND		
PO4	ppm	0.10		0.07		0.05			0.07		0.04		
Chloride	ppm	52.00		52.00		47.00			42.00		47.00		
Conductivity	umho/cm+	1091.00		1031.00		998.00			955.00		928.00		
T. Coli	MPN	1460.00		7270.00		1660.00			2490.00		3650.00		
F. Coli	MPN	20.00		10.00		10.00			20.00		90.00		
F. Strep	MPN	50.00		100.00		20.00			80.00		40.00		

Year: 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	3.00	NS	0.50	NS	0.50	NS	0.40	NS	1.00	NS	0.70	NS
NH4	ppm	0.20		0.20		0.10		0.30		<.2		0.10	
NO3	ppm	0.60		1.90		1.80		1.30		0.50		<0.4	
NO2	ppm	<.4		ND		ND		ND		ND		ND	
PO4	ppm	0.86		0.34		<.05		<0.05		<0.05		<0.05	
Chloride	ppm	14.00		22.00		27.00		31.00		33.00		34.00	
Conductivity	umho/cm+	346.00		921.00		935.00		953.00		956.00		981.00	
T. Coli	MPN	>2400		19860.00		649.00		1733.00		>2419		2419.00	
F. Coli	MPN	>2400		220.00		15.00		19.00		9.00		30.00	
F. Strep	MPN	NS		420.00		20.00		219.00		56.00		61.00	
Crypto									<0.07				
Giardia									<0.07				

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	<.1	NS	0.3									
NH4	ppm	0.3		0.3									
NO3	ppm	1.3		1.2									
NO2	ppm	<0.4		ND									
PO4	ppm	<0.05		<0.05									
Chloride	ppm	33		35									
Cond.	umho/cm+	923		912									
T. Coli	MPN	>2420		>2419									
F. Coli	MPN	56		21									
F. Strep	MPN	67		58									
Crypto				<0.05									
Giardia									<0.07				

Not Detected (ND)
Not Sampled (NS)
Started to perform Crypto/Giardia in August 2005.

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2003-2006
Ventura River @ Santa Ana Bridge (VR2)

Year: 2003	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm				0.50	1.30	0.70						
NH4	ppm				0.20	0.30	1.92						
NO3	ppm				1.60	0.50	0.90						
NO2	ppm				<0.4	ND	ND						
PO4	ppm				0.12	0.11	0.20						
Chloride	ppm				29.00	19.00	26.00						
Conductivity	umho/cm+				833.00	794.00	851.00						
T. Coli	MPN				24000.00	NS	2600.00						
F. Coli	MPN				10.00	NS	10.00						
F. Strep	MPN				10.00	NS	80.00						

Year: 2004	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm			1.10									NS
NH4	ppm			0.30									
NO3	ppm			0.40									
NO2	ppm			ND									
PO4	ppm			0.07									
Chloride	ppm			18.00									
Conductivity	umho/cm+			760.00									
T. Coli	MPN			2050.00									
F. Coli	MPN			4.00									
F. Strep	MPN			410.00									

Year: 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	3.00	NS	0.30	0.50	0.50	0.10	0.20	0.70	NS	NS	NS	NS
NH4	ppm	0.20		0.10	0.20	<.1	0.10	0.20	0.10				
NO3	ppm	0.40		0.50	0.40	<.4	0.60	7.10	0.60				
NO2	ppm	<.4		ND	ND	ND	ND	0.02	ND				
PO4	ppm	0.05		0.04	<.05	<.05	<0.05	<0.05	<0.05				
Chloride	ppm	12.00		13.00	14.00	16.00	18.00	45.00	21.00				
Conductivity	umho/cm+	401.00		772.00	801.00	778.00	808.00	805.00	810.00				
T. Coli	MPN	>2400		250.00	153.00	517.00	3080.00	>2419	921.00				
F. Coli	MPN	>2400		<10	30.00	4.00	20.00	11.00	291.00				
F. Strep	MPN	NS		<10	31.00	4.00	56.00	73.00	24.00				

Year: 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	<.1	0.70	0.20									
NH4	ppm	0.20	0.20	0.40									
NO3	ppm	1.30	1.30	0.60									
NO2	ppm	<.4	<0.4	ND									
PO4	ppm	<0.05	<0.05	<0.05									
Chloride	ppm	23.00	25.60	20.00									
Cond.	umho/cm+	792.00	868.00	750.00									
T. Coli	MPN	1730.00	326.00	921.00									
F. Coli	MPN	40.00	2.00	21.00									
F. Strep	MPN	NS		<10	31.00	4.00	56.00	73.00	24.00				

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
Ventura River/Foster Park-surface (VR3)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	<.1	0.2	0.1									
NH4	ppm	0.4	0.2	0.3									
NO3	ppm	1.1	0.8	1.1	0.7	0.9	0.7	0.5	0.4	<0.04	<0.04	<0.04	<0.4
NO2	ppm	<0.4	<.4	ND	ND	ND	<0.4	0.01	0.05	<0.04	ND	<0.04	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	35	34.2	32	28	29	28	30	30	30	31	31	32
Cond.	umho/cm+	929	1004	893	893	887	842	875	906	894	932	882	909
T. Coli	MPN	2420	1986	143	>2419	1300	>2420	1300	2282	>2419	>2419	1860	2613
F. Coli	MPN	20	9	21	81	12	23	34	74	33	27	10	63
F. Strep	MPN	276	10	365									
TOC	ppm	1.39	NS	NS	NS	1.93	1.61	1.69	1.62	1.44	1.46	1.39	1.32
Bromide	ppm	ND	NS	NS									
Giardia				<0.09									
Crypto				<0.09		<.04			<0.09				

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.5	<0.4	<0.4
NO2	ppm	ND	ND	ND	ND	ND	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	34	39	40	36	35.5	34	34.6	34.5	34.5	35	36	3504
Cond.	umho/cm+	942	1020	941	943	955	1011	874	933	987	970	1012	910
T. Coli	MPN	933	1170	<1	2098	4352	3968	1989	3448	5794	8164	4350	1989
F. Coli	MPN	<10	10	<1	<10	20	10	20	<10	<10	10	52	10
TOC	MPN	1.41	1.33	1.51	1.29	1.45							
Bromide	ppm												
Giardia													
Crypto													

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	2.7	2.5	1.8	1.4	1	0.6	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
NO2	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	54.5	29.6	84.5	28.5	31	31	32.6	33.3	31.8	38.2	30	35.9
Cond.	umho/cm+	1783	950	880	944	998	864	884	910	870	874	911	1003
T. Coli	MPN	7490	1201	554	2035	2909	4611	3255	4884	14136	2755	2755	1968
F. Coli	MPN	200	31	31	<10	20	20	10	<1	31	20	10	10
TOC	MPN	3.05	2.22	1.62	1.59	1.97	1.51	1.52	1.98	1.52	1.31	1.41	1.26
Bromide	ppm												
Giardia													
Crypto													

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	<0.4	<0.4	0.4	0.7	0.5	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.5
NO2	ppm	<0.4	<0.4	,0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	40.6	39.1	54.1	41	39.5	40.1	39.8	39.6	39	41	42	42
Cond.	umho/cm+	976	1012	1011	970	978	959	959	957	966	978	969	949
T. Coli	MPN	1153	2247	3448	5794	>24192	3130	3441	7270	7701	7701	5170	15,531
F. Coli	MPN	10	10	10	<10	98	31	10	63	84	84	41	766
TOC	MPN	1.27	1.08	2.26	1.34	1.44	1.1	1.35	1.59	1.45	1.45	3.06	1.3
Bromide	ppm												
Giardia													
Crypto													

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	<0.40	1.3	1.1	0.9	0.6	<0.4	0.4	0.4	0.4	0.4		
NO2	ppm	<0.40	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	ppm	47	37	37	45	36	37	37	36	35	34		
Cond.	umho/cm+	1037	960	913	923	932	925	933	1013	959	967		
T. Coli	MPN	1169	2481	2987	1274	5172	4351	2851	2282	4884	5794		
F. Coli	MPN	10	<10	408	41	20	10	20	52	131	63		
TOC	MPN	1.88	1.79	2.05	1.89	1.76	2.08	1.5	1.6	1.45	0.97		
Bromide	ppm												
Giardia													
Crypto													

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
Nye Well 8 Source (NW8)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NH4	ppm												
NO3	ppm												
NO2	ppm												
PO4	ppm												
Chloride	ppm												
Cond.	umho/cm+												
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm												
Bromide	ppm												
Giardia													
Crypto													

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS
NH4	ppm												
NO3	ppm								0.9				
NO2	ppm								<0.4				
PO4	ppm								<0.05				
Chloride	ppm								34.9				
Cond.	umho/cm+								961				
T. Coli	MPN								517				
F. Coli	MPN								1				
F. Strep	MPN												
TOC	ppm												
Bromide	ppm												
Giardia													
Crypto													

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	NS	2	2	1.8	1.5	1.3	0.9	0.5	0.5	0.5	NS	0.5
NO2	ppm		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	NS	<0.4
PO4	ppm		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NS	<0.05
Chloride	umho/cm+		32.4	31.9	30	30	30	31.9	33.1	32	24.8	NS	35.8
Cond.	MPN		2330	1981	922	979	865	941	930	913	893	NS	1002
T. Coli	MPN		187.2	8.5	4.1	<1	<1	117.8	<1	<1	1	NS	3.1
F. Coli	MPN		2	<1	<1	<1	<1	<1	<1	<1	<1	NS	<1.0
TOC	ppm	NS	NS	1.08	1.28	1.24	1.1	1.24	1.22	1.13	1.08	NS	NS

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	NS	NS	0.7	1	1	0.7	0.6	0.6	NS	NS	0.7	NS
NO2	ppm			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4			<0.4	
PO4	ppm			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	
Chloride	umho/cm+			51	41.6	39.5	40	40	40			41	
Cond.	MPN			983	963	1192	958	976	965			963	
T. Coli	MPN	<1		4	1	<1	<1.0	<1.0	2			8.6	
F. Coli	MPN	<1		<1	<1	<1	<1.0	<1.0	<1.0			<1.0	
TOC	ppm	1.07	NS	NS	NS	NS	NS	0.98					

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	NS	NS	1.2	1.2	1	0.9	0.6	0.6	NS	0.4		
NO2	ppm			<0.4	<0.4	<0.4	<0.4	<0.4	<0.40		<0.04		
PO4	ppm			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05		
Chloride	umho/cm+			40	45	37	37	36	37		35		
Cond.	MPN			888	946	950	945	977	1018		976		
T. Coli	MPN			6.3	<1.0	4.1	3.1	<1	<1		<1		
F. Coli	MPN			<1.0	<1.0	<1.0	<1.0	<1	<1		<1		
TOC	ppm			1.21	1.21	1.51	1.64	1.13	1.32		NS		

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2002-2005
Nye Well 1A Source (NW1A)

Year: 2002	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm									NS	0.10	0.10	0.22
NH4	ppm									NS	<.1	0.20	0.41
NO3	ppm									1.40	1.40	1.40	1.70
NO2	ppm									<0.4	<0.4	<0.4	<0.40
PO4	ppm									0.10	0.13	0.08	0.17
Chloride	ppm									40.00	39.00	39.00	50.00
Conductivity	umho/cm+									935.00	955.00	967.00	971.00
T. Coli	MPN									<2	49.00	11.00	7.00
F. Coli	MPN									<2	<2	<2	2.00
F. Strep	MPN										NS	NS	<1
TOC	ppm							0.90	ND		0.93	2.45	1.34
Bromide	ppm							ND	ND		ND	ND	ND

Year: 2003	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.60	0.05	1.97	0.10	1.00	2.00	1.30	1.70	0.20	0.70	0.60	0.90
NH4	ppm	0.50	0.05	0.79	0.20	0.50	0.50	0.70	0.50	1.20	<0.4	0.40	0.60
NO3	ppm	2.00	2.00	1.80	2.40	2.20	1.70	1.30	0.90	0.90	0.70	0.80	0.80
NO2	ppm	<0.4	<0.4	<0.4	<0.4	ND	ND	<0.4	<0.4	ND	<0.4	ND	ND
PO4	ppm	0.12	0.08	0.07	0.12	0.16	0.13	0.19	0.10	0.10	0.30	0.14	0.09
Chloride	ppm	49	51.00	54.00	47.00	42.00	43.00	42.00	42.00	34.00	32.00	34.00	34.00
Conductivity	umho/cm+	1005	1,047.00	1,059.00	1,058.00	991.00	1,002.00	984.00	996.00	969.00	969.00	964.00	956.00
T. Coli	MPN	2	5.00	17.00	14.00	70.00	<2	2.00	<2	17.00	2.00	<2	<2
F. Coli	MPN	<2	<2.0	2.00	<2	5.00	<2	<2	<2	<2	<2	<2	<2
F. Strep	MPN	<1	<1	<1	<1	<1	<1	<1	5.00	<1		<1	<1
TOC	ppm	1.30	1.30	1.15		2.03	1.70	1.73	1.09	1.00	0.91	0.92	1.06
Bromide	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Giardia										<.05			
Crypto										<.05			

Year: 2004	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.32	0.29	1.80	1.10	0.40	0.40	1.00	0.20	0.50	0.20	0.50	0.30
NH4	ppm	0.27	0.63	0.20	0.20	0.30	0.30	0.20	0.20	0.30	0.10	0.30	0.40
NO3	ppm	1.10	1.00	1.40	1.40	1.30	1.30	1.00	0.90	0.90	1.10	1.50	1.20
NO2	ppm	ND	<0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PO4	ppm	0.39	0.08	0.11	0.08	0.09	0.11	<.01	0.12	0.12	0.08	0.10	0.04
Chloride	ppm	38	48.00	48.00	51.00	48.00	47.60	43.00	43.00	42.00	44.00	50.00	49.00
Conductivity	umho/cm+	967.00	988.00	983.00	1,049.00	1,023.00	1,023.00	958.00	959.00	962.00	1,020.00	999.00	1,019.00
T. Coli	MPN	<2	<2	240.00	2.00	2.00	<2	<2	2.00	<2	49.00	79.00	<2
F. Coli	MPN	<2	<2	5.00	2.00	<2	<2	<2	<2	<2	<2	7.00	<2
F. Strep	MPN	<1	4.10	9.00	1.00	<1	<1	<1	<1	<1	<1	2.00	<1
TOC	ppm	1.32	1.16	1.57	1.42	1.18	1.51	0.96	1.23	1.46	0.88	1.60	1.62
Bromide	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.21	0.24
Giardia				<.06		<.07		<.05				<.07	
Crypto				<.06		<.07		<.05				<.07	

Year: 2005	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.60	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NH4	ppm	0.10											
NO3	ppm	1.70											
NO2	ppm	<.4											
PO4	ppm	0.10											
Chloride	ppm	37.00											
Conductivity	umho/cm+	897.00											
T. Coli	MPN	920.00											
F. Coli	MPN	49.00											
F. Strep	MPN	89.00											
TOC	ppm	2.15											
Bromide	ppm	ND											
Giardia													
Crypto													

Not Detected (ND)
Not Sampled (NS)

In Feb 2005, the well was destroyed by a storm.

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
Nye Well 11 Source (NW1A)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm			0.1									
NH4	ppm			0.2									
NO3	ppm			1.9	1.7	NS	2.9	2.4	1.8	1.5	<0.04	1.1	0.9
NO2	ppm			ND	ND	NS	<0.04	ND	ND	ND	ND	<0.04	<0.4
PO4	ppm			<0.05	<0.05	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
Chloride	ppm			36	34	NS	37	35	32	33	32	32	31
Cond.	umho/cm+			1061	1069	NS	1216	1151	1092	1035	1039	1008	997
T. Coli	MPN			1	30	30	<1	<1	4	<1	<1	<1	15
F. Coli	MPN			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
F. Strep	MPN			NS									
TOC	ppm	NS	NS	2.38	NS	NS	2.34	2.06	1.86	1.74	1.81	1.55	1.51
Bromide	ppm												
Giardia													
Crypto													

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	0.9	1	1.2	1.2	1.2	1.2	1.1	1.3	1.3	1.3	1.3	1.3
NO2	ppm	ND	ND	ND	ND	ND	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	32	33	36	33	35.1	35	34.3	36.1	35.9	36	36	36
Cond.	umho/cm+	1006	1005	959	1116	1034	940	995	1033	1015	1007	1026	962
T. Coli	MPN	<1	NS	NS	<1	<1	436	16	1	<1	<1	<1	<1
F. Coli	MPN	<1	NS	NS	<1	<1	<1	<1.0	<1	<1	<1	<1	<1
Crypto													

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	1.9	2.7	4.1	3.9	3.1	2.5	2	1.6	1.2	1	NS	0.7
NO2	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	NS	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NS	<0.05
Chloride	ppm	34.8	32.8	43	44.2	42	38	37	37.5	35.3	26.9	NS	35.5
Cond.	umho/cm+	1021	2220	1291	1289	1289	1060	1126	1070	1021	985	NS	1069
T. Coli	MPN	3.1	2	<1	<1	<1	<1	<1	<1	<1	<1	NS	<1.0
F. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NS	<1.0
TOC	ppm	1.61	2.62	2.21	2.37	2.05	1.75	1.82	1.77	1.57	1.43	NS	1.37

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	0.7	NS	NS	1.4	1.5	1.3	1.1	1.1	0.9	NS	1	NS
NO2	ppm	<0.4			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4	
PO4	ppm	<0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	
Chloride	ppm	33.6			42.3	42.8	44	43.9	42.7	41		42	
Cond.	umho/cm+	1009			1080	1123	1060	974	1043	1034		1029	
T. Coli	MPN	<1			<1	<1	<1.0	<1.0	<1.0	<1.0		<1.0	
F. Coli	MPN	<1			<1	<1	<1.0	<1.0	<1.0	<1.0		<1.0	
TOC	ppm	1.36			NS	1.65	1.2	1.3	1.44	1.55	NS	1.01	NS

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	NS	NS						1.2	0.9	0.8		
NO2	ppm								<0.4	<0.4	<0.4		
PO4	ppm								<0.05	<0.05	<0.05		
Chloride	ppm								39	38	37		
Cond.	umho/cm+								1088	1040	1038		
T. Coli	MPN								1	1	<1		
F. Coli	MPN								<1	<1	<1		
TOC	ppm	2.1			2.07			1.5	1.7	1.63	1.03		

Not Detected (ND)
Not Sampled (NS)

Table O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
Intake Subsurface (SC1)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	1.3	0.3	1.6									
NH4	ppm	0.7	0.1	0.2									
NO3	ppm	0.9	0.7	1	NS	NS	0.8	0.7	0.6	0.4	<0.04	<0.04	<0.34
NO2	ppm	<0.4	<0.4	ND	NS	NS	<0.4	ND	ND	ND	ND	<0.04	<0.4
PO4	ppm	<0.05	<0.05	<0.05	NS	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	33	32.8	32	NS	NS	30	30	29	30	30	30	31
Cond.	umho/cm+	924	1018	992	NS	NS	917	915	933	919	932	931	936
T. Coli	MPN	26	1	24	NS	NS	23	12	47	31	16	16	16
F. Coli	MPN	<1	<1	<1	NS	NS	<1	<1	1	<1	<1	<1	<1
F. Strep	MPN	2	<1	1									
TOC	ppm		NS	1.57	NS	NS	1.35	1.25	1.21	1.24	1.26	1.22	1.33
Bromide	ppm		NS										
Giardia				<0.05									
Crypto				<0.05									

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	<0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7
NO2	ppm	ND	ND	ND	ND	ND	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05
Chloride	ppm	32	34	36	34	34.8	35	34.3	34.6	34.2	35	35	35
Cond.	umho/cm+	950	968	959	1057	988	940	995	969	961	963	1015	926
T. Coli	MPN	<1	16	NS	43	39	436	16	8.5	6.3	13.2	4	1
F. Coli	MPN	<1	<1	NS	<1	<1	<1	<1	<1	1	<1.0	<1	<1
TOC	ppm	1.27	1.15	1.21	1.16	1.19							

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	NS	1.6	1.6	NS	1.4	1.1	0.8	0.6	0.5	0.4	0.4	0.4
NO2	ppm		<0.4	<0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm		<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm		30	31.8		31	31	32.4	33.4	32.5	38.2	33.2	35.5
Cond.	umho/cm+		911	989		1023	889	978	949	930	916	947	1010
T. Coli	MPN		52	6.3		9.6	5.2	2	3	1	1	6.3	>2420
F. Coli	MPN		6.3	<1		<1	<1	<1	<1	<1	<1	<1.0	5.2
TOC	ppm	2.09	1.74	1.11	NS	NS	1.21	1.26	1.35	1.21	1.15	1.15	1.14

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	0.8	0.4	0.5	0.8	0.8	0.5	0.4	0.4	0.4	0.4		0.5
NO2	ppm	0.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05
Chloride	ppm	37.8	37.3	47.9	41.1	40	40.5	40.7	40.2	40	41		40
Cond.	umho/cm+	965	1038	993	981	1048	961	1003	985	99	1001		1001
T. Coli	MPN	<1	4.1	3.1	<1	5.2	5.2	9.8	5.2	3	8.4		<1.0
F. Coli	MPN	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0
TOC	ppm	1.04	0.89	1.49	1.14	1.27	0.89	2.76	1.16	1.29	1.32	0.90	1.24

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NO3	ppm	0.6	NS	NS	NS	2.1	0.7	0.5	0.04	<0.4	<0.4		
NO2	ppm	<0.40				<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		
PO4	ppm	0.13				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	ppm	44				44	37	37	37	36	36		
Cond.	umho/cm+	1028				1144	955	977	1010	991	999		
T. Coli	MPN	24.3				33.6	5.2	3.1	4.1	3.1	6		
F. Coli	MPN	<1				<1.0	<1.0	<1	<1.0	<1.0	1		
TOC	ppm	ND				2.10	1.65	1.22	1.36	1.38	0.87		

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
Treatment Influent (TPI)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.7	0.5	0.5									
NH4	ppm	0.3	1.3	0.4									
NO3	ppm	NS	NS	NS									
PO4	ppm	NS	NS	NS									
Chloride	ppm	NS	NS	NS									
Cond.	umho/cm+	NS	NS	NS									
T. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	980	<1	<1	<1	<1
F. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
F. Strep	MPN	NS	NS	NS									
TOC	ppm	2.29	NS	2.2	2.2	1.75	1.94	1.48	2.21	2.08	1.82	1.35	1.44
Bromide	ppm	ND	NS	0.246	0.246	0.296	NS						
Giardia		NS	NS	<0.05									
Crypto		NS	NS	<0.05									

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	31.8	<1.0	4	2
F. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1	1
TOC	ppm	1.44	1.34	1.34	1.25	1.38							

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
F. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TOC	ppm	1.96	1.92	1.14	1.56	1.75	1.38	1.34	1.39	1.54	1.79	2.03	1.27

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN	3.1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
F. Coli	MPN	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
TOC	ppm	1.23	1.27	1.44	1.14	1.44	0.99	0.81	1.64	1.98	1.60	1.27	1.40

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
F. Coli	MPN	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
TOC	ppm	2.60	2.09	1.26	1.25	1.60	1.70	1.33	1.52	1.61	1.19		

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
27 Kingston Reservoir Raw Water @ Flume (27-Flume)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	NS	NS	NS									
NH4	ppm	NS	NS	NS	0.4	0.1	0.4	1.3	0.038	0.22	<0.1	<0.1	0.5
NO3	ppm	0.9	0.8	0.9	0.8	1	1.2	0.9	0.7	0.05	0.4	<0.4	<0.4
NO2	ppm	<0.4	<0.4	ND	ND	ND	<0.4	ND	0.05	<0.04	ND	<0.4	<0.4
PO4	ppm	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	33	32.4	33	30	30	31	31	30	31	31	31	31
Cond.	umho/cm+	922	1019	920	938	942	972	953	949	922	937	932	931
T. Coli	MPN	34	15	26	147	24	70	12	67	28	28	23	16
F. Coli	MPN	<1	<1	<1	10	<1	3	<1	1	<1	<1	1	<1
F. Strep	MPN	NS	NS	NS		<1	6	1	3	3	<1	1	1
TOC	ppm	1.09	NS	2.48	2.48	1.42	1.45	1.29	1.34	1.22	1.3	1.2	1.2
Bromide	ppm	ND	NS	NS	NS	NS	ND	ND	ND	ND	ND	0.201	0.062
Giardia								<0.09	<0.026		<0.09	<0.07	<0.04
Crypto								<0.09	<0.026		<0.09	<0.07	<0.04
E Coli									2				
T Coliform									48.00				

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NH4	ppm	0.4	0.1	0.3	<.1	0.1	0.8	<.1	0.2	<0.1	<0.1	<.1	0
NO3	ppm	0.4	1.7	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.8
NO2	ppm	ND	ND	ND	ND	ND	<0.4	<0.4	<.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	32	34	35	34	34.7	35	34.5	34.2	34.4	35	35	35
Cond.	umho/cm+	950	990	971	1077	982	1034	1010	972	1037	965	999	933
T. Coli	MPN	4	8	7	28	27	119	16.1	21.1	8.6	20.1	18	2
F. Coli	MPN	<1	2	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
F. Strep	MPN	<1	<1	2	<1	1	6.2	<1	<1	2	<1	<1	<1
TOC	ppm	1.19	1.16	1.23	1.15	1.14							
Bromide	ppm	ND	ND	ND	ND	ND							
Giardia		<0.05	<0.05	<0.02	0	0		0	0	0	0	0	0
Crypto		<0.05	<0.05	<0.02	0	0		0	0	0	0	0	0
E Coli													
T Coliform													

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NH4	ppm	0.14	0.14	0.14	0.6	<.1	?	0.23	0.4	0.1	0.1	NS	<0.1
NO3	ppm	1.4	1.8	2	1.9	1.6	1.3	<0.4	0.7	0.6	0.5	0.5	0.4
NO2	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	ppm	40.1	31	32.5	31.8	31	31	32.1	32.8	32.1	36.9	25.9	34.6
Cond.	umho/cm+	1029	927	32.2	971	1017	885	908	955	936	907	974	1025
T. Coli	MPN	256	34.5	961	10.9	6.3	1	46.4	<1	<1	7.4	8.6	9.7
F. Coli	MPN	<10	3	12.1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1.0
F. Strep	MPN	26.2	1	<1	<1	<1	1	<1	<1	1	1	<1.0	<1.0
TOC	ppm	2.04	2.91	1.17	1.43	1.36	1.23	1.64	1.29	1.17	1.11	1.23	1.19
Bromide	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Giardia		0	0	0	0	0	0	0	0	0	0	0	0
Crypto		0	0	0	0	0	0	0	0	0	0	0	0
E Coli													
T Coliform													

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NH4	ppm	0.12	NS	0.2	0.16	0.2	0.1	<0.1	<0.1	0.2	0.1		0.1
NO3	ppm	0.4	0.4	0.6	0.9	0.9	0.7	0.6	0.5	0.1	0.4		0.5
NO2	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4
PO4	ppm	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05
Chloride	ppm	35.1	37.2	48.5	41.6	39.5	40.3	39.8	39.7	39	41		40
Cond.	umho/cm+	984	1020	985	981	1009	969	991	971	991	994		974
T. Coli	MPN	5.1	9.8	7.4	8.6	7.4	3.1	7.3	20	6.2	4.1		131
F. Coli	MPN	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1		<1.0
F. Strep	MPN	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	NS		NS
TOC	ppm	1.1	0.88	1.35	1.15	1.26	0.93	0.8	1.05	1.29	1.27	0.8	1.22
Bromide	ppm	ND	ND	ND	0.232	ND	ND	ND	ND	ND	ND	ND	ND
Giardia		0	0	0	0	0	0	0	0	0	0	0	0
Crypto		0	0	0	0	0	0	0	0	0	0	0	0
E Coli													
T Coliform													

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NH3	ppm	NS	0.2	0.2	0.2	0.3	0.3	0.1	0.3	0.3	0.3		
NO3	ppm	0.6	1	1.1	1.2	1	0.9	0.7	0.6	0.5	0.4		
NO2	ppm	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		
PO4	ppm	0.21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	ppm	44	42	40	45	37	37	37	37	36	35		
Cond.	umho/cm+	1049	1020	910	963	946	961	976	986	982	987		
T. Coli	MPN	6.3	88.2	36.4	6.2	25.3	6.3	8.6	1	3.1	4.1		
F. Coli	MPN	<1	2	6.1	<1.0	1	<1.0	<1	<1	<1	<1.0		
F. Strep	MPN	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
TOC	ppm	1.84	1.55	1.3	1.3	1.54	NS	1.21	1.36	1.29	0.82		
Bromide	ppm			ND	ND	0.375	ND	ND	ND	ND	ND		
Giardia		0	0	0	0	0	0	0	0	0	0		
Crypto		0	0	0	0	0	0	0	0	0	0		
E Coli				88.2									
T Coliform				2.00									

Not Detected (ND)
Not Sampled (NS)

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
Treatment Effluent (TPE)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm	0.6	0.2	0.3									
NH4	ppm	0.3	0.2	0.3									
NO3	ppm	NS	NS	NS	NS								
PO4	ppm	NS	NS	NS	NS								
Chloride	ppm	NS	NS	NS	NS								
Cond.	umho/cm+	NS	NS	NS	NS								
T. Coli	MPN	<1	<1	<1	NS	<1	<1						
F. Coli	MPN	<1	<1	<1	NS	<1	<1						
F. Strep	MPN	NS	NS	NS									
TOC	ppm	2.10	NS	2.00	2.00	1.59	1.67	1.50	2.10	2.28	1.87	1.34	1.43
Bromide	ppm	ND		0.0269	0.269	0.296	NS						
Giardia				<0.08									
Crypto				<0.08									
NDMA			ND						ND				

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	1.17	1.36	1.32	1.26	140							
NDMA			ND										

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	2.13	1.86	1.11	1.53	1.72	1.39	1.31	1.4	1.63	1.76	2.01	1.34
NDMA									ND				

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	1.18	1.35	1.53	1.15	1.43	0.65	0.78	1.7	2.13	1.74	1.37	1.5
NDMA													

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	2.1	1.7	1.27	1.38	1.6	1.8	1.34					
NDMA									ND				

Not Sampled (NS)
Not Detected (ND)
In Dec 2005, Avenue Water Treatment Plant was only purchasing CMWD water.

TABLE O-1A
City of Ventura
Watershed Monitoring Results 2006-2010
Casitas Municipal Water District #1 (CMD)

Year 2006	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm												
NH4	ppm												
NO3	ppm												
PO4	ppm												
Chloride	ppm												
Cond.	umho/cm+												
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	2.60		3.26	3.58	3.16	2.99	3.02	2.96	2.89	3.01	2.96	3.14

Year 2007	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm												
NH4	ppm												
NO3	ppm												
PO4	ppm												
Chloride	ppm												
Cond.	umho/cm+												
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	3.22	2.98	2.98	3.08	3.04							

Year 2008	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm												
NH4	ppm												
NO3	ppm												
PO4	ppm												
Chloride	ppm												
Cond.	umho/cm+												
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	3.39	3.32	2.81	3.10	2.99	2.93	3.07	3.37	3.16	3.20	3.37	3.17

Year 2009	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm												
NH4	ppm												
NO3	ppm												
PO4	ppm												
Chloride	ppm												
Cond.	umho/cm+												
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	3.22	3.14	3.36	2.95	3.24	2.89	2.76	3.09	3.03	3.21	3.30	3.28

Year 2010	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	ppm												
NH4	ppm												
NO3	ppm												
PO4	ppm												
Chloride	ppm												
Cond.	umho/cm+												
T. Coli	MPN												
F. Coli	MPN												
F. Strep	MPN												
TOC	ppm	3.87	3.16	3.01	3.20	3.24	3.29	2.87					

Table O-2A
City Of Ventura
Public Works
Utilities/Water Division

Total Halocetic Acids
and Trihalomethane
Quarterly Monitoring Summary

City's Multi-zone Distribution System **Report for October, 2010**

Sample Station Number	Sample Station Name	Zone	Chlorine Residual ppm	pH	Alkalinity ppm	TTHM ppb	HAA5 ppb
22	Harbor	210	2.4	7.5	166	54	44
9	Fir	210	3.1	7.5	162	45	43
31	Katherine	260	2.3	7.5	124	42	35
34	Seneca	400	2.9	7.6	194	48	57
17	Olivas	330	2.5	7.4	214	1	3
4	Ralston	330	3.0	7.4	214	11	3
26	Palma	330	2.7	7.3	213	35	31
10	Grand	330	2.7	7.4	213	1	3
1	Hospital	430	3.0	7.5	119	58	39
16	Wells	535	1.9	7.5	164	13	6
35	Highpoint	860	1.8	7.4	136	23	13
23	Colina Vista	1035	2.7	7.4	134	37	28
Averages			***2.6***	***7.4***	***171***	***31***	***25***

City Distribution System Summary

Sample Date	***Janurary-10***	***April-10***	***July-10***	***October-10***
HAA5 in ppb				
Quarterly Average	17	18	21	25
Running Annual Average		18	19	**20**
TTHM in ppb				
Quarterly Average	20	23	26	31
Running Annual Average		22	23	**25**

Water Treatment Supervisor DATE

System # 5610017

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Table O-2B
City of Ventura
Public Works
Utilities/Water Division
Saticoy Country Club
Total Halocetic Acids and Trihalomethane
Quarterly Monitoring Report

Saticoy Country Club

Report for July, 2010

Sample Station	Sample Station Name	Zone	Chlorine Residual ppm	pH	Alkalinity	TTHM ppb	HAA5 ppb
24	Clubhouse	SCC	0.9	7.31	249	**42**	**16**

Saticoy Country Club Summary

	October-09	January-10	April-10	July-10
HAA5 in ppb				
Quarterly Average	10	8	8	16
Running Annual Average		9	9	**11**
TTHM in ppb				
Quarterly Average	32	47	34	42
Running Annual Average		40	38	**39**

Water Treatment Supervisor

DATE

System # 5602140

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Table O-2C

2006 Initial Distribution System Evaluation Plan

DRAFT

Standard Monitoring Plan Entry

I. IDSE General Information

Please review the information provided below, if you feel any of the information displayed is incorrect and you are unable to change it please contact your State or EPA representative.

I. General
II. IDSE Rec
III. Selectin
IV. Justifica
V. Peak His Schedule
VI. Planned Schedule
VII & VIII Sc Attachment
Preview/Su

*PWS ID	CA5610017
*PWS Name	VENTURA WATER DEPARTMENT
*PWS Address	JIM PASSANISI
	P.O. BOX 99
*City	VENTURA
*State	CA
*Zip	93002
*Population Served	102346
*System Type	CWS
*Source Water Type	SW
*Buying / Selling Relationships	Consecutive System

C. PWS Operations

Residual Disinfectant Type: ☐ Chlorine ☑ Chloramines ☐ Other

Number of Disinfected Sources				
	Surface	0	GWUDI	1
	Ground	2	Purchased	1

D. Contact Person

*Contact Name	Mike Oakley
Title	Treatment Supervisor
Phone Number	(805) 652-4574 ext.
Fax	(805) 643-6436
E-mail Address	moakley@ci.ventura.ca.us

SAVE NEXT BACK CANCEL

Standard Monitoring Plan Entry

II. IDSE Requirements

A. Number of Required Standard Monitoring Sites

High TTHM	5
High HAA5	4
Near Entry Point Sites	3
Average Residence Time Sites	4
Total	16

Note: If you have fewer entry points than required near entry point sites, you will sample at more TTHM and/or HAA5 sites, but your total number of sites will not change. See chapter 7 step 2 of the IDSE Guidance Manual for more information.

B. Schedule

Schedule 1

C. Required Standard Monitoring Frequency

- ○ During peak historical month (1 monitoring period)
- ○ Every 90 days (4 monitoring periods)
- ◉ Every 60 days (6 monitoring periods)

SAVE NEXT BACK CANCEL

I. General Ir
II. IDSE Re
III. Selectin
IV. Justifica
V. Peak His Schedule
VI. Planned Schedule
VII & VIII Sc Attachment
Preview/Su

Standard Monitoring Plan Entry

III. Selecting Standard Monitoring Sites

A. Data Evaluated. Check each box corresponding to the data that you used to select each type of standard monitoring site.

Data Type	Type of Site: Near Entry Point	Average Residence Time	High TTHM	High HAA5
System Configuration:				
Pipe layout, locations of storage facilities	☑	☑	☑	☑
Locations of sources and consecutive system entry points	☑	☑	☑	☑
Pressure zones	☑	☑	☑	☑
Information on population density	☐	☑	☑	☑
Locations of large customers	☐	☑	☑	☑
Water Quality and Operational Data:				
Disinfectant residual data	☑	☑	☑	☑
Stage 1 DBP data	☑	☑	☑	☑
Other DBP data	☐	☐	☐	☐
Microbial monitoring data	☐	☐	☐	☐
Tank levels data, pump run times	☑	☑	☑	☑
Customer billing records	☐	☐	☐	☐
Advanced Tools:				
Water distribution system model	☐	☐	☐	☐
Tracer study	☐	☐	☐	☐

B. Summary of Data.* Provide a summary of data you relied on to justify standard monitoring site selection.

Weekly total chlorine residuals were evaluated at 29 sampling stations that are represnetative of all pressure zones in the distribution system. The westend of the City that receives short residence (young) surface water has a total chlorine residual around 3.0 ppm. The total chlorine residual of water with average residence time is about 2.0 ppm, and older water with a long residence time is near 1.0 ppm.

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IV. Justification of Standard Monitoring Sites *

You are required to complete this section in its entirety before submitting the Plan.

#	Standard Monitoring Site ID (from map)1	Site Type	Justification
1.	E5porter	High TTHM	Furthest portion of the east end of the 210 Zone in the central part of the city away from the river source. Is
2.	E32breaker	High TTHM	Old river water in the small 605V Zone with low residential demand. Water passes through two BPSs
3.	N38kalorama	High TTHM	Very old river water in the small 605K Zone with low residential demand. Water passes through a BPS prior
4.	E29buenavista	High TTHM	Old river water in the 466 Zone with residential demand. Water passes through two BPSs and two
5.	E36gosnel	High TTHM	River water in the 400 Zone with residential & commercial demand. Water passes through a BPS and one tank
6.	N39mckee	High HAA5	River water in the 400 Zone with residential & commercial demand. Water passes through a BPS and one tank
7.	N40beachmont	High HAA5	Portion of the lower 210 Zone in the beach area. Is middle aged water in a residential & commercial
8.	E2ashwood	High HAA5	Middle aged water in the residential & commercial area of the 430 Zone based on pipe layout. The are no
9.	N41mintlane	High HAA5	Middle aged water in the residential area of the 588 Zone based on pipe layout. The are no other sampling
10.	N42AWTP	Near Entry Point	Entry location of river water or CMWD CM1 water after the Avenue Water Treatment Plant Power Reservoir into
11.	E8norway	Near Entry Point	

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			Entry location of river water or CMWD CM1 water after the Avenue Water Treatment Plant Power Reservoir into
12.	N43330bps	Near Entry Point	Entry location of CMWD CM2 water into Hall Canyon Reservoir. Total Chlorine residual is near 3 ppm or
13.	E7avenue	Average Residence Time	Location based on pipe layout which is at the south end of Ventura Avenue near downtown half way through
14.	E6seaward	Average Residence Time	Location based on pipe layout which is at the south end of Seaward Avenue past the downtown area. Water
15.	E3victoria	Average Residence Time	Location based on pipe layout which is at the north end of Victoria Avenue. Water flows through large
16.	N44sanjon	Average Residence Time	Location based on pipe layout which is at the central part of the 210 Zone in residential and commercial

1 Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form).

SAVE NEXT BACK CANCEL

Standard Monitoring Plan Entry

V. Peak Historical Month and Standard Monitoring Dates

A. *Peak Historical Month September

B. If multiple Sources, Source Used to Determine Peak Historical Month (enter "N/A" if only one source in your system). N N/A is automatically entered for you, please ensure you review this field and update accordingly prior to submitting.

The City receives 50% of its surface water from Casitas Municipal Water District (CMWD). The TOC for the City's Foster Park surface water is less that the CMWD surface water. The City's highest DDBPs occur when CMWD water is used, and especially when it is breakpoint chlorinated at the Avenue Plant. Water temperature data collected by CMWD for Lake Casitas was evaluated by CMWD and determine

C. *Peak Historical Month Based On (check all that apply):

- [x] High TTHM
- [x] Warmest water temperature
- [ ] High HAA5

If you used other information to select your peak historical month, explain here:

D. Proposed Standard Monitoring Schedule

You are required to complete this section in its entirety before submitting the Plan.

Standard Monitoring Site ID (from map)*	Projected Sampling Date (date or week)**					
	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
E5porter	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
E32breaker	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
N38kalorama	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
E29buenavista	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
E36gosnel	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
N39mckee	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
N40beachmont	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
E2ashwood	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
N41mintlane	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
N42AWTP	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
E8norway	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
N43330bps	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
E7avenue	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
E6seaward	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk

E3victoria	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk
N44sanjon	9/2007, wk 2	11/2007, wk 2	1/2008, wk 2	3/2008, wk 2	5/2008, wk 2	7/2008, wk

** Site IDs should match IDs on your distribution system schematic (See Section VII).*

*** period = monitoring period. Complete for the number of periods from Section II.C.*

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VI. Planned Stage 1 DBPR Compliance Monitoring Schedule*

If you are a consecutive system that is not required to conduct Stage 1 DBPR compliance monitoring, enter none under Stage 1 DBPR Monitoring Site ID and none under Period 1.

Add Monitoring Site

Stage 1 DBPR Monitoring Site ID (from map)1	Projected Sampling Date (date or week)2			
	Period 1	Period 2	Period 3	Period 4
1hospital	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
4ralston	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
9fir	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
10grand	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
16wells	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
17olivas	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
22harbor	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
23colinavi	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
26palma	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
31katherin	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
34seneca	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2
35highpoin	8/2007, wk2	11/2007, wk2	2/2008, wk2	5/2008, wk2

1 Verify that site IDs match IDs on your distribution system schematic (See Section VII of this form). Add additional monitoring sites if you are required to monitor at more than 8 Stage 1 DBPR sites.
2 period = monitoring period. Complete for the number of periods in which you must conduct Stage 1 DBPR monitoring during IDSE monitoring. Can list exact date or week (e.g., week of 7/9/07)

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Preview/Submit

VII & VIII Schematic & Attachments

Select Browse to locate the file you would like to attach to your plan. Click Save to upload your attachments. The following file types are acceptable formats for your attachments: .xls, .doc, .jpeg, .gif, .jpg, .txt, .wpd, and .pdf. All systems must submit a Distribution System Schematic with their plan unless they have selected the option to send by hardcopy. (* = required field)

*Distribution System Schematic [ ] Browse...

Attachment Name: [ ]
[ ] Browse...

Attachment Name: [ ]
[ ] Browse...

Attachment Name: [ ]
[ ] Browse...

The following is a list of attachments that have already been submitted.

File Name	Date Uploaded
Distribution System Schematic	2006-08-24 12:55:10.0
Distribution System Schematic	2006-08-24 12:58:49.0

If you prefer to send attachments via mail or e-mail, please check the box for "Sending attachments by mail". You may mail your attachments to one of the following addresses:

Mailing Address:
US EPA-IPMC
PO Box 98
Dayton, OH 45401-0098

E-mail Address:
stage2mdbp@epa.gov

☑ **Sending Attachments by Mail**

Enter a description of the items that will be mailed.

Distribution System Schematic.

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Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
January, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 1-19-05			0700	1105	1120	1035
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	0.3			
Nitrate-N	mg/L	0.1	8.1			
Nitrite-N	mg/L	0.012	0.02			
Organic-N	mg/L	2.5	12.7			
Total-N	mg/L		21.1			
Total Phosphorus	mg/L	0.1	1.5			
Phosphate as P	mg/L	0.1	1.6			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ**			
Dibromochloromethane	ug/L	NA	*			
Dichlorobromomethane	ug/L	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			103	106	106
Dissolved Oxygen	mg/L	0.1		7.8	8.2	9.6
pH	Units	0.1		8.2	8.3	8.3
Temperature	^{o}F			67	65	58
Total Coliform	MPN/100mL	2		>1600	1600	>1600
Fecal Coliform	MPN/100mL	2		170	300	300
Turbidity	NTU	0.2		109	113	94
Hardness	mg/L	2.5		389		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
Est. Conc. = Estimated Concentration
**DNQ, Less Than Reporting Limit 3.0, Estimated Cyanide Concentration 1.4

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
February, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 2-9-05			1050	850	840	820
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	3.8			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		0.7			
Total-N	mg/L		4.5			
Total Phosphorus	mg/L	0.1	1.3			
Phosphate as P	mg/L	0.1	1.2			
Thallium	ug/L	0.012	ND			
Cyanide	ug/L	3	DNQ**			
Dibromochloromethane	ug/L	NA	*			
Dichlorobromomethane	ug/L	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			94.0	97.0	97.0
Dissolved Oxygen	mg/L	0.1		10.1	11.0	11.1
pH	Units	0.1		8.3	8.3	8.3
Temperature	^{o}F			57	53	54
Total Coliform	MPN/100mL	2		170	70	220
Fecal Coliform	MPN/100mL	2		50	11	17
Turbidity	NTU	0.2		3.1	1.4	1.1
Hardness	mg/L	2.5		413		

*No Chlorine is being used
DNQ = Detected, but Not Quantified RL = Reporting Limit
Est. Conc. = Estimated Concentration
DNQ**, Less than reporting limit 3.0, estimated concentration 2.2

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MARCH, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 3-18-05			0830	0850	0840	0820
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	4.4			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		0.7			
Total-N	mg/L		5.1			
Total Phosphorus	mg/L	0.1	1.5			
Phosphate as P	mg/L	0.1	1.5			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	*DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			138	141	141
Dissolved Oxygen	mg/L	0.1		10.4	10.4	9.6
pH	Units	0.1		8.4	8.4	8.4
Temperature	^{o}F			56	56	59
Total Coliform	MPN/100mL	2		300	300	500
Fecal Coliform	MPN/100mL	2		23	13	30
Turbidity	NTU	0.2		7.9	8.1	7.5
Hardness	mg/L	2.5		410		

*No Chlorine is being used
ND = Non Detect
*DNQ, Less Than Reporting Limit 3.0, Estimated Concentration 1.6 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
April, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 4-13-05			0830	0830	0810	0750
Constituent	Units					
Ammonia-N	mg/L	0.2	0.2			
Nitrate-N	mg/L	0.1	3.6			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		0.8			
Total-N	mg/L		4.6			
Total Phosphorus	mg/L	0.1	1.5			
Phosphate as P	mg/L	0.1	1.4			
Thallium	ug/L	0.1	DNQ			
Cyanide	ug/L	3	DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.05	ND			
Flow	MGD			124	126	126
Dissolved Oxygen	mg/L	0.1		11.0	11.2	10.3
pH	Units	0.1		8.0	8.1	8.2
Temperature	^{o}F	^{o}F		55	55	57
Total Coliform	MPN/100mL	2		300	300	500
Fecal Coliform	MPN/100mL	2		70	23	70
Turbidity	NTU	0.2		1.1	1.3	1.3
Hardness	mg/L	2.5		433		

*No Chlorine is being used
Tl - DNQ, Less than reporting limit of 0.1, Estimated Concentration 0.08
CN - DNQ, Less than reporting limit of 3, Estimated Concentration 2.4; Note:CN was rerun as initial analysis was 12 ug/L, which is an abnormality. Initial sample was outside the holding time, but reanalyzed with subsequent DNQ as noted above.

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MAY, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 5-11-05			0800	0830	0815	0800
Constituent	Units	MDL				
Ammonia-N	mg/L	0.2	0.3			
Nitrate-N	mg/L	0.1	5.0			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	Calc	0.2			
Total-N	mg/L	0.5	5.5			
Total Phosphorus	mg/L	0.1	1.8			
Phosphate as P	mg/L	0.1	1.9			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	0.8	DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	0.5	ND			
Lindane	ug/L	0.003	ND			
Flow	MGD			90	92	92
Dissolved Oxygen	mg/L	0.1		11.0	11.0	10.6
pH	Units	0.1		8.3	8.3	8.2
Temperature	^{o}F			58	57	61
Total Coliform	MPN/100mL	2		500	170	900
Fecal Coliform	MPN/100mL	2		30	17	50
Turbidity	NTU	0.1		0.4	0.6	0.6
Hardness	mg/L	2.5		402		

*No Chlorine is being used
DNQ, Less than reporting limit. Estimated concentration 2.3 ug/L.

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
June, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 6-8-05			0730	0845	0820	0800
Constituent	Units	RL	Results			
Ammonia-N	mg/L	0.2	0.3			
Nitrate-N	mg/L	0.1	2.6			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	Calc	0.7			
Total-N	mg/L	0.5	3.6			
Total Phosphorus	mg/L	0.1	1.7			
Phosphate as P	mg/L	0.1	1.8			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	0.8	DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	0.5	ND			
Lindane	ug/L	0.003	ND			
Flow	MGD			64	66	66
Dissolved Oxygen	mg/L	0.1		10.4	10.9	10.8
pH	Units	0.1		8.0	8.0	8.1
Temperature	^{o}F			64	61	62
Total Coliform	MPN/100mL	2		**300	**900	**500
Fecal Coliform	MPN/100mL	2		**4	**50	**30
Turbidity	NTU	0.1		0.3	0.4	0.4
Hardness	mg/L	2.5		394		

*No Chlorine is being used
DNQ, Less than reporting limit. Estimated concentration was 2.2 ug/L.
**Resampled 06/28 due to analysis holding time exceeded by outside laboratory.

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
July, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 7-6-05				840	830	810
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	0.2			
Nitrate-N	mg/L	0.1	3.5			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	Calc	1.1			
Total-N	mg/L	0.5	4.8			
Total Phosphorus	mg/L	0.1	2.5			
Phosphate as P	mg/L	0.1	2.3			
Thallium	ug/L	10	ND			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			45	47	47
Dissolved Oxygen	mg/L	0.1		10.1	10.2	10.1
pH	Units	0.1		8.1	8.1	8.1
Temperature	^{o}F			65	65	65
Total Coliform	MPN/100mL	2		110	170	1600
Fecal Coliform	MPN/100mL	2		30	30	70
Turbidity	NTU	0.1		0.5	0.5	0.6
Hardness	mg/L	2.5		407		

*No Chlorine is being used
Nitrogen Series and Phosphate-P values are two week average 7-6 & 7-13-05
Priority Pollutants were sampled 7-20-05
Performance goal of 2 mg/L for Phosphorus-P was exceeded, and an investigative report will be provided.

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
August, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 8-10-05			0800	0835	0815	0750
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	0.3			
Nitrate-N	mg/L	0.1	NT			
Nitrite-N	mg/L	0.1	ND			
Organic-N	mg/L	0.5	1.3			
Total-N	mg/L	0.2	NT			
Total Phosphorus	mg/L	0.5	0.9			
Phosphate as P	mg/L	0.1	0.9			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	5	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			20	22	22
Dissolved Oxygen	mg/L			8.5	8.7	8.4
pH	Units			8.0	8.0	8.0
Temperature	^{o}F			66	66	68
Total Coliform	MPN/100mL			500	240	>1600
Fecal Coliform	MPN/100mL			50	50	130
Turbidity	NTU			1.2	0.9	1.8
Hardness	mg/L	2.5		370		

*No Chlorine is being used
NT = Not Tested due to Lab error

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
September, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 9-7-05			0730	0905	0845	0820
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	0.3			
Nitrate-N	mg/L	0.1	3.5			
Nitrite-N	mg/L	0.1	ND			
Organic-N	mg/L	0.5	0.7			
Total-N	mg/L	0.2	4.5			
Total Phosphorus	mg/L	0.5	0.7			
Phosphate as P	mg/L	0.17	0.9			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ**			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	5	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			15.0	17.0	17.0
Dissolved Oxygen	mg/L			9.8	10.0	9.2
pH	Units			8.1	8.1	8.0
Temperature	^{o}F			63	64	65
Total Coliform	MPN/100mL			300	300	1600
Fecal Coliform	MPN/100mL			300	170	27
Turbidity	NTU			1.3	1.7	1.2
Hardness	mg/L	2.5		386		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
**DNQ, Less Than Reporting Limit 3.0, Estimated Concentration 1.7 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
October, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	10/5/2005		0730	0850	0825	0805
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	3.6			
Nitrite-N	mg/L	0.1	ND			
Organic-N	mg/L	0.5	1.0			
Total-N	mg/L	0.2	4.6			
Total Phosphorus	mg/L	0.5	1.3			
Phosphate as P	mg/L	0.17	1.0			
Thallium	ug/L	0.1	DNQ**			
Cyanide	ug/L	3	DNQ***			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	5	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			16.0	18.0	18.0
Dissolved Oxygen	mg/L			10.2	10.6	9.0
pH	Units			8.4	8.2	8.0
Temperature	^{o}F			56	56.8	60
Total Coliform	MPN/100mL			300	240	900
Fecal Coliform	MPN/100mL			50	30	140
Turbidity	NTU			0.9	1.1	1.7
Hardness	mg/L	2.5		397		

*No Chlorine is being used
**DNQ, Less Than Reporting Limit 0.1, Estimated Concentration 0.04 ug/L
***DNQ, Less Than Reporting Limit 3.0, Estimated Concentration 2.3 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
November, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	11/9/2005		0800	0910	0850	0830
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	3.9			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	0.5	1.5			
Total-N	mg/L		5.4			
Total Phosphorus	mg/L	0.1	1.2			
Phosphate as P	mg/L	0.1	1.4			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ*			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			22.3	24.6	24.6
Dissolved Oxygen	mg/L			9.7	10.0	9.6
pH	Units			8.1	8.2	8.1
Temperature	^{o}F			61	61	62
Total Coliform	MPN/100mL			>1600	>1600	1600
Fecal Coliform	MPN/100mL			>1600	500	300
Turbidity	NTU			1.2	1.5	2.6
Hardness	mg/L	2.5		403		

*No Chlorine is being used
*DNQ, Less Than Reporting Limit 3.0, Estimated Concentration 2.7 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
December, 2005

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	12/7/2005		0800	0840	0825	0800
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.0			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	0.5	0.9			
Total-N	mg/L		5.9			
Total Phosphorus	mg/L	0.1	0.5			
Phosphate as P	mg/L	0.1	1.6			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ*			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			17.6	19.5	19.5
Dissolved Oxygen	mg/L			12.2	12.0	10.4
pH	Units			8.0	8.0	7.9
Temperature	^{o}F			47	48	52
Total Coliform	MPN/100mL			170	500	500
Fecal Coliform	MPN/100mL			50	17	80
Turbidity	NTU			0.9	0.7	0.9
Hardness	mg/L	2.5		382		

*No Chlorine is being used
*DNQ,Less ThanReporting Limit 3.0, Estimated Concentration 1.8 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
January, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 1-18-06			0730	0840	0825	0810
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	6.0			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	2.5	0.9			
Total-N	mg/L		6.9			
Total Phosphorus	mg/L	0.1	1.8			
Phosphate as P	mg/L	0.1	1.8			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ**			
Dibromochloromethane	ug/L	NA	*			
Dichlorobromomethane	ug/L	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			24	26	26
Dissolved Oxygen	mg/L	0.1		13.0	12.7	11.6
pH	Units	0.1		7.8	7.8	7.8
Temperature	^{o}F			50	51	54
Total Coliform	MPN/100mL	2		500	900	900
Fecal Coliform	MPN/100mL	2		80	30	80
Turbidity	NTU	0.2		0.5	0.4	0.5
Hardness	mg/L	2.5		386		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
**DNQ, Less Than Reporting Limit 3.0, Estimated Cyanide Concentration 1.5

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
February, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 2-8-06			1050	850	840	820
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.4	5.9			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		3.3			
Total-N	mg/L		9.2			
Total Phosphorus	mg/L	0.1	1.5			
Phosphate as P	mg/L	0.1	1.4			
Thallium	ug/L	0.1	DNQ[1]			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L	NA	*			
Dichlorobromomethane	ug/L	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			21.6	23.6	23.6
Dissolved Oxygen	mg/L	0.1		12.4	12.4	11.3
pH	Units	0.1		8.1	8.0	7.7
Temperature	^{o}F			51	50	52
Total Coliform	MPN/100mL	2		110	60	240
Fecal Coliform	MPN/100mL	2		110	60	50
Turbidity	NTU	0.2		3.1	1.4	1.1
Hardness	mg/L	2.5		430		

*No Chlorine is being used
DNQ = Detected, but Not Quantified RL = Reporting Limit
DNQ[1], Less than reporting limit 0.01 ug/L, estimated concentration 0.006 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MARCH, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 3-15-06			0800	0855	0930	0815
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.0			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		0.9			
Total-N	mg/L		5.9			
Total Phosphorus	mg/L	0.1	1.1			
Phosphate as P	mg/L	0.1	0.7			
Thallium	ug/L	0.1	DNQ			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			62	64	64
Dissolved Oxygen	mg/L	0.1		12.7	11.8	12.0
pH	Units	0.1		8.0	7.8	7.9
Temperature	^{o}F			51	56	55
Total Coliform	MPN/100mL	2		80	170	300
Fecal Coliform	MPN/100mL	2		17	50	50
Turbidity	NTU	0.2		0.5	0.6	0.6
Hardness	mg/L	2.5		415		

*No Chlorine is being used
ND = Non Detect
DNQ = Detected Not Quantified
Thallium DNQ: Less Than Reporting Limit 0.1, Estimated Concentration 0.009 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
April, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 4-19-06			0700	0900	0930	0830
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.6			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		0.6			
Total-N	mg/L		6.2			
Total Phosphorus	mg/L	0.1	1.8			
Phosphate as P	mg/L	0.1	1.8			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.05	ND			
Flow	MGD			145	148	148
Dissolved Oxygen	mg/L	0.1		11.3	10.7	10.2
pH	Units	0.1		7.7	7.7	7.7
Temperature	^{o}F	^{o}F		57	60	59
Total Coliform	MPN/100mL	2		900	500	300
Fecal Coliform	MPN/100mL	2		50	80	130
Turbidity	NTU	0.2		0.6	1.4	0.6
Hardness	mg/L	2.5		411		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
CN - DNQ, Less than reporting limit of 3, Estimated Concentration 1.6 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MAY, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 5-10-06			0915	0830	900	815
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.6			
Nitrite-N	mg/L	0.002	ND			
Organic-N	mg/L	Calc	0.8			
Total-N	mg/L	0.5	6.4			
Total Phosphorus	mg/L	0.1	1.2			
Phosphate as P	mg/L	0.02	1.2			
Thallium	ug/L	0.1	ND			
Cyanide (CN)	ug/L	3	*DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			60	62	62
Dissolved Oxygen	mg/L	0.1		10.8	11.9	10.5
pH	Units	0.1		7.9	8.0	7.7
Temperature	^{o}F			60	61	62
Total Coliform	MPN/100mL	2		240	240	500
Fecal Coliform	MPN/100mL	2		30	50	130
Turbidity	NTU	0.1		0.6	1.4	0.6
Hardness	mg/L	2.5		396		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
*DNQ - CN, Less than reporting limit of 3, Estimated Concentration 2.9 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
June, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 6-7-06			0700	0930	0900	0815
Constituent	Units	RL	Results			
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.1			
Nitrite-N	mg/L	0.012	DNQ[1]			
Organic-N	mg/L	Calc	1.4			
Total-N	mg/L	0.5	6.5			
Total Phosphorus	mg/L	0.1	1.2			
Phosphate as P	mg/L	0.1	0.9			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	0.8	ND			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	0.6	ND			
Lindane	ug/L	0.003	ND			
Flow	MGD			30	32	32
Dissolved Oxygen	mg/L	0.1		9.5	10.3	9.6
pH	Units	0.1		7.9	7.9	7.9
Temperature	^{o}F			62	65	66
Total Coliform	MPN/100mL	2		170	300	130
Fecal Coliform	MPN/100mL	2		50	130	30
Turbidity	NTU	0.1		0.4	0.5	0.5
Hardness	mg/L	2.5		378		

*No Chlorine is being used
DNQ[1], Less than reporting limit. Estimated concentration was .0034 ug/L.

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
July, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 7-6-06				0820	0850	0800
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.2			
Nitrite-N	mg/L	0.012	DNQ			
Organic-N	mg/L	Calc	0.6			
Total-N	mg/L	0.5	5.8			
Total Phosphorus	mg/L	0.1	1.8			
Phosphate as P	mg/L	0.1	2.0			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			16	18	18
Dissolved Oxygen	mg/L	0.1		9.8	10.2	9.1
pH	Units	0.1		7.8	7.9	7.8
Temperature	^{o}F			63	65	66
Total Coliform	MPN/100mL	2		240	300	240
Fecal Coliform	MPN/100mL	2		50	50	130
Turbidity	NTU	0.1		0.3	0.4	0.6
Hardness	mg/L	2.5		399		

*No Chlorine is being used
Nitrite detected not quantified. Est. Conc. = 0.0046 mg/l

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
August, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 8-9-06			0800	0820	0900	0800
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.4			
Nitrite-N	mg/L	0.012	DNQ[1]			
Organic-N	mg/L	0.5	0.5			
Total-N	mg/L	0.5	5.9			
Total Phosphorus	mg/L	0.1	1.8			
Phosphate as P	mg/L	0.1	1.8			
Thallium	ug/L	0.1	DNQ[2]			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			16	18	18
Dissolved Oxygen	mg/L			9.6	11.0	10.6
pH	Units			7.5	7.8	7.4
Temperature	^{o}F			61	64	64
Total Coliform	MPN/100mL			240	300	240
Fecal Coliform	MPN/100mL			80	80	23
Turbidity	NTU			0.7	0.5	0.7
Hardness	mg/L	2.5		368		

*No Chlorine is being used
DNQ - Detected but not Quantified
DNQ[1] = Less than reporting limit, Estimated concentration 0.0053 mg/l
DNQ[2] = Less than reporting limit, Estimated Concentration 0.08 ug/l

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
September, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 9-6-06			0900	0905	0845	0820
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	7.1			
Nitrite-N	mg/L	0.1	DNQ[1]			
Organic-N	mg/L	0.5	1.1			
Total-N	mg/L	0.2	8.2			
Total Phosphorus	mg/L	0.5	NT			
Phosphate as P	mg/L	0.17	3.5			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ[2]			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.05	ND			
Flow	MGD			19.0	21.0	21.0
Dissolved Oxygen	mg/L			10.0	9.2	9.8
pH	Units			7.8	8.0	7.8
Temperature	^{o}F			65	67	67
Total Coliform	MPN/100mL			>1600	>1600	>1600
Fecal Coliform	MPN/100mL			>1600	>1600	>1600
Turbidity	NTU			0.7	0.6	1.2
Hardness	mg/L	2.5		371		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
DNQ[1], Less Than Reporting Limit 0.012, Estimated Concentration 0.0052 ug/L
NT= Not Tested. Contract lab lost data.
DNQ[2] Less than reporting Limit of 3. Estimated concentration = 1.5 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
October, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	10/4/2006		0830	840	905	815
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.8			
Nitrite-N	mg/L	0.012	DNQ**			
Organic-N	mg/L	0.5	0.7			
Total-N	mg/L	0.2	6.5			
Total Phosphorus	mg/L	0.5	1.1			
Phosphate as P	mg/L	0.17	1.1			
Thallium	ug/L	0.1	DNQ***			
Cyanide	ug/L	3	DNQ****			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	5	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			12.0	14.0	14.0
Dissolved Oxygen	mg/L			8.7	9.4	9.6
pH	Units			7.6	7.8	7.6
Temperature	^{o}F			58	60	62
Total Coliform	MPN/100mL			300	240	300
Fecal Coliform	MPN/100mL			30	80	80
Turbidity	NTU			0.7	0.7	0.7
Hardness	mg/L	2.5		391		

*No Chlorine is being used
**DNQ, Less Than Reporting Limit 0.012, Estimated Concentration 0.0045 ug/L
***DNQ, Less Than Reporting Limit 0.1, Estimated Concentration 0.03 ug/L
****DNQ, Less Than Reporting Limit 3.0, Estimated Concentration 2.5 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
November, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	11/8/2006		0930	0850	0910	0830
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	7.2			
Nitrite-N	mg/L	0.012	0.057			
Organic-N	mg/L	0.5	0.8			
Total-N	mg/L		8.1			
Total Phosphorus	mg/L	0.1	2.0			
Phosphate as P	mg/L	0.1	1.78**			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	3.6			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			8.2	10.5	10.5
Dissolved Oxygen	mg/L			10.3	10.9	10.6
pH	Units			7.8	8.0	7.6
Temperature	^{o}F			59	61	60
Total Coliform	MPN/100mL			170	1600	220
Fecal Coliform	MPN/100mL			50	220	220
Turbidity	NTU			0.7	0.7	0.6
Hardness	mg/L	2.5		423		

*No Chlorine is being used
** Monthly Average based on 5 samples taken weekly.

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
December, 2006

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	12/6/2006		0800	0840	0825	0800
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	7.4			
Nitrite-N	mg/L	0.012	0.035			
Organic-N	mg/L	0.5	ND			
Total-N	mg/L		7.4			
Total Phosphorus	mg/L	0.1	1.5			
Phosphate as P	mg/L	0.1	1.5			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ*			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			8.5	10.5	10.5
Dissolved Oxygen	mg/L			11.1	11.2	9.8
pH	Units			7.8	7.9	7.6
Temperature	^{o}F			46	48	53
Total Coliform	MPN/100mL			300	900	500
Fecal Coliform	MPN/100mL			30	500	300
Turbidity	NTU			0.6	0.6	0.5
Hardness	mg/L	2.5		419		

*No Chlorine is being used
*DNQ,Less ThanReporting Limit 3.0, Estimated Concentration 1.9 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
January, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 1-3-07			0945	0825	0845	0820
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	0.2			
Nitrate-N	mg/L	0.1	7.4			
Nitrite-N	mg/L	0.012	DNQ[1]			
Organic-N	mg/L	0.5	0.5			
Total-N	mg/L		8.1			
Total Phosphorus	mg/L	0.1	1.2			
Phosphate as P	mg/L	0.1	0.7			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ[2]			
Dibromochloromethane	ug/L	NA	*			
Dichlorobromomethane	ug/L	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			7	9	9
Dissolved Oxygen	mg/L	0.1		10.8	10.6	8.2
pH	Units	0.1		7.9	8.0	7.6
Temperature	^{o}F			48	50	53
Total Coliform	MPN/100mL	2		110	500	300
Fecal Coliform	MPN/100mL	2		70	80	130
Turbidity	NTU	0.2		0.7	0.6	0.5
Hardness	mg/L	2.5		416		

*No Chlorine is being used

DNQ = Detected, but Not Quantified

DNQ[1], Less Than Reporting Limit 0.012, Estimated Nitrite Concentration 0.006 mg/L

DNQ[2], Less Than Reporting Limit 3, Estimated Cyanide Concentration 2.9 mg/L

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
February, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 2-7-07			0930	0835	0900	0815
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	**			
Nitrate-N	mg/L	0.4	6.5			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		**			
Total-N	mg/L		**			
Total Phosphorus	mg/L	0.1	**			
Phosphate as P	mg/L	0.1	1.9			
Thallium	ug/L	0.1	DNQ[1]			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L	NA	*			
Dichlorobromomethane	ug/L	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			6.0	8.0	8.0
Dissolved Oxygen	mg/L	0.1		14.2	13.8	13.5
pH	Units	0.1		7.8	7.9	7.4
Temperature	^{o}F			48	50	53
Total Coliform	MPN/100mL	2		1600	300	300
Fecal Coliform	MPN/100mL	2		500	130	80
Turbidity	NTU	0.2		0.9	0.7	0.6
Hardness	mg/L	2.5		404		

*No Chlorine is being used

** Tests not run due to contract lab error. Did not find out tests not run untill March.

DNQ = Detected, but Not Quantified RL = Reporting Limit

DNQ[1], Less than reporting limit 0.1 ug/L, estimated concentration 0.01 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MARCH, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 3-7-07			800	850	915	830
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.5			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		0.9			
Total-N	mg/L		6.4			
Total Phosphorus	mg/L	0.1	2.0			
Phosphate as P	mg/L	0.1	1.7			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	8.9			
Lindane	ug/L	0.01	ND			
Flow	MGD			8	10	10
Dissolved Oxygen	mg/L	0.1		10.4	9.2	9.4
pH	Units	0.1		7.6	7.7	7.5
Temperature	^{o}F			60	61	63
Total Coliform	MPN/100mL	2		300	900	900
Fecal Coliform	MPN/100mL	2		70	300	110
Turbidity	NTU	0.2		1.0	0.9	4.2
Hardness	mg/L	2.5		448		

*No Chlorine is being used
ND = Non Detect
DNQ = Detected Not Quantified
Cyanide DNQ: Less Than Reporting Limit 3 ug/l, Estimated Concentration 1.6 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
April, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 4-11-07			0930	0830	0850	0810
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	0.4			
Nitrate-N	mg/L	0.1	5.2			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L		ND			
Total-N	mg/L		5.6			
Total Phosphorus	mg/L	0.1	3.3			
Phosphate as P	mg/L	0.1	0.5			
Thallium	ug/L	0.1	DNQ			
Cyanide	ug/L	3	DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND**			
Lindane	ug/L	0.05	ND			
Flow	MGD			7	9	9
Dissolved Oxygen	mg/L	0.1		10.3	9.6	8.6
pH	Units	0.1		7.6	7.7	7.3
Temperature	^{o}F	20		54	58	58
Total Coliform	MPN/100mL	2		300	900	300
Fecal Coliform	MPN/100mL	2		80	110	300
Turbidity	NTU	0.2		0.6	0.6	0.6
Hardness	mg/L	2.5		491		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
** From median of 3 samples as per SIP section 2.4.5
Thallium - DNQ, Less than reporting limit of 0.1, Estimated Concentration 0.03 ug/L
CN - DNQ, Less than reporting limit of 3, Estimated Concentration 1.6 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MAY, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 5-9-07			1000	0830	0850	0815
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.6			
Nitrite-N	mg/L	0.002	ND			
Organic-N	mg/L	Calc	0.9			
Total-N	mg/L	0.5	6.5			
Total Phosphorus	mg/L	0.1	0.8			
Phosphate as P	mg/L	0.02	0.7			
Thallium	ug/L	0.1	0.2			
Cyanide (CN)	ug/L	3	ND			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND**			
Lindane	ug/L	0.01	ND			
Flow	MGD			7.7	9.6	9.6
Dissolved Oxygen	mg/L	0.1		10.1	9.5	8.0
pH	Units	0.1		7.4	7.5	7.0
Temperature	^{o}F			60	63	62
Total Coliform	MPN/100mL	2		80	1600	900
Fecal Coliform	MPN/100mL	2		23	130	170
Turbidity	NTU	0.1		0.42	0.56	0.48
Hardness	mg/L	2.5		409		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
** = Results are the mean of 2 results in May calculated as instructed by the SIP

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
June, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 6-6-07			0730	0840	0900	0820
Constituent	Units	RL	Results			
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	4.7			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	Calc	0.8			
Total-N	mg/L	0.5	5.5			
Total Phosphorus	mg/L	0.1	1.0**			
Phosphate as P	mg/L	0.1	0.4			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	0.8	ND			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	0.6	ND			
Lindane	ug/L	0.003	ND			
Flow	MGD			8	10	10
Dissolved Oxygen	mg/L	0.1		10.3	10.6	7.5
pH	Units	0.1		7.7	7.8	7.3
Temperature	^{o}F			63	64	64
Total Coliform	MPN/100mL	2		500	1600	>1600
Fecal Coliform	MPN/100mL	2		50	500	50
Turbidity	NTU	0.1		0.45	0.56	0.63
Hardness	mg/L	2.5		392		

*No Chlorine is being used
** Average of three tests

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
July, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 7-5-07				0835	0900	0820
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	5.9			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	Calc	**			
Total-N	mg/L	0.5	**			
Total Phosphorus	mg/L	0.1	2.18***			
Phosphate as P	mg/L	0.1	1.5			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ			
Dibromochloromethane	ug/L		*			
Dichlorobromomethane	ug/L		*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			5	7	7
Dissolved Oxygen	mg/L	0.1		10.2	9.7	7.7
pH	Units	0.1		7.6	7.7	7.4
Temperature	^{o}F			64	68	67
Total Coliform	MPN/100mL	2		900	900	900
Fecal Coliform	MPN/100mL	2		50	70	50
Turbidity	NTU	0.1		0.5	0.7	1.0
Hardness	mg/L	2.5		401		

*No Chlorine is being used
**TKN was not tested within holding time due to lab error. Data not valid.
*** Average of 4 samples.
CN - DNQ, Less than reporting limit of 3, Estimated Concentration 1.2 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
August, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled: 8-8-07			0700	0845	0920	0815
Constituent	Units	RL				
Ammonia-N	mg/L	0.1	ND			
Nitrate-N	mg/L	0.1	7.5			
Nitrite-N	mg/L	0.1	ND			
Organic-N	mg/L	0.1	0.9			
Total-N	mg/L	0.5	8.4			
Total Phosphorus	mg/L	0.1	3.35**			
Phosphate as P	mg/L	0.1	2.9			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			3.9	5.8	5.8
Dissolved Oxygen	mg/L			8.8	9.2	7.0
pH	Units			7.7	7.8	7.5
Temperature	^{o}F			66	69	67
Total Coliform	MPN/100mL			500	1600	>1600
Fecal Coliform	MPN/100mL			30	900	110
Turbidity	NTU			0.8	0.8	0.9
Hardness	mg/L	2.5		432		

*No Chlorine is being used
**Two sample average

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
September, 2007

Sample ID			Effluent	R-3	R-4	R-5
9/5/2007			0715	0855	0915	0840
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	0.2			
Nitrate-N	mg/L	0.1	5.5			
Nitrite-N	mg/L	0.1	ND			
Organic-N	mg/L	0.5	0.4			
Total-N	mg/L	0.2	6.1			
Total Phosphorus	mg/L	0.5	3.9			
Phosphate as P	mg/L	0.17	3.8			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.05	ND			
Flow	MGD			2.3	4.2	4.2
Dissolved Oxygen	mg/L			7.4	8.3	6.2
pH	Units			7.5	7.6	7.3
Temperature	^{o}F			66	68	71
Total Coliform	MPN/100mL			1600	>1600	>1600
Fecal Coliform	MPN/100mL			80	500	130
Turbidity	NTU			0.7	0.8	0.8
Hardness	mg/L	2.5		394		

*No Chlorine is being used

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
October, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	10/3/2007		0830	0830	0815	0850
Constituent	Units	RL				
Ammonia-N	mg/L	0.1	ND			
Nitrate-N	mg/L	0.1	6.6			
Nitrite-N	mg/L	0.012	DNQ**			
Organic-N	mg/L	0.1	1.0			
Total-N	mg/L	0.2	7.6			
Total Phosphorus	mg/L	0.5	3.1			
Phosphate as P	mg/L	0.17	3.1			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ***			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	5	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			1.7	3.5	3.5
Dissolved Oxygen	mg/L			8.5	10.0	7.4
pH	Units			7.4	7.5	7.1
Temperature	^{o}F			57	62	64
Total Coliform	MPN/100mL			>1600	>1600	>1600
Fecal Coliform	MPN/100mL			240	>1600	240
Turbidity	NTU			0.7	1.0	0.5
Hardness	mg/L	2.5		499		

*No Chlorine is being used
**DNQ, Less Than Reporting Limit 0.012, Estimated Concentration 0.0039 ug/L
***DNQ, Less Than Reporting Limit 3.0, Estimated Concentration 1.8 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
November, 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	11/7/2007		800	820	845	805
Constituent	Units	RL				
Ammonia-N	mg/L	0.1	ND			
Nitrate-N	mg/L	0.1	6.5**			
Nitrite-N	mg/L	0.012	ND			
Organic-N	mg/L	0.5	0.8			
Total-N	mg/L		7.3			
Total Phosphorus	mg/L	0.1	3.2			
Phosphate as P	mg/L	0.1	3.1			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	DNQ			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			1.0	2.9	2.9
Dissolved Oxygen	mg/L			8.7	9.1	7.1
pH	Units			7.5	7.6	7.3
Temperature	^{o}F			56	60	62
Total Coliform	MPN/100mL			>1600	>1600	1600
Fecal Coliform	MPN/100mL			900	500	130
Turbidity	NTU			3.5	2.2	1.0
Hardness	mg/L	2.5		478		

*No Chlorine is being used
** Monthly Average based on 2 samples
Effluent cyanide = 0.88 ug/l estimated concentration

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
December, 2007

Ojai Valley Sanitary District
Monthly Effluent and River Stations
December 2007

Sample ID			Effluent	R-3	R-4	R-5
Date & Time Sampled:	12/5/2007		0800	0820	0840	0800
Constituent	Units	RL				
Ammonia-N	mg/L	0.2	ND			
Nitrate-N	mg/L	0.1	4.3			
Nitrite-N	mg/L	0.03	ND			
Organic-N	mg/L	0.5	0.5			
Total-N	mg/L		4.8			
Total Phosphorus	mg/L	0.1	0.5			
Phosphate as P	mg/L	0.1	0.4			
Thallium	ug/L	0.1	ND			
Cyanide	ug/L	3	ND			
Dibromochloromethane	ug/L	0.5	*			
Dichlorobromomethane	ug/L	0.5	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	ND			
Lindane	ug/L	0.01	ND			
Flow	MGD			0.7	2.5	2.5
Dissolved Oxygen	mg/L			9.4	10.2	8.4
pH	Units			7.5	7.6	7.3
Temperature	^{o}F			52	57	59
Total Coliform	MPN/100mL			900	>1600	1600
Fecal Coliform	MPN/100mL			50	80	130
Turbidity	NTU			1.0	1.1	0.8
Hardness	mg/L	2.5		458		

*No Chlorine is being used

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
January, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 1-16-08				0800	0840	0905	0820
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	ND			
Nitrate-N	mg/L	0.1	0.01	4.6			
Nitrite-N	mg/L	0.03	0.004	DNQ[1]			
Organic-N	mg/L	0.1	0.08	1.0			
Total-N	mg/L			5.6			
Total Phosphorus	mg/L	0.1	0.01	1.5			
Phosphate as P	mg/L	0.1	0.018	1.4			
Thallium	ug/L	0.1	0.04	ND			
Cyanide	ug/L	3	0.8	DNQ[2]			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.6	DNQ[3]			
Lindane	ug/L	0.01	0.002	ND			
Flow	MGD				5	7	7
Dissolved Oxygen	mg/L	0.1	0.1		11.2	11.4	11.1
pH	Units	0.1	0.1		7.6	7.7	7.5
Temperature	^{o}F				47	49	50
Total Coliform	MPN/100mL	2	2		900	900	280
Fecal Coliform	MPN/100mL	2	2		11	80	80
Turbidity	NTU	0.2	0.003		0.4	0.9	0.7
Hardness	mg/L	20	15		500		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
DNQ[1], Less Than Reporting Limit 0.03, Estimated Nitrite Concentration 0.0070 mg/L
DNQ[2], Less Than Reporting Limit 3, Estimated Cyanide Concentration 2.2 mg/L
DNQ[3], Less Than Reporting Limit 3, Estimated Cyanide Concentration 1.84 mg/L. 1.69 mg/l detected in blank

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
February, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 2-6-08				1000	0830	0915	0805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	ND			
Nitrate-N	mg/L	0.1	0.01	4.1			
Nitrite-N	mg/L	0.03	0.004	DNQ[1]			
Organic-N	mg/L	0.1	0.08	0.58			
Total-N	mg/L			4.7			
Total Phosphorus	mg/L	0.1	0.01	1.4			
Phosphate as P	mg/L	0.1	0.018	1.4			
Thallium	ug/L	0.1	0.04	ND			
Cyanide	ug/L	3	0.8	DNQ[2]			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.6	DNQ[3]			
Lindane	ug/L	0.01	0.002	ND			
Flow	MGD				64	67	67
Dissolved Oxygen	mg/L	0.1	0.1		11.1	10.8	10.7
pH	Units	0.1	0.1		7.8	8.0	7.6
Temperature	^{o}F				48	51	51
Total Coliform	MPN/100mL	2	2		130	80	170
Fecal Coliform	MPN/100mL	2	2		50	30	80
Turbidity	NTU	0.2	0.003		0.7	0.9	0.9
Hardness	mg/L	20	15		430		

*No Chlorine is being used
DNQ = Detected, but Not Quantified RL = Reporting Limit
DNQ[1] =Estimated concentration 0.0060 mg/L
DNQ[2] = Estimated concentration 1.6 ug/L
DNQ[3] = Estimated concentration 0.9 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MARCH, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 3-5-08				800	830	900	810
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	ND			
Nitrate-N	mg/L	0.1	0.01	5.1			
Nitrite-N	mg/L	0.03	0.004	DNQ			
Organic-N	mg/L	0.1	0.08	0.9			
Total-N	mg/L			6.0			
Total Phosphorus	mg/L	0.1	0.01	1.7			
Phosphate as P	mg/L	0.1	0.018	1.7			
Thallium	ug/L	0.1	0.04	ND			
Cyanide	ug/L	3	0.8	DNQ			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.6	ND			
Lindane	ug/L	0.01	0.002	ND			
Flow	MGD				53	55	55
Dissolved Oxygen	mg/L	0.1	0.1		11.5	12.0	11.1
pH	Units	0.1	0.1		7.9	8.2	7.6
Temperature	^{o}F				52	54	54
Total Coliform	MPN/100mL	2	2		300	140	80
Fecal Coliform	MPN/100mL	2	2		4	23	23
Turbidity	NTU	0.2	0.003		0.8	0.8	0.8
Hardness	mg/L	20	15		490		

*No Chlorine is being used
ND = Non Detect
DNQ = Detected Not Quantified
Cyanide DNQ: Less Than Reporting Limit 3 ug/l, Estimated Concentration 1.1 ug/L
Nitrite Estimated Concentration = 0.006 mg/l

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
April, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 4-09-08				0815	0845	0920	0830
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	DNQ			
Nitrate-N	mg/L	0.1	0.01	4.9			
Nitrite-N	mg/L	0.03	0.004	ND			
Organic-N	mg/L	0.1	0.08	0.8			
Total-N	mg/L			5.7			
Total Phosphorus	mg/L	0.1	0.02	1.9			
Phosphate as P	mg/L	0.1	0.018	1.8			
Thallium	ug/L	0.1	0.04	ND			
Cyanide	ug/L	3	0.8	DNQ			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.6	ND			
Lindane	ug/L	0.01	0.002	ND			
Flow	MGD				29	31	31
Dissolved Oxygen	mg/L	0.1	0.1		10.2	12.0	9.9
pH	Units	0.1	0.1		7.6	8.0	7.3
Temperature	^{o}F				55	56	57
Total Coliform	MPN/100mL	2	2		300	900	140
Fecal Coliform	MPN/100mL	2	2		8	50	17
Turbidity	NTU	0.2	0.003		0.4	0.3	0.6
Hardness	mg/L	20	15		460		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
Ammonia -N: DNQ, Less than reporting limit of 0.1, Estimated Concentration 0.077 ug/L
CN - DNQ, Less than reporting limit of 3, Estimated Concentration 0.9 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MAY, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 5-7-08				0800	0840	0910	0825
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	ND			
Nitrate-N	mg/L	0.1	0.01	3.5			
Nitrite-N	mg/L	0.03	0.004	DNQ			
Organic-N	mg/L	0.1	0.06	0.7			
Total-N	mg/L			4.2			
Total Phosphorus	mg/L	0.1	0.01	1.4			
Phosphate as P	mg/L	0.1	0.018	0.6			
Thallium	ug/L	0.1	0.02	ND			
Cyanide (CN)	ug/L	3	0.8	ND			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.6	ND			
Lindane	ug/L	0.01	0.002	ND			
Flow	MGD				27	29	29
Dissolved Oxygen	mg/L	0.1	0.1		9.8	10	9.6
pH	Units	0.1	0.1		7.6	7.7	7.4
Temperature	^{o}F				60	61	63
Total Coliform	MPN/100mL	2	2		80	170	110
Fecal Coliform	MPN/100mL	2	2		27	33	21
Turbidity	NTU	0.2	0.003		0.36	0.30	0.36
Hardness	mg/L	20	15		490		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
Nitrite Estimated Concentration = 0.005 mg/l

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
June, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 6-4-08				0930	0835	0905	0820
Constituent	Units	RL	MDL	Results			
Ammonia-N	mg/L	0.1	0.04	0.14			
Nitrate-N	mg/L	0.1	0.01	3.7			
Nitrite-N	mg/L	0.03	0.004	DNQ			
Organic-N	mg/L	0.1	0.06	0.6			
Total-N	mg/L			4.4			
Total Phosphorus	mg/L	0.1	0.01	1.4			
Phosphate as P	mg/L	0.1	0.018	0.8			
Thallium	ug/L	0.1	0.02	ND			
Cyanide	ug/L	3	0.8	DNQ			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.6	DNQ			
Lindane	ug/L	0.01	0.002	ND			
Flow	MGD				16	18	18
Dissolved Oxygen	mg/L	0.1	0.1		8.5	9.6	8.9
pH	Units	0.1	0.1		7.6	7.8	7.3
Temperature	^{o}F				60	61	62
Total Coliform	MPN/100mL	2	2		350	540	140
Fecal Coliform	MPN/100mL	2	2		23	79	17
Turbidity	NTU	0.2	0.003		0.90	1.04	1.08
Hardness	mg/L	20	15		500		

*No Chlorine is being used
Nitrite Estimated Concentration = 0.007 mg/l
CN - DNQ, Less than reporting limit of 3, Estimated Concentration 0.92 ug/L
Bis(2-Ethylhexyl)phthalate Estimated Concentration = 0.601 ug/l

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
July, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 7-2-08					0835	0900	815
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	DNQ			
Nitrate-N	mg/L	0.1	0.01	3.1			
Nitrite-N	mg/L	0.03	0.004	DNQ			
Organic-N	mg/L	0.1	0.06	0.5			
Total-N	mg/L			3.8			
Total Phosphorus	mg/L	0.1	0.01	1.2			
Phosphate as P	mg/L	0.1	0.018	1.1			
Thallium	ug/L	0.1	0.02	ND			
Cyanide	ug/L	3	0.8	DNQ			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.6	ND			
Lindane	ug/L	0.01	0.002	ND			
Flow	MGD				13	15	15
Dissolved Oxygen	mg/L	0.1	0.1		10.6	9.1	8.1
pH	Units	0.1	0.1		7.4	7.7	7.3
Temperature	^{o}F				65	66	66
Total Coliform	MPN/100mL	2	2		1600	110	900
Fecal Coliform	MPN/100mL	2	2		350	50	900
Turbidity	NTU	0.2	0.003		0.9	1.4	1.1
Hardness	mg/L	20	15		480		

*No Chlorine is being used
Est Conc Nitrite = 0.0040 mg/l
Est Conc Ammonia-N = 0.077 mg/l
Estimated Concentration Cyanide = 0.91 ug/L

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
August, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 8-6-08				0900	0830	0900	0810
Constituent	Units	RL					
Ammonia-N	mg/L	0.1		DNQ			
Nitrate-N	mg/L	0.1		4.2			
Nitrite-N	mg/L	0.1		DNQ			
Organic-N	mg/L	0.1		0.8			
Total-N	mg/L	0.5		5.0			
Total Phosphorus	mg/L	0.1		1.0			
Phosphate as P	mg/L	0.1		0.9			
Thallium	ug/L	0.1		ND			
Cyanide	ug/L	3		DNQ			
Dibromochloromethane	ug/L	0.5		*			
Dichlorobromomethane	ug/L	0.5		*			
Bis (2-ethylhexyl)phthalate	ug/L	3		ND			
Lindane	ug/L	0.01		ND			
Flow	MGD				9.2	11.1	11.1
Dissolved Oxygen	mg/L				8.6	9.9	8.4
pH	Units				7.7	7.9	7.4
Temperature	^{o}F				67	69	69
Total Coliform	MPN/100mL				300	900	1600
Fecal Coliform	MPN/100mL				30	140	130
Turbidity	NTU				1.2	1.7	1.4
Hardness	mg/L	2.5			470		

*No Chlorine is being used
Est Conc Ammonia-N = 0.066 mg/l
Est Conc Nitrite = 0.007 mg/l
Estimated Concentration Cyanide = 2.1 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
September, 2008

Sample ID				Effluent	R-3	R-4	R-5
9/3/2008				0730	0810	0830	0750
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	ND			
Nitrate-N	mg/L	0.1	0.02	5.1			
Nitrite-N	mg/L	0.03	0.002	ND			
Organic-N	mg/L	0.1	0.06	0.9			
Total-N	mg/L	0.2		6.0			
Total Phosphorus	mg/L	0.1	0.01	0.5			
Phosphate as P	mg/L	0.17	0.018	0.8			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				8.4	10.3	10.3
Dissolved Oxygen	mg/L	0.1	0.1		7.6	8.8	7.6
pH	Units	0.1	0.1		7.4	7.9	7.4
Temperature	^{o}F				62	65	65
Total Coliform	MPN/100mL	2	2		1600	>1600	>1600
Fecal Coliform	MPN/100mL	2	2		50	300	500
Turbidity	NTU	0.2	0.003		0.6	0.7	0.6
Hardness	mg/L	5	3	360	450		

*No Chlorine is being used

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	10/8/2008			0830	0830	0815	0850
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	ND			
Nitrate-N	mg/L	0.1	0.02	5.2			
Nitrite-N	mg/L	0.03	0.002	DNQ**			
Organic-N	mg/L	0.1	0.06	1.0			
Total-N	mg/L	0.2		6.2			
Total Phosphorus	mg/L	0.1	0.01	0.24			
Phosphate as P	mg/L	0.17	0.018	0.16			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				3.7	5.5	5.5
Dissolved Oxygen	mg/L	0.1	0.1		8.6	8.6	8.1
pH	Units	0.1	0.1		7.7	8.0	7.6
Temperature	^{o}F				62	63	65
Total Coliform	MPN/100mL	2	2		500	>1600	1600
Fecal Coliform	MPN/100mL	2	2		80	170	170
Turbidity	NTU	0.2	0.003		0.7	0.8	0.6
Hardness	mg/L	5	3	340	420		

*No Chlorine is being used
**DNQ, Less Than Reporting Limit 0.03, Estimated Concentration 0.008 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
November, 2008

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	11/13/2008			845	835	855	815
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	DNQ			
Nitrate-N	mg/L	0.1	0.01	5.7			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	0.6			
Total-N	mg/L	0.2		6.3			
Total Phosphorus	mg/L	0.1	0.01	0.2			
Phosphate as P	mg/L	0.17	0.018	0.1			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				4.6	6.5	6.5
Dissolved Oxygen	mg/L	0.1	0.1		9.0	8.9	8.8
pH	Units	0.1	0.1		8.0	8.2	7.7
Temperature	^{o}F				56	58	61
Total Coliform	MPN/100mL	2	2		500	500	500
Fecal Coliform	MPN/100mL	2	2		30	230	300
Turbidity	NTU	0.2	0.003		0.7	0.8	0.7
Hardness	mg/L	20	15	350	440		

*No Chlorine is being used
Ammonia Estimated Concentration = 0.066 mg/l
Nitrite-N Estimated Concentration = 0.0040 mg/l

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	12/10/2008			0830	0810	0830	0755
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	0.31			
Nitrate-N	mg/L	0.2	0.05	4.6			
Nitrite-N	mg/L	0.03	0.002	ND			
Organic-N	mg/L	0.1	0.06	2.1			
Total-N	mg/L	0.2		7.0			
Total Phosphorus	mg/L	0.1	0.01	0.12			
Phosphate as P	mg/L	0.17	0.018	0.07			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				3.6	5.4	5.4
Dissolved Oxygen	mg/L	0.1	0.1		9.9	11.3	8.8
pH	Units	0.1	0.1		8.2	8.2	7.7
Temperature	^{o}F				46	48	55
Total Coliform	MPN/100mL	2	2		300	1600	1600
Fecal Coliform	MPN/100mL	2	2		50	50	80
Turbidity	NTU	0.2	0.003		0.5	0.8	0.5
Hardness	mg/L	20	8.5	330	450		

*No Chlorine is being used

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
January, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	1/7/2009			0815	0830	0835	0800
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	DNQ			
Nitrate-N	mg/L	0.2	0.05	4.6			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	0.8			
Total-N	mg/L	0.2		5.4			
Total Phosphorus	mg/L	0.1	0.01	1.80			
Phosphate as P	mg/L	0.17	0.018	1.56			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				3.9	5.8	5.8
Dissolved Oxygen	mg/L	0.1	0.1		10.9	11.0	9.1
pH	Units	0.1	0.1		7.9	8.0	7.6
Temperature	^{o}F				47	50	55
Total Coliform	MPN/100mL	2	2		500	900	500
Fecal Coliform	MPN/100mL	2	2		70	140	50
Turbidity	NTU	0.2	0.003		1.0	0.7	0.4
Hardness	mg/L	50	17	430	540		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
Nitrite-N Estimated Concentration 0.0060 mg/L
Ammonia Estimated Concentration 0.066 mg/L

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
February, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 2-4-09				0940	820	850	800
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	0.26			
Nitrate-N	mg/L	0.1	0.01	5.5			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	0.59			
Total-N	mg/L	0.1		6.4			
Total Phosphorus	mg/L	0.1	0.01	0.38			
Phosphate as P	mg/L	0.17	0.018	0.1			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD	0.1	0.1		3.6	5.4	5.4
Dissolved Oxygen	mg/L	0.1	0.1		11.1	10.7	9.1
pH	Units	2	2		8.1	8.1	7.8
Temperature	^{o}F				47	51	55
Total Coliform	MPN/100mL	2	2		240	900	240
Fecal Coliform	MPN/100mL	2	2		240	130	50
Turbidity	NTU	0.2	0.003		0.3	0.5	0.6
Hardness	mg/L	50	1.7	360	460		

*No Chlorine is being used
DNQ = Detected, but Not Quantified RL = Reporting Limit
Nitrite Estimated concentration 0.015 mg/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MARCH, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 3-4-09				815	830	900	810
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	0.12			
Nitrate-N	mg/L	0.1	0.01	4.8			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	0.62			
Total-N	mg/L	0.1		5.5			
Total Phosphorus	mg/L	0.1	0.01	0.27			
Phosphate as P	mg/L	0.17	0.018	0.2			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD	0.1	0.1		10.7	13.0	13.0
Dissolved Oxygen	mg/L	0.1	0.1		8.6	10.2	8.4
pH	Units	2	2		7.9	8.1	7.8
Temperature	^{o}F				58	57	63
Total Coliform	MPN/100mL	2	2		900	900	500
Fecal Coliform	MPN/100mL	2	2		23	80	50
Turbidity	NTU	0.2	0.003		0.9	0.8	1.0
Hardness	mg/L	50	1.7	410	460		

*No Chlorine is being used
ND = Non Detect
DNQ = Detected Not Quantified
Nitrite Estimated Concentration = 0.004 mg/l

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
April, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 4-08-09				0815	0830	0850	0815
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.05	DNQ			
Nitrate-N	mg/L	0.1	0.05	4.3			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	0.7			
Total-N	mg/L			5.0			
Total Phosphorus	mg/L	0.1	0.01	0.24			
Phosphate as P	mg/L	0.1	0.018	0.19			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				11	13	13
Dissolved Oxygen	mg/L	0.1	0.1		10.0	10.0	9.0
pH	Units	0.1	0.1		7.9	8.1	8.0
Temperature	^{o}F				55	55	59
Total Coliform	MPN/100mL	2	2		300	900	140
Fecal Coliform	MPN/100mL	2	2		8	50	17
Turbidity	NTU	0.2	0.003		0.5	0.5	0.7
Hardness	mg/L	5	1.7	390	460		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
Ammonia -N: DNQ, Less than reporting limit of 0.1, Estimated Concentration 0.055 ug/L
Nitrite - DNQ, Less than reporting limit of 0.03, Estimated Concentration 0.0040 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MAY, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 5-6-09				0830	0815	0825	0830
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.15			
Nitrate-N	mg/L	0.1	0.01	4.9			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.76			
Total-N	mg/L			5.8			
Total Phosphorus	mg/L	0.1	0.01	0.3			
Phosphate as P	mg/L	0.1	0.018	0.2			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				5.8	7.4	7.4
Dissolved Oxygen	mg/L	0.1	0.1		8.2	8.4	6.7
pH	Units	0.1	0.1		7.9	8.0	7.9
Temperature	^{o}F				62	63	65
Total Coliform	MPN/100mL	2	2		1600	500	300
Fecal Coliform	MPN/100mL	2	2		23	50	50
Turbidity	NTU	0.2	0.003		0.5	1.4	1.1
Hardness	mg/L	5	1.7	390	460		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
Nitrite Estimated Concentration = 0.005 mg/l

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
June, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 6-10-09				0830	0840	0900	0815
Constituent	Units	RL	MDL	Results			
Ammonia-N	mg/L	0.1	0.06	DNQ			
Nitrate-N	mg/L	0.1	0.01	4.4			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	ND			
Total-N	mg/L			4.4			
Total Phosphorus	mg/L	0.1	0.01	2.6			
Phosphate as P	mg/L	0.1	0.018	1.7			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				4.3	6.0	6.0
Dissolved Oxygen	mg/L	0.1	0.1		9.0	9.1	7.3
pH	Units	0.1	0.1		7.8	8.1	7.9
Temperature	^{o}F				62	64	65
Total Coliform	MPN/100mL	2	2		1600	>1600	900
Fecal Coliform	MPN/100mL	2	2		110	240	80
Turbidity	NTU	0.2	0.003		0.79	1.81	1.26
Hardness	mg/L	5	1.7	360	460		

*No Chlorine is being used
NH3-N - Estimated Concentration 0.099 mg/L
Nitrite Estimated Concentration = 0.0070 mg/l

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
July, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 7-1-08					0815	0840	0800
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.21			
Nitrate-N	mg/L	0.1	0.01	3.1			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.66			
Total-N	mg/L			4.0			
Total Phosphorus	mg/L	0.1	0.01	0.63			
Phosphate as P	mg/L	0.1	0.018	0.54			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				4.1	5.9	5.9
Dissolved Oxygen	mg/L	0.1	0.1		7.8	8.6	7.1
pH	Units	0.1	0.1		7.9	7.9	7.9
Temperature	^{o}F				64	63	67
Total Coliform	MPN/100mL	2	2		300	500	900
Fecal Coliform	MPN/100mL	2	2		34	80	50
Turbidity	NTU	0.2	0.003		0.49	0.95	1.03
Hardness	mg/L	5	1.7	350	460		

*No Chlorine is being used
Est Conc Nitrite = 0.0050 mg/l

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OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
August, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 8-5-09				0830	0820	0900	0750
Constituent	Units	RL					
Ammonia-N	mg/L	0.1	0.06	DNQ			
Nitrate-N	mg/L	0.1	0.01	3.2			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	1.80			
Total-N	mg/L			5.0			
Total Phosphorus	mg/L	0.1	0.01	0.40			
Phosphate as P	mg/L	0.1	0.018	0.35			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				1.9	3.6	3.6
Dissolved Oxygen	mg/L	0.1	0.1		7.7	9.1	7.5
pH	Units	0.1	0.1		8.0	8.1	7.9
Temperature	^{o}F				62	65	68
Total Coliform	MPN/100mL	2	2		1600	1600	1600
Fecal Coliform	MPN/100mL	2	2		240	240	130
Turbidity	NTU	0.2	0.003		1.79	1.54	1.31
Hardness	mg/L	5	1.7	350	490		

*No Chlorine is being used
Est Conc Ammonia-N = 0.099 mg/l
Est Conc Nitrite = 0.007 mg/l
Estimated Concentration Cyanide = 2.1 ug/L

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
September, 2009

Sample ID				Effluent	R-3	R-4	R-5
9/17/2009				0830	0815	0840	0800
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.11			
Nitrate-N	mg/L	0.1	0.02	3.5			
Nitrite-N	mg/L	0.03	0.002	ND			
Organic-N	mg/L	0.1	0.07	1.1			
Total-N	mg/L			4.7			
Total Phosphorus	mg/L	0.1	0.01	0.6			
Phosphate as P	mg/L	0.1	0.018	0.6			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				2.3	4.2	4.2
Dissolved Oxygen	mg/L	0.1	0.1		7.5	8.5	7.1
pH	Units	0.1	0.1		7.9	8.0	7.8
Temperature	^{o}F				63	65	68
Total Coliform	MPN/100mL	2	2		500	1600	900
Fecal Coliform	MPN/100mL	2	2		300	170	80
Turbidity	NTU	0.2	0.003		0.3	1.3	0.7
Hardness	mg/L	5	1.7	410	470		

*No Chlorine is being used

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
October, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	10/7/2009			0830	0820	845	805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	DNQ			
Nitrate-N	mg/L	0.1	0.01	4.7			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.96			
Total-N	mg/L	0.2		5.7			
Total Phosphorus	mg/L	0.1	0.017	1.30			
Phosphate as P	mg/L	0.1	0.02	1.02			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				1.9	3.7	3.7
Dissolved Oxygen	mg/L	0.1	0.1		9.5	10.6	7.5
pH	Units	0.1	0.1		8.0	8.1	7.9
Temperature	^{o}F				55	57	63
Total Coliform	MPN/100mL	2	2		1600	900	1600
Fecal Coliform	MPN/100mL	2	2		130	240	300
Turbidity	NTU	0.2	0.03		0.4	1.0	0.8
Hardness	mg/L	5	1.7	390	470		

*No Chlorine is being used
DNQ = Detected Not Quantified
Ammonia- N Estimated Concentration = 0.088 mg/l
Nitrite- N Estimated Concentration = 0.0060 mg/l

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
November, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	11/4/2009			0830	0825	0845	0805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.14			
Nitrate-N	mg/L	0.1	0.01	3.4			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	1.9			
Total-N	mg/L	0.2		5.4			
Total Phosphorus	mg/L	0.1	0.017	1.7			
Phosphate as P	mg/L	0.1	0.02	1.4			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				1.9	3.7	3.7
Dissolved Oxygen	mg/L	0.1	0.1		8.6	9.8	8.5
pH	Units	0.1	0.1		7.9	8.1	8.0
Temperature	^{o}F				58	59	64
Total Coliform	MPN/100mL	2	2		900	1600	1600
Fecal Coliform	MPN/100mL	2	2		300	240	240
Turbidity	NTU	0.2	0.03		0.5	1.2	1.0
Hardness	mg/L	5	1.7	400	480		

*No Chlorine is being used
Nitrite-N Estimated Concentration = 0.011 mg/l
DNQ = Detected not quantified

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
December, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	12/9/2009			0830	0825	0845	0805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.13			
Nitrate-N	mg/L	0.2	0.05	4.6			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	1.5			
Total-N	mg/L	0.2		6.2			
Total Phosphorus	mg/L	0.1	0.017	1.1			
Phosphate as P	mg/L	0.1	0.02	1.0			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				2.4	4.2	4.2
Dissolved Oxygen	mg/L	0.1	0.1		11.6	11.8	10.0
pH	Units	0.1	0.1		8.0	8.1	7.9
Temperature	^{o}F				44	48	54
Total Coliform	MPN/100mL	2	2		500	900	1600
Fecal Coliform	MPN/100mL	2	2		34	130	50
Turbidity	NTU	0.2	0.003		0.9	0.6	0.9
Hardness	mg/L	5	1.7	350	480		

*No Chlorine is being used
Nitrite-N Estimated Concentration= 0.0080 mg/l
DNQ = Detected not quantified

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
January, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	1/6/2010			0830	0835	0900	0820
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.21			
Nitrate-N	mg/L	0.1	0.01	4.1			
Nitrite-N	mg/L	0.03	0.002	ND			
Organic-N	mg/L	0.1	0.06	1.1			
Total-N	mg/L	0.2		5.4			
Total Phosphorus	mg/L	0.1	0.017	1.30			
Phosphate as P	mg/L	0.17	0.018	1.39			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				3.4	5.1	5.1
Dissolved Oxygen	mg/L	0.1	0.1		11.6	9.2	9.2
pH	Units	0.1	0.1		8.1	8.1	8.0
Temperature	^{o}F				54	55	57
Total Coliform	MPN/100mL	2	2		110	500	500
Fecal Coliform	MPN/100mL	2	2		50	130	50
Turbidity	NTU	0.1	0.03		0.5	0.9	1.0
Hardness	mg/L	50	1.7	360	480		

*No Chlorine is being used
DNQ = Detected, but Not Quantified

OJAI VALLEY SANITARY DISTRICT WWTP
Monthly Effluent & River Stations
February, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 2-3-10				0830	0830	**	0810
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	DNQ			
Nitrate-N	mg/L	0.1	0.01	3.4			
Nitrite-N	mg/L	0.03	0.002	ND			
Organic-N	mg/L	0.1	0.07	0.87			
Total-N	mg/L	0.1		4.3			
Total Phosphorus	mg/L	0.1	0.017	0.36			
Phosphate as P	mg/L	0.1	0.02	0.3			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD	0.1	0.1		29		31
Dissolved Oxygen	mg/L	0.1	0.1		11.0		10.3
pH	Units	2	2		8.1		8.7
Temperature	^{o}F				50		55
Total Coliform	MPN/100mL	2	2		1600		900
Fecal Coliform	MPN/100mL	2	2		170		80
Turbidity	NTU	0.1	0.03		1.6		1.1
Hardness	mg/L	50	1.7	410	450		

*No Chlorine is being used
DNQ = Detected, but Not Quantified RL = Reporting Limit
Ammonia-N Estimated Concentration 0.099 mg/L
**R4 location no longer exists to to recent heavy rains. River splits above outfall and now does not recombine untill just up from R5.

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MARCH, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 3-10-10				830	830		810
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	ND			
Nitrate-N	mg/L	0.1	0.01	3.5			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	0.85			
Total-N	mg/L	0.1		4.4			
Total Phosphorus	mg/L	0.1	0.01	0.62			
Phosphate as P	mg/L	0.17	0.018	0.6			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD	0.1	0.1		40.4	**	42.6
Dissolved Oxygen	mg/L	0.1	0.1		10.8	**	9.4
pH	Units	2	2		8.1	**	8.1
Temperature	^{o}F				53	**	59
Total Coliform	MPN/100mL	2	2		>1600	**	900
Fecal Coliform	MPN/100mL	2	2		30	**	130
Turbidity	NTU	0.2	0.003		1.2	**	1.3
Hardness	mg/L	5	1.7	430	430		

*No Chlorine is being used
ND = Non Detect
DNQ = Detected Not Quantified
Nitrite Estimated Concentration = 0.006 mg/l
**R4 location no longer exists to to recent heavy rains. River splits above outfall and now does not recombine untill just up from R5.

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
April, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 4-14-10				0830	0825		0800
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.21			
Nitrate-N	mg/L	0.1	0.05	3.1			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	0.71			
Total-N	mg/L			4.0			
Total Phosphorus	mg/L	0.1	0.01	0.66			
Phosphate as P	mg/L	0.1	0.018	0.72			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				38	**	40
Dissolved Oxygen	mg/L	0.1	0.1		10.4	**	8.9
pH	Units	0.1	0.1		8.0	**	8.0
Temperature	^{o}F				53	**	60
Total Coliform	MPN/100mL	2	2		1600	**	500
Fecal Coliform	MPN/100mL	2	2		240	**	170
Turbidity	NTU	0.2	0.003		3.7	**	3.8
Hardness	mg/L	5	1.7	400	430		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
Nitrite - DNQ, Less than reporting limit of 0.03, Estimated Concentration 0.0060 ug/L
**R4 location no longer exists to to recent heavy rains. River splits above outfall and now does not recombine untill just up from R5.

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
MAY, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 5-5-10				0830	0815	**	0830
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	0.14			
Nitrate-N	mg/L	0.1	0.01	3.7			
Nitrite-N	mg/L	0.03	0.002	ND			
Organic-N	mg/L	0.1	0.07	0.68			
Total-N	mg/L			4.5			
Total Phosphorus	mg/L	0.1	0.017	0.97			
Phosphate as P	mg/L	0.1	0.018	1.1			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				25.0	**	27.0
Dissolved Oxygen	mg/L	0.1	0.1		9.0	**	8.2
pH	Units	0.1	0.1		7.9	**	7.9
Temperature	^{o}F				59	**	63
Total Coliform	MPN/100mL	2	2		350	**	130
Fecal Coliform	MPN/100mL	2	2		27	**	17
Turbidity	NTU	0.2	0.003		0.5	**	0.5
Hardness	mg/L	5	1	400	420		

*No Chlorine is being used
DNQ = Detected, but Not Quantified
**R4 location no longer exists due to heavy rains in January 2010. River splits above outfall and now does not recombine untill just up from R5.

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
June, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 6-16-10				0830	0820	**	0800
Constituent	Units	RL	MDL	Results			
Ammonia-N	mg/L	0.1	0.04	DNQ			
Nitrate-N	mg/L	0.1	0.01	3.5			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.34			
Total-N	mg/L			3.8			
Total Phosphorus	mg/L	0.1	0.01	1.6			
Phosphate as P	mg/L	0.1	0.018	1.4			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	DNQ			
Flow	MGD				10.1	**	12.0
Dissolved Oxygen	mg/L	0.1	0.1		8.5	**	8.1
pH	Units	0.1	0.1		8.0	**	8.0
Temperature	^{o}F				61	**	65
Total Coliform	MPN/100mL	2	2		1600	**	350
Fecal Coliform	MPN/100mL	2	2		140	**	79
Turbidity	NTU	0.2	0.003		1.13	**	1.07
Hardness	mg/L	5	1.7	370	440		

*No Chlorine is being used
Ammonia-N estimated concentration = 0.099 mg/L
Nitrite-N estimated concentration = 0.0040 mg/L
Bis (2-ethylhexyl)phthalate estimated concentration = 2.88 mg/L
**R4 location no longer exists due to heavy rains in January 2010. River splits above outfall and now does not recombine untill just up from R5.

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
July, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 7-21-10					0840	0900	0805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	0.12			
Nitrate-N	mg/L	0.1	0.01	3.4			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.87			
Total-N	mg/L			4.4			
Total Phosphorus	mg/L	0.1	0.017	0.78			
Phosphate as P	mg/L	0.1	0.018	0.74			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				6.3	8.1	8.1
Dissolved Oxygen	mg/L	0.1	0.1		8.3	8.9	8.3
pH	Units	0.1	0.1		7.9	8.0	8.0
Temperature	^{o}F				63	68	68
Total Coliform	MPN/100mL	2	2		1600	540	>1600
Fecal Coliform	MPN/100mL	2	2		70	79	540
Turbidity	NTU	0.2	0.003		0.98	1.86	1.23
Hardness	mg/L	5	1.7	370	440		

*No Chlorine is being used
Est Conc Nitrite = 0.0060 mg/l

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OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
August, 2010

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled: 8-4-10				0830	830	0900	810
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	0.3			
Nitrate-N	mg/L	0.1	0.01	3.1			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.90			
Total-N	mg/L			4.3			
Total Phosphorus	mg/L	0.1	0.017	0.59			
Phosphate as P	mg/L	0.1	0.018	0.56			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				4.4	6.3	6.3
Dissolved Oxygen	mg/L	0.1	0.1		8.0	9.6	8.1
pH	Units	0.1	0.1		7.9	8.0	8.0
Temperature	^{o}F				63	64	66
Total Coliform	MPN/100mL	2	2		>1600	>1600	>1600
Fecal Coliform	MPN/100mL	2	2		1600	280	130
Turbidity	NTU	0.2	0.003		1.20	2.53	1.96
Hardness	mg/L	5	1.7	360	430		

*No Chlorine is being used
Est Conc Nitrite = 0.006 mg/l

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
September, 2010

Sample ID				Effluent	R-3	R-4	R-5
9/15/2010				0830	0820	0835	0800
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.04	DNQ			
Nitrate-N	mg/L	0.1	0.01	3.8			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.9			
Total-N	mg/L			4.7			
Total Phosphorus	mg/L	0.1	0.017	0.5			
Phosphate as P	mg/L	0.1	0.018	0.5			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				4.7	6.3	6.3
Dissolved Oxygen	mg/L	0.1	0.1		8.8	9.3	8.2
pH	Units	0.1	0.1		8.0	8.0	8.0
Temperature	^{o}F				57	58	63
Total Coliform	MPN/100mL	2	2		540	1600	3500
Fecal Coliform	MPN/100mL	2	2		49	70	920
Turbidity	NTU	0.2	0.003		1.7	1.8	1.0
Hardness	mg/L	5	1.7	360	460		

*No Chlorine is being used
Est Conc Nitrite = 0.015 mg/l
Est Conc Ammonia-N = 0.099 mg/l

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
October, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	10/7/2009			0830	0820	845	805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	DNQ			
Nitrate-N	mg/L	0.1	0.01	4.7			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	0.96			
Total-N	mg/L	0.2		5.7			
Total Phosphorus	mg/L	0.1	0.017	1.30			
Phosphate as P	mg/L	0.1	0.02	1.02			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				1.9	3.7	3.7
Dissolved Oxygen	mg/L	0.1	0.1		9.5	10.6	7.5
pH	Units	0.1	0.1		8.0	8.1	7.9
Temperature	^{o}F				55	57	63
Total Coliform	MPN/100mL	2	2		1600	900	1600
Fecal Coliform	MPN/100mL	2	2		130	240	300
Turbidity	NTU	0.2	0.03		0.4	1.0	0.8
Hardness	mg/L	5	1.7	390	470		

*No Chlorine is being used
DNQ = Detected Not Quantified
Ammonia- N Estimated Concentration = 0.088 mg/l
Nitrite- N Estimated Concentration = 0.0060 mg/l

Table O-3A

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
November, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	11/4/2009			0830	0825	0845	0805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.14			
Nitrate-N	mg/L	0.1	0.01	3.4			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.07	1.9			
Total-N	mg/L	0.2		5.4			
Total Phosphorus	mg/L	0.1	0.017	1.7			
Phosphate as P	mg/L	0.1	0.02	1.4			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				1.9	3.7	3.7
Dissolved Oxygen	mg/L	0.1	0.1		8.6	9.8	8.5
pH	Units	0.1	0.1		7.9	8.1	8.0
Temperature	^{o}F				58	59	64
Total Coliform	MPN/100mL	2	2		900	1600	1600
Fecal Coliform	MPN/100mL	2	2		300	240	240
Turbidity	NTU	0.2	0.03		0.5	1.2	1.0
Hardness	mg/L	5	1.7	400	480		

*No Chlorine is being used
Nitrite-N Estimated Concentration = 0.011 mg/l
DNQ = Detected not quantified

OJAI VALLEY SANITARY DISTRICT WWTP
MONTHLY EFFLUENT & RIVER STATIONS
December, 2009

Sample ID				Effluent	R-3	R-4	R-5
Date & Time Sampled:	12/9/2009			0830	0825	0845	0805
Constituent	Units	RL	MDL				
Ammonia-N	mg/L	0.1	0.06	0.13			
Nitrate-N	mg/L	0.2	0.05	4.6			
Nitrite-N	mg/L	0.03	0.002	DNQ			
Organic-N	mg/L	0.1	0.06	1.5			
Total-N	mg/L	0.2		6.2			
Total Phosphorus	mg/L	0.1	0.017	1.1			
Phosphate as P	mg/L	0.1	0.02	1.0			
Dibromochloromethane	ug/L	NA	NA	*			
Dichlorobromomethane	ug/L	NA	NA	*			
Bis (2-ethylhexyl)phthalate	ug/L	3	0.95	ND			
Flow	MGD				2.4	4.2	4.2
Dissolved Oxygen	mg/L	0.1	0.1		11.6	11.8	10.0
pH	Units	0.1	0.1		8.0	8.1	7.9
Temperature	^{o}F				44	48	54
Total Coliform	MPN/100mL	2	2		500	900	1600
Fecal Coliform	MPN/100mL	2	2		34	130	50
Turbidity	NTU	0.2	0.003		0.9	0.6	0.9
Hardness	mg/L	5	1.7	350	480		

*No Chlorine is being used
Nitrite-N Estimated Concentration= 0.0080 mg/l
DNQ = Detected not quantified

Table O-3B

Ojai Valley Sanitary District WWTP
Effluent Toxicity Data
2005

Test species: *Selenastrum capricornutum*

Monthly Plant Effluent Chronic Toxicity

Month	Growth			
	NOEC	TU_C	IC_{25}	IC_{50}
Jan	100%	1.00	>100%	>100%
Feb	100%	1.00	>100%	>100%
Mar	100%	1.00	>100%	>100%
Apr	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%
Jun	100%	1.00	>100%	>100%
Jul	100%	1.00	72.84%	>100%
Aug	100%	1.00	>100%	>100%
Sep	100%	1.00	>100%	>100%
Oct	100%	1.00	>100%	>100%
Nov	18%	5.56	35.70%	>100%
Dec*	100%	1.00	>100%	>100

* Median of 3 samples - (2) additional chronic toxitiy tests were conducted as followup performance testing for November.

Quarterly Effluent Acute Toxicity

Test species: Fathead Minnows

Month	Survival	
	% Survival	TU(a)
Feb	95%	0.41
May	100%	0.00
Aug	100%	0.00
Nov	100%*	0.00

* Actually sampled 12/22/05 due to lab error

Quarterly River Station Chronic Toxicity

R-3 Test species: Selenastrum capricornutum

Month	Growth			
	NOEC	TU_C	IC_{25}	IC_{50}
Feb	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%
Nov	100%	1.00	>100%	>100%

R-4 Test species: Selenastrum capricornutum

Month	Growth			
	NOEC	TU_C	IC_{25}	IC_{50}
Feb	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%
Nov	100%	1.00	>100%	>100%

Table O-3B

Ojai Valley Sanitary District WWTP
Effluent Toxicity Data
2006

Test species: *Pimephales promelas* (Fathead minnow)

Monthly Plant Effluent Chronic Toxicity

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Jan	<10.00 %	<10.00	6.33%	15.05%	>100.00 %	1.00	>100.00	>100.00 %
Feb *	100%	1.00	81%	>100%	66%	2.06	77%	>100%
Mar	100%	1.00	100%	>100%	100%	1.00	100%	>100%
Apr	100%	1.00	100%	>100%	100%	1.00	100%	>100%
May **	100%	1.00	100%	>100%	100%	1.00	100%	>100%
Jun	100%	1.00	100%	>100%	100%	1.00	100%	>100%
Jul	100%	1.00	100%	>100%	100%	1.00	100%	>100%
Aug	100%	1.00	8%	>100%	100%	1.00	100%	>100%
Sep	100%	1.00	4.35%	8.70%	100%	1.00	4.05%	8.09%
Oct	100%	1.00	100%	>100%	100%	1.00	89%	>100%
Nov	100%	1.00	100%	>100%	100%	1.00	100%	>100%
Dec	100%	1.00	100%	>100%	100%	1.00	100%	>100%

*February values are average of (2) tests
**May - Median of (3) tests

Quarterly Effluent Acute Toxicity
Test species: Fathead Minnows

Month	Survival	
	% Survival	TU(a)
Feb	100%	1.00
May	100%	1.00
Aug	100%	1.00
Nov	100%	1.00

Quarterly River Station Chronic Toxicity

R-3 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb *	55%	5.50	10%	59.00%	78%	1.40	7%	44.28%
May	18%	5.56	23.82%	31.72%	100%	1.00	>100%	>100%
Aug	100%	1.00	10%	>100%	100%	1.00	7%	>100%
Nov	100%	1.00	3.93%	7.86%	100%	1.00	5.75%	>100%

*February values are average of (2) tests

R-4 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb *	88%	2.46	17%	46.35%	66%	2.07	30%	58.27%
May	100%	1.00	5.79%	>100%	100%	1.00	15.49%	>100%
Aug	100%	1.00	29%	>100%	100%	1.00	27%	>100%
Nov	100%	1.00	5.42%	>100%	100%	1.00	8.02%	>100%

*February values are average of (2) tests

Table O-3B

Ojai Valley Sanitary District WWTP
Effluent Toxicity Data
2007

Test species: *Pimephales promelas* (Fathead minnow)

Monthly Plant Effluent Chronic Toxicity

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Jan	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Feb	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Mar	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Apr	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jun	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jul	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Sep	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Oct	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Dec	100%	1.00	9.42%	>100%	100%	1.00	7.66%	>100%

* Two tests conducted in December as part of bi-annual test species re-screening.

Quarterly Effluent Acute Toxicity

Test species: Fathead Minnows

Month	Survival	
	% Survival	TU(a)
Feb	100%	1.00
May	100%	1.00
Aug	100%	1.00
Nov	100%	1.00

Quarterly River Station Chronic Toxicity

R-3 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb	100%	1.00	9.67%	15.67%	100%	1.00	11.90%	16.89%
May	100%	1.00	46.55%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	27%	>100%	100%	1.00	10%	>100%
Nov	<10%	>10	8.38%	32.86%	18%	5.56	8.33%	32.14%

R-4 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb	18%	5.56	4.67%	9.36%	100%	1.00	5.99%	25.56%
May	<10%	>10	4.69%	9.38%	100%	1.00	6.58%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov	100%	1.00	78.15%	>100%	100%	1.00	72.24%	>100%

Table O-3B

Ojai Valley Sanitary District WWTP
Effluent Toxicity Data
2008

Test species: *Pimephales promelas* (Fathead minnow)

Monthly Plant Effluent Chronic Toxicity

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Jan	100%	1.00	7.37%	>100%	100%	1.00	6.45%	>100%
Feb	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Mar	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Apr	*100%	*1.00	*8.19%	*>100%	*100%	*1.00	*>100%	*>100%
May	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jun	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jul	**100%	**1.00	**100%	**100%	**100%	**1.00	**100%	**100%
Aug	100%	1.00	100%	100%	100%	1.00	100%	100%
Sep	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Oct	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Dec	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%

* The upper bound percent minimum significant difference (PMSD) limit for growth was exceeded making this an invalid test. The data presented is for information purposes only.

** Median of three consecutive weekly samples

Quarterly Effluent Acute Toxicity

Test species: Fathead Minnows

Month	Survival	
	% Survival	TU(a)
Feb	100%	0.00
May	100%	0.00
Aug	100%	0.00
Nov	100%	0.00

Quarterly River Station Chronic Toxicity

R-3 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb*	100%	1.00	7.87%	>100%	100%	1.00	5.64%	>100%
May	100%	1.00	>100%	>100%	100%	1.00	8.40%	>100%
Aug	32%	3.13	38.60%	56.00%	32%	3.13	7.89%	97.56%
Nov	56%	1.79	>100%	>100%	100%	1.00	>100%	>100%

R-4 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb*	10%	10.00	10.84%	16.74%	10%	10.00	6.43%	13.23%
May	100%	1.00	>100%	>100%	100%	1.00	9.90%	>100%
Aug	<10%	>10	7.25%	>100%	100%	1.00	5.39%	>100%
Nov	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%

* First Quarter River samples actually taken in January due to scheduling error. Used by permission of Raul Medina

Table O-3B

Ojai Valley Sanitary District WWTP
Effluent Toxicity Data
2009

Test species: *Pimephales promelas* (Fathead minnow)

Monthly Plant Effluent Chronic Toxicity

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Jan	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Feb	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Mar	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Apr	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jun	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jul	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Sep	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Oct *	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Dec	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%

Bi-ennial (3) species re-screening started during October and extended into November. Ceriodaphnia exhibited toxicity in reproduction during the maximum of (5) three species re-screening tests. Therefore, Ceriodaphnia will be used as the most sensitive species starting in December for monthly testing vs November as listed in previous report.
Three species re-screeing results included with the November monthly report.

Quarterly Effluent Acute Toxicity

Test species: Fathead Minnows

Month	Survival	
	% Survival	TU(a)
Feb	100%	0.00
May	100%	0.00
Aug	100%	0.00
Nov	100%	0.00

Quarterly River Station Chronic Toxicity

R-3 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%

R-4 Test species: Pimephales promelas (Fathead minnow)

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%

Table O-3B

Ojai Valley Sanitary District WWTP
Effluent Toxicity Data
2010

Test species: *Ceriodaphnia dubia*

Monthly Plant Effluent Chronic Toxicity

Month	Survival				Reproduction			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Jan	100%	1.00	>100%	>100%	100%	1.00	24.96%	>100%
Feb	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Mar	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Apr	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jun	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Jul	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Sep	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Oct								
Nov								
Dec								

Quarterly Effluent Acute Toxicity

Test species: Fathead Minnow

Month	Survival	
	% Survival	TU(a)
Feb	100%	0.00
May	100%	0.00
Aug	100%	0.00
Nov		

Quarterly River Station Chronic Toxicity

R-3 Test species: Ceriodaphnia

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
May	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov								

R-4 Test species: Ceriodaphnia

Month	Survival				Growth			
	NOEC	TU_C	IC_{25}	IC_{50}	NOEC	TU_C	IC_{25}	IC_{50}
Feb *	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
May*	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Aug	100%	1.00	>100%	>100%	100%	1.00	>100%	>100%
Nov								

* Chronic tox sampled at R5 due to river split above R4

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2005 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

METALS / INORGANICS

		R3				R5			
Laboratory:		**Caltest Analytical**				**Caltest Analytical**			
Date Sampled: August 10, 2005									
Constituent	**Units**	**Method**	**RL***	**MDL****	**Result*****	**Method**	**RL***	**MDL****	**Result*****
Flow (Estimated)	MGD				20.3				22
Aluminum (Al)	ug/L	200.8	10	0.7	11	200.8	10	0.7	37
Antimony (Sb)	ug/L	200.8	0.5	0.14	ND	200.8	0.5	0.14	DNQ
Arsenic (As)	ug/L	200.8	0.5	0.14	DNQ	200.8	0.5	0.20	DNQ
Barium (Ba)	ug/L	200.8	0.1	0.03	53	200.8	0.1	0.03	53
Beryllium (Be)	ug/L	200.8	0.1	0.60	ND	200.8	0.1	0.60	ND
Cadmium (Cd)	ug/L	200.8	0.1	0.03	ND	200.8	0.1	0.03	DNQ
Chromium (Cr)	ug/L	200.8	0.5	0.20	ND	200.8	0.5	0.20	DNQ
Chromium VI	ug/L	SM3500CR	10	0.50	ND	SM3500CR	10	0.90	DNQ
Cobalt (Co)	ug/L	200.8	0.5	0.20	ND	200.8	0.5	0.20	ND
Copper (Cu)	ug/L	200.8	0.5	0.28	1.2	200.8	0.5	0.28	1.6
Iron (Fe)	mg/L	200.7	0.05	0.01	ND	200.7	0.05	0.010	DNQ
Lead (Pb)	ug/L	200.8	0.25	0.040	ND	200.8	0.25	0.040	DNQ
Mercury (Hg)	ug/L	1631E	0.0008	0.00020	0.0008	1631E	0.0005	0.00020	0.0009
Molybdenum (Mo)	ug/L	200.8	0.25	0.2	7.6	200.8	0.25	0.20	13
Nickel (Ni)	ug/L	200.8	0.5	0.14	3.1	200.8	0.5	0.14	3.6
Selenium (Se)	ug/L	200.8	1	0.50	2	200.8	1	0.50	2
Silver (Ag)	ug/L	200.8	0.1	0.03	ND	200.8	0.1	0.030	ND
Thallium (Tl)	ug/L	200.8	0.1	0.03	ND	200.8	0.1	0.030	ND
Vanadium (V)	ug/L	200.8	2	0.80	DNQ	200.8	2	0.80	DNQ
Zinc (Zn)	ug/L	200.8	1	0.3	DNQ	200.8	2	0.30	6
Cyanide (Cn)	ug/L	335.2	3	0.9	DNQ	335.2	3	0.80	ND

R3 Arsenic	DNQ:0.24 Est. Conc.
R3 Vanadium	DNQ:0.7 Est. Conc.
R3 Zinc	DNQ=0.9 Est Conc
R3 Cyanide	DNQ=0.87 Est Conc

R5 Antimony	DNQ:0.1 Est. Conc.
R5 Arsenic	DNQ=0.29 Est Conc
R5 Cadmium	DNQ=0.04 Est Conc
R5 Iron	DNQ=0.04 Est Conc
R5 Chromium	DNQ=0.4 Est Conc
R5 Lead	DNQ=0.07 Est Conc
R5 Cobalt	DNQ=0.4 Est Conc
R5 Vanadium	DNQ=0.9 Est Conc

* RL = Reporting Limit
** ND = Not Detected
*** MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
Est. Conc. = Estimated Concentration

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2005 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

CHLORINATED PESTICIDES / PCBs

			R3			R5		
Laboratory:			**Caltest Analytical**					
Date Sampled: August 10, 2005								
Constituent	**Units**	**EPA Method**	**RL***	**MDL*****	**Result****	**RL***	**MDL*****	**Result****
Flow (Estimated)	MGD				20.3			22
Aldrin	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Alpha-BHC	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Beta-BHC	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Delta-BHC	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Gamma-BHC (Lindane)	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Chlordane	ug/L	608	0.02	0.02	ND	0.02	0.02	ND
p,p'-DDD	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
p,p'-DDE	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
p,p'-DDT	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Dieldrin	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
Endosulfan I	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
Endosulfan II	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
Endosulfan Sulfate	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Endrin	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
Endrin Aldehyde	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Endrin Ketone	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
Heptachlor	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Heptachlor Epoxide	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
Methoxychlor	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
PCB 1016	ug/L	608	0.1	0.03	ND	0.1	0.03	ND
PCB 1221	ug/L	608	0.1	0.05	ND	0.1	0.05	ND
PCB 1232	ug/L	608	0.1	0.06	ND	0.1	0.06	ND
PCB 1242	ug/L	608	0.1	0.04	ND	0.1	0.04	ND
PCB 1248	ug/L	608	0.1	0.05	ND	0.1	0.05	ND
PCB 1254	ug/L	608	0.1	0.06	ND	0.1	0.06	ND
PCB 1260	ug/L	608	0.1	0.03	ND	0.1	0.03	ND
Toxaphene	ug/L	608	0.5	0.2	ND	0.5	0.2	ND

* RL = Reporting Limit
** ND = Not Detected
*** MDL = Method Detection Limit

OJAI VALLEY SANITARY DISTRICT
2005 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 10, 2005											
Constituent	Units	EPA Method	RL*	MDL***	Result**	RL*	MDL***	Result**	RL*	MDL***	Result**
Flow (Estimated)	MGD				20.3			22			22
Acrolein	ug/L	624	5	0.5	ND	5	0.5	ND	5	0.5	ND
Acrylonitrile	ug/L	624	2	0.6	ND	2	0.6	ND	2	0.6	ND
Benzene	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
Bromodichloromethane	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	ND
Bromoform	ug/L	624	0.5	0.03	DNQ	0.5	0.03	DNQ	0.5	0.03	DNQ
Bromomethane	ug/L	624	0.5	0.08	ND	0.5	0.08	ND	0.5	0.08	ND
Carbon Tetrachloride	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	ND
Chlorobenzene	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
Chloroethane	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
2-Chloroethylvinyl ether	ug/L	624	1	0.1	ND	1	0.1	ND	1	0.1	ND
Chloroform	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	DNQ
Chloromethane	ug/L	624	0.5	0.06	ND	0.5	0.06	ND	0.5	0.06	ND
Dibromochloromethane	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
1,2 Dichlorobenzene	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
1,3 Dichlorobenzene	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
1,4 Dichlorobenzene	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	ND
Dichlorodifluromethane	ug/L	624	0.5	0.08	ND	0.5	0.08	ND	0.5	0.08	ND
1,1-Dichloroethane	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	ND
1,2-Dichloroethane	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	ND
1,1-Dichloroethene	ug/L	624	0.5	0.07	ND	0.5	0.07	ND	0.5	0.07	ND
cis-1,2-Dichloroethene	ug/L	624	0.5	0.07	ND	0.5	0.07	ND	0.5	0.07	ND
trans-1,2-Dichloroethene	ug/L	624	0.5	0.06	ND	0.5	0.06	ND	0.5	0.06	ND
1,2-Dichloropropane	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
cis-1,3-Dichloropropene	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
trans-1,3-Dichloropropene	ug/L	624	0.5	0.05	ND	0.5	0.05	ND	0.5	0.05	ND
Dichlorotrifluroethane	ug/L	624	0.5	0.05	ND	0.5	0.05	ND	0.5	0.05	ND
Ethylbenzene	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	ND
MTBE	ug/L	624	0.5	0.05	ND	0.5	0.05	ND	0.5	0.05	ND
Methylene chloride	ug/L	624	0.5	0.08	ND	0.5	0.08	ND	0.5	0.08	ND
1,1,2,2-Tetrachloroethane	ug/L	624	0.5	0.04	ND	0.5	0.04	ND	0.5	0.04	ND
Tetrachloroethene	ug/L	624	0.5	0.06	ND	0.5	0.06	ND	0.5	0.06	ND
Toluene	ug/L	624	0.5	0.06	ND	0.5	0.06	ND	0.5	0.06	ND
1,1,2-Trichloroethane	ug/L	624	0.5	0.05	ND	0.5	0.05	ND	0.5	0.05	ND
1,1,1-Trichloroethane	ug/L	624	0.5	0.03	ND	0.5	0.03	ND	0.5	0.03	ND
Trichloroethene	ug/L	624	0.5	0.05	ND	0.5	0.05	ND	0.5	0.05	ND
Trichlorofluromethane	ug/L	624	0.5	0.08	ND	0.5	0.08	ND	0.5	0.08	ND
1,2,3-Trichoropropane	ug/L	624	0.5	0.05	ND	0.5	0.05	ND	0.5	0.05	ND
Trichlorotrifluroethane	ug/L	624	1	0.07	ND	1	0.07	ND	1	0.07	ND
Vinyl Chloride	ug/L	624	0.5	0.06	ND	0.5	0.06	ND	0.5	0.06	ND
Xylenes (Total)	ug/L	624	0.5	0.13	ND	0.5	0.13	ND	0.5	0.13	ND

R3 Bromoform: 0.1 ug/L Est. Conc.
R4 Bromoform: 0.1 ug/L Est. Conc.
R5 Bromoform: 0.09 ug/L Est. Conc.
R5 Chloroform: 0.05 ug/L Est. Conc.

* RL = Practical Quantitation Limit
** ND = Not Detected
*** MDL = Method Detection Limit

OJAI VALLEY SANITARY DISTRICT
2005 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

GRAB SEMI-VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 10, 2005											
Constituent	Units	EPA Method	RL*	MDL***	Result**	RL*	MDL***	Result**	RL*	MDL***	Result**
Flow (Estimated)	MGD				20.3			22			22
Benzidine	ug/L	625	5.0	1.00	ND	5.0	1.00	ND	5.0	1.00	ND
Benzylbutylphthalate	ug/L	625	5.0	2.00	ND	5.0	2.00	ND	5.0	2.00	ND
4-Bromophenylphenylether	ug/L	625	5.0	2.00	ND	5.0	2.00	ND	5.0	2.00	ND
Bis(2-chloroethoxy)methane	ug/L	625	5.0	0.80	ND	5.0	0.80	ND	5.0	0.80	ND
Bis(2-chloroethyl)ether	ug/L	625	1.0	0.70	ND	1.0	0.70	ND	1.0	0.70	ND
Bis(2-chloroisopropyl)ether	ug/L	625	2.0	0.70	ND	2.0	0.70	ND	2.0	0.70	ND
4-Chloro-3-methylphenol	ug/L	625	1.0	0.93	ND	1.0	0.93	ND	1.0	0.93	ND
2-Chloronaphthalene	ug/L	625	5.0	0.60	ND	5.0	0.60	ND	5.0	0.60	ND
2-Chlorophenol	ug/L	625	2.0	1.20	ND	2.0	1.20	ND	2.0	1.20	ND
4-Chlorophenylphenylether	ug/L	625	5.0	2.00	ND	5.0	2.00	ND	5.0	2.00	ND
1,2-Dichlorobenzene	ug/L	625	2.0	0.40	ND	2.0	0.40	ND	2.0	0.40	ND
1,3-Dichlorobenzene	ug/L	625	1.0	0.99	ND	1.0	0.99	ND	1.0	0.99	ND
1,4-Dichlorobenzene	ug/L	625	1.0	0.96	ND	1.0	0.96	ND	1.0	0.96	ND
3,3-Dichlorobenzidine	ug/L	625	5.0	0.60	ND	5.0	0.60	ND	5.0	0.60	ND
2,4-Dichlorophenol	ug/L	625	1.0	0.90	ND	1.0	0.90	ND	1.0	0.90	ND
Diethylphthalate	ug/L	625	2.0	0.90	ND	2.0	0.90	ND	2.0	0.90	ND
2,4-Dimethylphenol	ug/L	625	2.0	1.10	ND	2.0	1.10	ND	2.0	1.10	ND
Dimethylphthalate	ug/L	625	2.0	0.60	ND	2.0	0.60	ND	2.0	0.60	ND
Di-n-butylphthalate	ug/L	625	5.0	0.60	ND	5.0	0.60	ND	5.0	0.60	ND
2,4-Dinitrophenol	ug/L	625	5.0	2.00	ND	5.0	2.00	ND	5.0	2.00	ND
2,4-Dinitrotoluene	ug/L	625	5.0	0.90	ND	5.0	0.90	ND	5.0	0.90	ND
2,6-Dinitrotoluene	ug/L	625	5.0	0.50	ND	5.0	0.50	ND	5.0	0.50	ND
Di-n-octylphthalate	ug/L	625	5.0	0.70	ND	5.0	0.70	ND	5.0	0.70	ND
1,4 Dioxane	ug/L	625	5.0	5.00	ND	5.0	5.00	ND	5.0	5.00	ND
1,2-Diphenylhydrazine	ug/L	625	1.0	0.90	ND	1.0	0.90	ND	1.0	0.90	ND
Bis(2-ethylhexyl)phthalate	ug/L	625	3.0	0.50	ND	3.0	0.50	ND	3.0	0.50	ND
Hexachlorobenzene	ug/L	625	1.0	0.80	ND	1.0	0.80	ND	1.0	0.80	ND
Hexachlorobutadiene	ug/L	625	1.0	0.80	ND	1.0	0.80	ND	1.0	0.80	ND
Hexachlorocyclopentadiene	ug/L	625	1.0	0.80	ND	1.0	0.80	ND	1.0	0.80	ND
Hexachloroethane	ug/L	625	1.0	0.90	ND	1.0	0.90	ND	1.0	0.90	ND
Isophorone	ug/L	625	1.0	0.50	ND	1.0	0.50	ND	1.0	0.50	ND
2-Methyl-4,6-dinitrophenol	ug/L	625	5.0	2.00	ND	5.0	2.00	ND	5.0	2.00	ND
Nitrobenzene	ug/L	625	1.0	0.70	ND	1.0	0.70	ND	1.0	0.70	ND
2-Nitrophenol	ug/L	625	5.0	1.10	ND	5.0	1.10	ND	5.0	1.10	ND
4-Nitrophenol	ug/L	625	5.0	1.00	ND	5.0	1.00	ND	5.0	1.00	ND
N-Nitrosodimethylamine	ug/L	625	5.0	0.60	ND	5.0	0.60	ND	5.0	0.60	ND
N-Nitrosodi-N-propylamine	ug/L	625	5.0	0.80	ND	5.0	0.80	ND	5.0	0.80	ND
N-Nitrosodiphenylamine	ug/L	625	1.0	0.60	ND	1.0	0.60	ND	1.0	0.60	ND
Pentachlorophenol	ug/L	625	1.0	0.98	ND	1.0	0.98	ND	1.0	0.98	ND
Phenol	ug/L	625	1.0	0.80	ND	1.0	0.80	ND	1.0	0.80	ND
1,2,4-Trichlorobenzene	ug/L	625	5.0	1.30	ND	5.0	1.30	ND	5.0	1.30	ND
2,4,6-Trichlorophenol	ug/L	625	5.0	2.00	ND	5.0	2.00	ND	5.0	2.00	ND

* RL = Reporting Limit
** ND = Not Detected
*** MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2005 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

ORGANOPHOSPHORUS PESTICIDES

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 10, 2005											
Constituent	Units	EPA Method	RL*	MDL***	Result**	RL*	MDL***	Result**	RL*	MDL***	Result**
Flow (Estimated)	MGD				20.3			22			22
Azinphos methyl (Guthion)	ug/L	614	2.5	0.030	ND	2.5	0.030	ND	2.5	0.030	ND
Chlorpyrifos (Dursban)	ug/L	614	0.05	0.030	ND	0.05	0.030	ND	0.05	0.030	ND
Demeton-O and S	ug/L	614	0.5	0.050	ND	0.5	0.050	ND	0.5	0.050	ND
Diazinon	ug/L	614	0.05	0.040	ND	0.05	0.040	ND	0.05	0.040	ND
Disulfoton (Di-syston)	ug/L	614	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
Ethion	ug/L	614	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
Malathion	ug/L	614	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
Parathion (Ethyl Parathion)	ug/L	614	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
Parathion methyl	ug/L	614	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND

* RL = Reporting Limit
** ND = Not Detected
*** MDL = Method Detection Limit

OJAI VALLEY SANITARY DISTRICT
2005 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

Lab: Caltest Analytical			R3			R5		
Date Sampled: August 10, 2005								
Constituent	Units	EPA Method	RL*	MDL***	Result**	RL*	MDL***	Result**
Flow (Estimated)	MGD				20.3			22
Acenapthene	ug/L	610	0.30	0.030	ND	0.30	0.030	ND
Acenapthylene	ug/L	610	0.20	0.020	ND	0.20	0.020	ND
Anthracene	ug/L	610	0.30	0.030	ND	0.30	0.030	ND
Benzo(a)anthracene	ug/L	610	0.30	0.020	ND	0.30	0.020	ND
Benzo(a)pyrene	ug/L	610	0.30	0.020	ND	0.30	0.020	ND
Benzo(b)fluoranthene	ug/L	610	0.30	0.030	ND	0.30	0.030	ND
Benzo(ghi)perylene	ug/L	610	0.10	0.030	ND	0.10	0.030	ND
Benzo(k)fluoranthen	ug/L	610	0.30	0.040	ND	0.30	0.040	ND
Chrysene	ug/L	610	0.30	0.040	ND	0.30	0.040	ND
Dibenzo(a,h)anthracene	ug/L	610	0.10	0.030	ND	0.10	0.030	ND
Fluoranthene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND
Fluorene	ug/L	610	0.10	0.030	ND	0.10	0.030	ND
Ideno(1,2,3-cd)pyrene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND
Napthalene	ug/L	610	0.20	0.020	ND	0.20	0.020	ND
Phenanthrene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND
Pyrene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND

* RL = Reporting Limit
** ND = Not Detected
*** MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2006 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

METALS / INORGANICS

		R3				R5			
Laboratory:		**Caltest Analytical**				**Caltest Analytical**			
Date Sampled: August 9, 2006									
Constituent	**Units**	**Method**	**RL**	**MDL**	**Result**	**Method**	**RL**	**MDL**	**Result**
Flow (Estimated)	MGD				16				18
Aluminum (Al)	ug/L	200.8	10	1.6	ND	200.8	10	1.6	28
Antimony (Sb)	ug/L	200.8	0.5	0.10	ND	200.8	0.5	0.10	ND
Arsenic (As)	ug/L	200.8	0.5	0.30	ND	200.8	0.5	0.30	DNQ
Barium (Ba)	ug/L	200.8	0.1	0.06	51	200.8	0.1	0.03	49
Beryllium (Be)	ug/L	200.8	0.1	0.07	ND	200.8	0.1	0.06	ND
Cadmium (Cd)	ug/L	200.8	0.1	0.02	ND	200.8	0.1	0.02	DNQ
Chromium (Cr)	ug/L	200.8	0.5	0.30	ND	200.8	0.5	0.30	ND
Chromium VI	ug/L	SW8467196A	10	0.50	ND	SM3500CR	10	0.50	ND
Cobalt (Co)	ug/L	200.8	0.5	0.20	DNQ	200.8	0.5	0.20	DNQ
Copper (Cu)	ug/L	200.8	0.5	0.08	1	200.8	0.5	0.08	1.6
Iron (Fe)	mg/L	200.7	0.05	0.012	ND	200.7	0.05	0.012	ND
Lead (Pb)	ug/L	200.8	0.25	0.100	ND	200.8	0.25	0.100	ND
Mercury (Hg)	ug/L	1631E	0.0005	0.00020	DNQ	1631E	0.0005	0.00020	DNQ
Molybdenum (Mo)	ug/L	200.8	0.25	0.0	6.6	200.8	0.25	0.0	6.5
Nickel (Ni)	ug/L	200.8	0.5	0.40	2.6	200.8	0.5	0.40	2.7
Selenium (Se)	ug/L	200.8	1	0.90	1	200.8	1	0.90	2
Silver (Ag)	ug/L	200.8	0.1	0.02	ND	200.8	0.1	0.02	ND
Thallium (Tl)	ug/L	200.8	0.1	0.01	DNQ	200.8	0.1	0.01	ND
Vanadium (V)	ug/L	200.8	2	0.50	DNQ	200.8	2	0.50	DNQ
Zinc (Zn)	ug/L	200.8	1	0.4	1	200.8	1	0.4	7
Cyanide (Cn)	ug/L	335.2	3	0.8	DNQ	335.2	3	0.8	ND

R3 Cobalt	DNQ=0.2 Est Conc	R5 Arsenic	DNQ=0.4 Est Conc
R3 Mercury	DNQ:0.0005 Est. Conc.	R5 Cadmium	DNQ=0.02 Est Conc
R3 Thallium	DNQ:0.01 Est. Conc.	R5 Cobalt	DNQ=0.2 Est Conc
R3 Vanadium	DNQ=0.8 Est Conc	R5 Mercury	DNQ:0.0003 Est. Conc.
R3 Cyanide	DNQ=1.8 Est Conc	R5 Vanadium	DNQ=0.8 Est Conc

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
Est. Conc. = Estimated Concentration

OJAI VALLEY SANITARY DISTRICT
2006 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS

CHLORINATED PESTICIDES / PCBs

			R3			R5		
Laboratory:			**Caltest Analytical**					
Date Sampled: August 9, 2006								
Constituent	**Units**	**EPA Method**	**RL**	**MDL**	**Result**	**RL**	**MDL**	**Result**
Flow (Estimated)	MGD				16			18
Aldrin	ug/L	608	0.005	0.002	ND	0.005	0.003	ND
Alpha-BHC	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Beta-BHC	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Delta-BHC	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Gamma-BHC (Lindane)	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Alpha-chlordane	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Chlordane	ug/L	608	0.050	0.02	ND	0.050	0.02	ND
Gamma-chlordane	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
2,4'-DDD	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
2,4'-DDE	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
2,4'-DDT	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDD	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDE	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDT	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Dieldrin	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Endosulfan I	ug/L	608	0.010	0.003	ND	0.010	0.002	ND
Endosulfan II	ug/L	608	0.010	0.003	ND	0.010	0.002	ND
Endosulfan Sulfate	ug/L	608	0.010	0.002	ND	0.010	0.003	ND
Endrin	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Endrin Aldehyde	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endrin Ketone	ug/L	608	0.010	0.003	ND	0.010	0.002	ND
Heptachlor	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Heptachlor Epoxide	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Methoxychlor	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
PCB 1016	ug/L	608	0.10	0.05	ND	0.10	0.03	ND
PCB 1221	ug/L	608	0.10	0.06	ND	0.10	0.05	ND
PCB 1232	ug/L	608	0.10	0.04	ND	0.10	0.06	ND
PCB 1242	ug/L	608	0.10	0.06	ND	0.10	0.04	ND
PCB 1248	ug/L	608	0.10	0.05	ND	0.10	0.05	ND
PCB 1254	ug/L	608	0.10	0.04	ND	0.10	0.06	ND
PCB 1260	ug/L	608	0.10	0.03	ND	0.10	0.03	ND
Toxaphene	ug/L	608	0.5	0.19	ND	0.5	0.19	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2006 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 9, 2006											
Constituent	Units	EPA Method	RL	MDL	Result	RL	MDL	Result	RL	MDL	Result
Flow (Estimated)	MGD				16			18			18
Acrolein	ug/L	624	5	0.50	ND	5	0.50	ND	5	0.50	ND
Acrylonitrile	ug/L	624	2.0	0.60	ND	2.0	0.60	ND	2.0	0.60	ND
Benzene	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
Bromodichloromethane	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
Bromoform	ug/L	624	0.5	0.030	ND	0.5	0.030	DNQ	0.5	0.030	ND
Bromomethane	ug/L	624	0.5	0.080	ND	0.5	0.080	ND	0.5	0.080	ND
Carbon Tetrachloride	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
Chlorobenzene	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
Chloroethane	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
2-Chloroethylvinyl ether	ug/L	624	1	0.100	ND	1	0.100	ND	1	0.100	ND
Chloroform	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
Chloromethane	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
Dibromochloromethane	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
1,2 Dichlorobenzene	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
1,3 Dichlorobenzene	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
1,4 Dichlorobenzene	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
Dichlorodifluromethane	ug/L	624	0.5	0.080	ND	0.5	0.080	ND	0.5	0.080	ND
1,1-Dichloroethane	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
1,2-Dichloroethane	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
1,1-Dichloroethene	ug/L	624	0.5	0.070	ND	0.5	0.070	ND	0.5	0.070	ND
cis-1,2-Dichloroethene	ug/L	624	0.5	0.070	ND	0.5	0.070	ND	0.5	0.070	ND
trans-1,2-Dichloroethene	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
1,2-Dichloropropane	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
cis-1,3-Dichloropropene	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
trans-1,3-Dichloropropene	ug/L	624	0.5	0.050	ND	0.5	0.050	ND	0.5	0.050	ND
Dichlorotrifluroethane	ug/L	624	0.5	0.050	ND	0.5	0.050	ND	0.5	0.050	ND
Ethylbenzene	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
MTBE	ug/L	624	0.5	0.050	ND	0.5	0.050	ND	0.5	0.050	ND
Methylene chloride	ug/L	624	0.5	0.080	ND	0.5	0.080	ND	0.5	0.080	ND
1,1,2,2-Tetrachloroethane	ug/L	624	0.5	0.040	ND	0.5	0.040	ND	0.5	0.040	ND
Tetrachloroethene	ug/L	624	0.5	0.040	ND	0.5	0.060	ND	0.5	0.060	ND
Toluene	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
1,1,2-Trichloroethane	ug/L	624	0.5	0.050	ND	0.5	0.050	ND	0.5	0.050	ND
1,1,1-Trichloroethane	ug/L	624	0.5	0.030	ND	0.5	0.030	ND	0.5	0.030	ND
Trichloroethene	ug/L	624	0.5	0.050	ND	0.5	0.050	ND	0.5	0.050	ND
Trichlorofluromethane	ug/L	624	0.5	0.080	ND	0.5	0.080	ND	0.5	0.080	ND
1,2,3-Trichoropropane	ug/L	624	0.5	0.050	ND	0.5	0.050	ND	0.5	0.050	ND
Trichlorotrifluroethane	ug/L	624	1	0.070	ND	1	0.070	ND	1	0.070	ND
Vinyl Chloride	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
Xylenes (Total)	ug/L	624	0.5	0.13	ND	0.5	0.13	ND	0.5	0.13	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified

DNQ - R4 Bromoform: 0.2 ug/L Estimated Concentration

OJAI VALLEY SANITARY DISTRICT
2006 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
GRAB SEMI-VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 9, 2006											
Constituent	Units	EPA Method	RL	MDL	Result	RL	MDL	Result	RL	MDL	Result
Flow (Estimated)	MGD				16			18			18
Benzidine	ug/L	625	5.0	1.0	ND	5.0	1.0	ND	5.0	1.0	ND
Benzylbutylphthalate	ug/L	625	5.0	2.0	ND	5.0	2.0	ND	5.0	2.0	ND
4-Bromophenylphenylether	ug/L	625	5.0	0.80	ND	5.0	2.00	ND	5.0	2.00	ND
Bis(2-chloroethoxy)methane	ug/L	625	5.0	0.70	ND	5.0	0.80	ND	5.0	0.80	ND
Bis(2-chloroethyl)ether	ug/L	625	1.0	0.80	ND	1.0	0.70	ND	1.0	0.70	ND
Bis(2-chloroisopropyl)ether	ug/L	625	2.0	0.80	ND	2.0	0.70	ND	2.0	0.70	ND
4-Chloro-3-methylphenol	ug/L	625	1.0	0.95	ND	1.0	0.93	ND	1.0	0.93	ND
2-Chloronaphthalene	ug/L	625	5.0	0.90	ND	5.0	0.60	ND	5.0	0.60	ND
2-Chlorophenol	ug/L	625	2.0	0.70	ND	2.0	1.20	ND	2.0	1.20	ND
4-Chlorophenylphenylether	ug/L	625	5.0	0.90	ND	5.0	2.00	ND	5.0	2.00	ND
1,2-Dichlorobenzene	ug/L	625	2.0	0.90	ND	2.0	0.40	ND	2.0	0.40	ND
1,3-Dichlorobenzene	ug/L	625	1.0	0.80	ND	1.0	0.99	ND	1.0	0.99	ND
1,4-Dichlorobenzene	ug/L	625	1.0	0.70	ND	1.0	0.96	ND	1.0	0.96	ND
3,3-Dichlorobenzidine	ug/L	625	5.0	0.60	ND	5.0	0.60	ND	5.0	0.60	ND
2,4-Dichlorophenol	ug/L	625	1.0	0.80	ND	1.0	0.90	ND	1.0	0.90	ND
Diethylphthalate	ug/L	625	2.0	1.0	ND	2.0	0.9	ND	2.0	1.0	ND
2,4-Dimethylphenol	ug/L	625	2.0	1.1	ND	2.0	1.1	ND	2.0	1.1	ND
Dimethylphthalate	ug/L	625	2.0	1.0	ND	2.0	0.6	ND	2.0	0.6	ND
Di-n-butylphthalate	ug/L	625	5.0	1.0	ND	5.0	0.6	ND	5.0	0.6	ND
2,4-Dinitrophenol	ug/L	625	5.0	1.2	ND	5.0	2.0	ND	5.0	2.0	ND
2,4-Dinitrotoluene	ug/L	625	5.0	0.90	ND	5.0	0.90	ND	5.0	0.90	ND
2,6-Dinitrotoluene	ug/L	625	5.0	1.0	ND	5.0	0.5	ND	5.0	0.5	ND
Di-n-octylphthalate	ug/L	625	5.0	0.70	ND	5.0	0.70	ND	5.0	0.70	ND
1,4 Dioxane	ug/L	625	10	5	ND	10	5	ND	10	5	ND
1,2-Diphenylhydrazine	ug/L	625	1.0	0.80	ND	1.0	0.90	ND	1.0	0.90	ND
Bis(2-ethylhexyl)phthalate	ug/L	625	3.0	0.60	ND	3.0	0.60	ND	3.0	0.60	ND
Hexachlorobenzene	ug/L	625	1.0	0.70	ND	1.0	0.70	ND	1.0	0.70	ND
Hexachlorobutadiene	ug/L	625	1.0	0.70	ND	1.0	0.70	ND	1.0	0.70	ND
Hexachlorocyclopentadiene	ug/L	625	1.0	0.80	ND	1.0	0.80	ND	1.0	0.80	ND
Hexachloroethane	ug/L	625	1.0	0.60	ND	1.0	0.60	ND	1.0	0.60	ND
Isophorone	ug/L	625	1.0	0.70	ND	1.0	0.70	ND	1.0	0.70	ND
2-Methyl-4,6-dinitrophenol	ug/L	625	5.0	1.00	ND	5.0	1.00	ND	5.0	1.00	ND
Nitrobenzene	ug/L	625	1.0	0.90	ND	1.0	0.90	ND	1.0	0.90	ND
2-Nitrophenol	ug/L	625	5.0	0.70	ND	5.0	0.70	ND	5.0	0.70	ND
4-Nitrophenol	ug/L	625	5.0	0.60	ND	5.0	0.60	ND	5.0	0.60	ND
N-Nitrosodimethylamine	ug/L	625	5.0	0.80	ND	5.0	0.80	ND	5.0	0.80	ND
N-Nitrosodi-N-propylamine	ug/L	625	5.0	0.90	ND	5.0	0.90	ND	5.0	0.90	ND
N-Nitrosodiphenylamine	ug/L	625	1.0	0.90	ND	1.0	0.90	ND	1.0	0.90	ND
Pentachlorophenol	ug/L	625	1.0	0.92	ND	1.0	0.92	ND	1.0	0.92	ND
Phenol	ug/L	625	1.0	0.70	ND	1.0	0.70	ND	1.0	0.70	ND
1,2,4-Trichlorobenzene	ug/L	625	5.0	0.80	ND	5.0	0.80	ND	5.0	0.80	ND
2,4,6-Trichlorophenol	ug/L	625	5.0	1.2	ND	5.0	1.2	ND	5.0	1.2	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2006 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

Lab: Caltest Analytical			R3			R5		
Date Sampled: August 9, 2006								
Constituent	Units	EPA Method	RL	MDL	Result	RL	MDL	Result
Flow (Estimated)	MGD				16			18
Acenapthene	ug/L	610	0.30	0.030	ND	0.30	0.030	ND
Acenapthylene	ug/L	610	0.20	0.020	ND	0.20	0.020	ND
Anthracene	ug/L	610	0.30	0.030	ND	0.30	0.030	ND
Benzo(a)anthracene	ug/L	610	0.30	0.020	ND	0.30	0.020	ND
Benzo(a)pyrene	ug/L	610	0.30	0.020	ND	0.30	0.020	ND
Benzo(b)fluoranthene	ug/L	610	0.30	0.020	ND	0.30	0.030	ND
Benzo(ghi)perylene	ug/L	610	0.10	0.020	ND	0.10	0.030	ND
Benzo(k)fluoranthen	ug/L	610	0.30	0.020	ND	0.30	0.040	ND
Chrysene	ug/L	610	0.30	0.020	ND	0.30	0.040	ND
Dibenzo(a,h)anthracene	ug/L	610	0.10	0.030	ND	0.10	0.030	ND
Fluoranthene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND
Fluorene	ug/L	610	0.10	0.030	ND	0.10	0.030	ND
Ideno(1,2,3-cd)pyrene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND
Napthalene	ug/L	610	0.20	0.020	DNQ**	0.20	0.020	ND
Phenanthrene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND
Pyrene	ug/L	610	0.05	0.030	ND	0.05	0.030	ND

R3 - Napthalene - Estimated Concentration = 0.04 ug/L
R5 - Napthalene - Estimated Concentration = 0.04 ug/L

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2007 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
METALS / INORGANICS

		R3				R5			
Laboratory:		**Caltest Analytical**				**Caltest Analytical**			
Date Sampled: August 8, 2007									
Constituent	**Units**	**Method**	**RL**	**MDL**	**Result**	**Method**	**RL**	**MDL**	**Result**
Flow (Estimated)	MGD				3.9				5.8
Aluminum (Al)	ug/L	200.8	10	0.6	DNQ	200.8	10	0.6	48
Antimony (Sb)	ug/L	200.8	0.5	0.10	ND	200.8	0.5	0.10	DNQ
Arsenic (As)	ug/L	200.8	0.5	0.10	DNQ	200.8	0.5	0.10	0.9
Barium (Ba)	ug/L	200.8	0.1	0.02	60	200.8	0.1	0.02	44
Beryllium (Be)	ug/L	200.8	0.1	0.07	ND	200.8	0.1	0.07	ND
Cadmium (Cd)	ug/L	200.8	0.1	0.04	ND	200.8	0.1	0.04	ND
Chromium (Cr)	ug/L	200.8	0.5	0.20	0.5	200.8	0.5	0.20	0.52
Chromium VI	ug/L	SW8467196A	10	0.60	ND	SM3500CR	10	0.60	ND
Cobalt (Co)	ug/L	200.8	0.5	0.04	DNQ	200.8	0.5	0.04	DNQ
Copper (Cu)	ug/L	200.8	0.5	0.05	0.9	200.8	0.5	0.05	2.7
Iron (Fe)	mg/L	200.7	0.05	0.005	ND	200.7	0.05	0.005	ND
Lead (Pb)	ug/L	200.8	0.25	0.050	ND	200.8	0.25	0.050	0.26
Mercury (Hg)	ug/L	1631E	0.0005	0.00020	0.0007	1631E	0.0005	0.00020	0.0008
Molybdenum (Mo)	ug/L	200.8	0.25	0.06	6.8	200.8	0.25	0.06	6.7
Nickel (Ni)	ug/L	200.8	0.5	0.09	1.9	200.8	0.5	0.09	2.9
Selenium (Se)	ug/L	200.8	1	0.98	2	200.8	1	0.98	2
Silver (Ag)	ug/L	200.8	0.1	0.03	ND	200.8	0.1	0.03	ND
Thallium (Tl)	ug/L	200.8	0.1	0.04	0.1	200.8	0.1	0.04	DNQ
Vanadium (V)	ug/L	200.8	2	0.30	DNQ	200.8	2	0.30	DNQ
Zinc (Zn)	ug/L	200.8	1	0.7	1	200.8	1	0.7	16
Cyanide (Cn)	ug/L	335.2	3	0.8	DNQ	335.2	3	0.8	ND

R3 Aluminum	DNQ=2 Est Conc	R5 Antimony	DNQ=0.2 Est Conc
R3 Arsenic	DNQ=0.5 Est Conc	R5 Cobalt	DNQ=0.3 Est Conc
R3 Cobalt	DNQ=0.2 Est Conc	R5 Thallium	DNQ=0.06 Est Conc
R3 Vanadium	DNQ=0.7 Est Conc	R5 Vanadium	DNQ=0.8 Est Conc
R3 Cyanide	DNQ=1.0 Est Conc		

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
Est. Conc. = Estimated Concentration

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2007 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
CHLORINATED PESTICIDES / PCBs

			R3			R5		
Laboratory:			**Caltest Analytical**					
Date Sampled: August 8, 2007								
Constituent	**Units**	**EPA Method**	**RL**	**MDL**	**Result**	**RL**	**MDL**	**Result**
Flow (Estimated)	MGD				3.9			5.8
Aldrin	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Alpha-BHC	ug/L	608	0.01	0.003	ND	0.01	0.003	ND
Beta-BHC	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Delta-BHC	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Gamma-BHC (Lindane)	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Alpha-chlordane	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Chlordane	ug/L	608	0.050	0.02	ND	0.050	0.02	ND
Gamma-chlordane	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
2,4'-DDD	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
2,4'-DDE	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
2,4'-DDT	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDD	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDE	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDT	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Dieldrin	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Endosulfan I	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endosulfan II	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endosulfan Sulfate	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Endrin	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Endrin Aldehyde	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endrin Ketone	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Heptachlor	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Heptachlor Epoxide	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Methoxychlor	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
PCB 1016	ug/L	608	0.10	0.06	ND	0.10	0.06	ND
PCB 1221	ug/L	608	0.10	0.06	ND	0.10	0.06	ND
PCB 1232	ug/L	608	0.10	0.06	ND	0.10	0.06	ND
PCB 1242	ug/L	608	0.10	0.06	ND	0.10	0.06	ND
PCB 1248	ug/L	608	0.10	0.04	ND	0.10	0.04	ND
PCB 1254	ug/L	608	0.10	0.02	ND	0.10	0.02	ND
PCB 1260	ug/L	608	0.10	0.05	ND	0.10	0.05	ND
Toxaphene	ug/L	608	0.5	0.19	ND	0.5	0.19	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2007 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 8, 2007											
Constituent	Units	EPA Method	RL	MDL	Result	RL	MDL	Result	RL	MDL	Result
Flow (Estimated)	MGD				3.9			5.8			5.8
Acrolein	ug/L	624	5	1.00	ND	5	1.00	ND	5	1.00	ND
Acrylonitrile	ug/L	624	2.0	0.60	ND	2.0	0.60	ND	2.0	0.60	ND
Benzene	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Bromodichloromethane	ug/L	624	0.5	0.080	ND	0.5	0.080	ND	0.5	0.080	ND
Bromoform	ug/L	624	0.5	0.090	ND	0.5	0.090	DNQ	0.5	0.090	ND
Bromomethane	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
Carbon Tetrachloride	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
Chlorobenzene	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Chloroethane	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
2-Chloroethylvinyl ether	ug/L	624	1	0.300	ND	1	0.300	ND	1	0.300	ND
Chloroform	ug/L	624	0.5	0.090	ND	0.5	0.090	ND	0.5	0.090	ND
Chloromethane	ug/L	624	0.5	0.090	ND	0.5	0.090	ND	0.5	0.090	ND
Dibromochloromethane	ug/L	624	0.5	0.080	ND	0.5	0.080	ND	0.5	0.080	ND
1,2 Dichlorobenzene	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
1,3 Dichlorobenzene	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
1,4 Dichlorobenzene	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Dichlorodifluromethane	ug/L	624	0.5	0.300	ND	0.5	0.300	ND	0.5	0.300	ND
1,1-Dichloroethane	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
1,2-Dichloroethane	ug/L	624	0.5	0.090	ND	0.5	0.090	ND	0.5	0.090	ND
1,1-Dichloroethene	ug/L	624	0.5	0.070	ND	0.5	0.070	ND	0.5	0.070	ND
cis-1,2-Dichloroethene	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
trans-1,2-Dichloroethene	ug/L	624	0.5	0.090	ND	0.5	0.090	ND	0.5	0.090	ND
1,2-Dichloropropane	ug/L	624	0.5	0.070	ND	0.5	0.070	ND	0.5	0.070	ND
cis-1,3-Dichloropropene	ug/L	624	0.5	0.070	ND	0.5	0.070	ND	0.5	0.070	ND
trans-1,3-Dichloropropene	ug/L	624	0.5	0.090	ND	0.5	0.090	ND	0.5	0.090	ND
Dichlorotrifluroethane	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Ethylbenzene	ug/L	624	0.5	0.090	ND	0.5	0.090	ND	0.5	0.090	ND
MTBE	ug/L	624	0.5	0.090	ND	0.5	0.090	ND	0.5	0.090	ND
Methylene chloride	ug/L	624	0.5	0.080	ND	0.5	0.080	ND	0.5	0.080	ND
1,1,2,2-Tetrachloroethane	ug/L	624	0.5	0.070	ND	0.5	0.070	ND	0.5	0.070	ND
Tetrachloroethene	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Toluene	ug/L	624	0.5	0.060	DNQ[1]	0.5	0.060	DNQ[3]	0.5	0.060	DNQ[4]
1,2,4-Trichlorobenzene*	ug/L	624	0.5	0.060	DNQ[2]						
1,1,2-Trichloroethane	ug/L	624	0.5	0.060	ND	0.5	0.060	ND	0.5	0.060	ND
1,1,1-Trichloroethane	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Trichloroethene	ug/L	624	0.5	0.070	ND	0.5	0.070	ND	0.5	0.070	ND
Trichlorofluromethane	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
1,2,3-Trichoropropane	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Trichlorotrifluroethane	ug/L	624	1	0.080	ND	1	0.080	ND	1	0.080	ND
Vinyl Chloride	ug/L	624	0.5	0.100	ND	0.5	0.100	ND	0.5	0.100	ND
Xylenes (Total)	ug/L	624	0.5	0.06	ND	0.5	0.06	ND	0.5	0.06	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
*1,2,4-Trichlorobenzene Detected in blank

DNQ[1] = 0.21 ug/L Estimated concentration
DNQ[2] = 0.06 ug/L Estimated concentration
DNQ[3] = 0.041 ug/L Estimated concentration
DNQ[4] = 0.17 ug/L Estimated concentration

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2007 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
GRAB SEMI-VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 8, 2007											
Constituent	Units	EPA Method	RL	MDL	Result	RL	MDL	Result	RL	MDL	Result
Flow (Estimated)	MGD				3.9			5.8			5.8
Acenaphthene	ug/L	625	0.30	0.030	ND	0.30	0.030	ND	0.30	0.030	ND
Acenaphthylene	ug/L	625	0.20	0.020	ND	0.20	0.020	ND	0.20	0.020	ND
Anthracene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzidine	ug/L	625	5	5.00	ND	5	5.00	ND	5	5.00	ND
Benzo(a)anthracene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzo(a)pyrene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzo(b)fluoranthene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzo(ghi)perylene	ug/L	625	0.10	0.020	ND	0.10	0.020	ND	0.10	0.020	ND
Benzo(k)fluoranthen	ug/L	625	0.30	0.030	ND	0.30	0.030	ND	0.30	0.030	ND
Benzylbutylphthalate	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
4-Bromophenylphenylether	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
Bis(2-chloroethoxy)methane	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
Bis(2-chloroethyl)ether	ug/L	625	1	0.90	ND	1	0.90	ND	1	0.90	ND
Bis(2-chloroisopropyl)ether	ug/L	625	2	0.60	ND	2	0.60	ND	2	0.60	ND
4-Chloro-3-methylphenol	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
2-Chloronaphthalene	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
2-Chlorophenol	ug/L	625	2	0.80	ND	2	0.80	ND	2	0.80	ND
4-Chlorophenylphenylether	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
Chrysene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Dibenzo(a,h)anthracene	ug/L	625	0.10	0.020	ND	0.10	0.020	ND	0.10	0.020	ND
1,2-Dichlorobenzene	ug/L	625	2	0.90	ND	2	0.90	ND	2	0.90	ND
1,3-Dichlorobenzene	ug/L	625	1	0.80	ND	1	0.80	ND	1	0.80	ND
1,4-Dichlorobenzene	ug/L	625	1	0.90	ND	1	0.90	ND	1	0.90	ND
3,3-Dichlorobenzidine	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
2,4-Dichlorophenol	ug/L	625	1	0.70	ND	1	0.70	ND	1	0.70	ND
Diethylphthalate	ug/L	625	2	0.60	ND	2	0.60	ND	2	0.60	ND
2,4-Dimethylphenol	ug/L	625	2	0.80	ND	2	0.80	ND	2	0.80	ND
Dimethylphthalate	ug/L	625	2	0.70	ND	2	0.70	ND	2	0.70	ND
Di-n-butylphthalate	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
2,4-Dinitrophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
2,4-Dinitrotoluene	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
2,6-Dinitrotoluene	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
Di-n-octylphthalate	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
1,2-Diphenylhydrazine	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Bis(2-ethylhexyl)phthalate	ug/L	625	3	0.60	ND	3	0.60	ND	3	0.60	ND
Fluoranthene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
Fluorene	ug/L	625	0.10	0.020	ND	0.10	0.020	ND	0.10	0.020	ND
Hexachlorobenzene	ug/L	625	1	1.00	ND	1	1.00	ND	1	1.00	ND
Hexachlorobutadiene	ug/L	625	1	1.00	ND	1	1.00	ND	1	1.00	ND
Hexachlorocyclopentadiene	ug/L	625	1	0.80	ND	1	0.80	ND	1	0.80	ND
Hexachloroethane	ug/L	625	1	1.00	ND	1	1.00	ND	1	1.00	ND
Ideno(1,2,3-cd)pyrene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
Isophorone	ug/L	625	1	0.80	ND	1	0.80	ND	1	0.80	ND
2-Methyl-4,6-dinitrophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
Napthalene	ug/L	625	0.20	0.020	ND	0.20	0.020	ND	0.20	0.020	ND
Nitrobenzene	ug/L	625	1	0.70	ND	1	0.70	ND	1	0.70	ND
2-Nitrophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
4-Nitrophenol	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
N-Nitrosodimethylamine	ug/L	625	5	0.80	ND	5	0.80	ND	5	0.80	ND
N-Nitrosodi-N-propylamine	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
N-Nitrosodiphenylamine	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Pentachlorophenol	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Phenanthrene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
Phenol	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Pyrene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
1,2,4-Trichlorobenzene	ug/L	625	5	2.00	ND	5	2.00	ND	5	2.00	ND
2,4,6-Trichlorophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
1,4 Dioxane	ug/L	625	10	5.00	ND	10	5.00	ND	10	5.00	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2008 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
METALS / INORGANICS

		R3				R5			
Laboratory:		**Caltest Analytical**				**Caltest Analytical**			
Date Sampled: August 6, 2008									
Constituent	**Units**	**Method**	**RL**	**MDL**	**Result**	**Method**	**RL**	**MDL**	**Result**
Flow (Estimated)	MGD				9.2				11.1
Aluminum (Al)	ug/L	200.8	10	0.1	DNQ	200.8	10	0.1	64
Antimony (Sb)	ug/L	200.8	0.5	0.01	DNQ	200.8	0.5	0.01	DNQ
Arsenic (As)	ug/L	200.8	0.5	0.07	DNQ	200.8	0.5	0.07	0.6
Barium (Ba)	ug/L	200.8	0.1	0.02	51	200.8	0.1	0.02	42
Beryllium (Be)	ug/L	200.8	0.1	0.01	ND	200.8	0.1	0.01	ND
Cadmium (Cd)	ug/L	200.8	0.1	0.06	ND	200.8	0.1	0.06	ND
Chromium (Cr)	ug/L	200.8	0.5	0.03	DNQ	200.8	0.5	0.03	DNQ
Chromium VI	ug/L	SW8467196A	10	0.60	ND	SM3500CR	10	0.60	ND
Cobalt (Co)	ug/L	200.8	0.5	0.01	DNQ	200.8	0.5	0.01	DNQ
Copper (Cu)	ug/L	200.8	0.5	0.07	1.4	200.8	0.5	0.07	2.3
Iron (Fe)	mg/L	200.7	0.05	0.0009	0.6	200.7	0.05	0.0009	0.6
Lead (Pb)	ug/L	200.8	0.25	0.010	ND	200.8	0.25	0.010	DNQ
Mercury (Hg)	ug/L	1631E	0.0005	0.00030	0.0007	1631E	0.0005	0.00030	0.0009
Molybdenum (Mo)	ug/L	200.8	0.25	0.01	6	200.8	0.25	0.01	5.5
Nickel (Ni)	ug/L	200.8	0.5	0.02	4.7	200.8	0.5	0.02	4.3
Selenium (Se)	ug/L	200.8	1	0.11	1.7	200.8	1	0.11	1.5
Silver (Ag)	ug/L	200.8	0.1	0.009	ND	200.8	0.1	0.009	ND
Thallium (Tl)	ug/L	200.8	0.1	0.02	ND	200.8	0.1	0.02	ND
Vanadium (V)	ug/L	200.8	2	0.10	DNQ	200.8	2	0.10	DNQ
Zinc (Zn)	ug/L	200.8	1	0.2	3	200.8	1	0.2	11
Cyanide (Cn)	ug/L	335.2	3	0.6	ND	335.2	3	0.6	DNQ

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
Est. Conc. = Estimated Concentration

R3 Aluminum	DNQ=3 Est Conc	R5 Antimony	DNQ=0.1 Est Conc
R3 Antimony	DNQ=0.09 Est Conc	R5 Cobalt	DNQ=0.2 Est Conc
R3 Arsenic	DNQ=0.4 Est Conc	R5 Thallium	DNQ=0.06 Est Conc
R3 Cobalt	DNQ=0.2 Est Conc	R5 Vanadium	DNQ=0.8 Est Conc
R3 Vanadium	DNQ=0.8 Est Conc	R5 Cyanide	DNQ=1.1 Est Conc
R3 Antimony	DNQ=0.09 Est Conc	R5 Chromium	DNQ=0.2 Est Conc
R3 Chromium	DNQ=0.2 Est Conc	R5 Lead	DNQ=0.24 Est Conc

OJAI VALLEY SANITARY DISTRICT
2008 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
CHLORINATED PESTICIDES / PCBs

			R3			R5		
Laboratory:			**Caltest Analytical**					
Date Sampled: August 6, 2008								
Constituent	**Units**	**EPA Method**	**RL**	**MDL**	**Result**	**RL**	**MDL**	**Result**
Flow (Estimated)	MGD				9.2			11.1
Aldrin	ug/L	608	0.005	0.003	ND	0.005	0.003	ND
Alpha-BHC	ug/L	608	0.01	0.002	ND	0.01	0.002	ND
Beta-BHC	ug/L	608	0.005	0.002	ND	0.005	0.002	ND
Delta-BHC	ug/L	608	0.005	0.002	ND	0.005	0.002	ND
Gamma-BHC (Lindane)	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Alpha-chlordane	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Chlordane	ug/L	608	0.050	0.04	ND	0.050	0.04	ND
Gamma-chlordane	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
2,4'-DDD	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
2,4'-DDE	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
2,4'-DDT	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDD	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDE	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
4,4'-DDT	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Dieldrin	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endosulfan I	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endosulfan II	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endosulfan Sulfate	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endrin	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Endrin Aldehyde	ug/L	608	0.010	0.002	ND	0.010	0.002	ND
Endrin Ketone	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Heptachlor	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Heptachlor Epoxide	ug/L	608	0.010	0.003	ND	0.010	0.003	ND
Methoxychlor	ug/L	608	0.010	0.004	ND	0.010	0.004	ND
PCB 1016	ug/L	608	0.10	0.05	ND	0.10	0.05	ND
PCB 1221	ug/L	608	0.10	0.06	ND	0.10	0.06	ND
PCB 1232	ug/L	608	0.10	0.04	ND	0.10	0.04	ND
PCB 1242	ug/L	608	0.10	0.04	ND	0.10	0.04	ND
PCB 1248	ug/L	608	0.10	0.04	ND	0.10	0.04	ND
PCB 1254	ug/L	608	0.10	0.06	ND	0.10	0.06	ND
PCB 1260	ug/L	608	0.10	0.05	ND	0.10	0.05	ND
Toxaphene	ug/L	608	0.5	0.5	ND	0.5	0.5	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2008 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 6, 2008											
Constituent	**Units**	**EPA Method**	**RL**	**MDL**	**Result**	**RL**	**MDL**	**Result**	**RL**	**MDL**	**Result**
Flow (Estimated)	MGD				9.2			11.1			11.1
Acrolein	ug/L	624	5	1.30	ND	5	1.30	ND	5	1.30	ND
Acrylonitrile	ug/L	624	2.0	0.66	ND	2.0	0.66	ND	2.0	0.66	ND
Benzene	ug/L	624	0.5	0.25	ND	0.5	0.25	ND	0.5	0.25	ND
Bromodichloromethane	ug/L	624	0.5	0.25	ND	0.5	0.25	ND	0.5	0.25	ND
Bromoform	ug/L	624	0.5	0.32	ND	0.5	0.32	ND	0.5	0.32	ND
Bromomethane	ug/L	624	0.5	0.27	ND	0.5	0.27	ND	0.5	0.27	ND
Carbon Tetrachloride	ug/L	624	0.5	0.22	ND	0.5	0.22	ND	0.5	0.22	ND
Chlorobenzene	ug/L	624	0.5	0.29	ND	0.5	0.29	ND	0.5	0.29	ND
Chloroethane	ug/L	624	0.5	0.37	ND	0.5	0.37	ND	0.5	0.37	ND
2-Chloroethylvinyl ether	ug/L	624	1	0.56	ND	1	0.56	ND	1	0.56	ND
Chloroform	ug/L	624	0.5	0.26	ND	0.5	0.26	ND	0.5	0.26	ND
Chloromethane	ug/L	624	0.5	0.27	ND	0.5	0.27	ND	0.5	0.27	ND
Dibromochloromethane	ug/L	624	0.5	0.31	ND	0.5	0.31	ND	0.5	0.31	ND
1,2 Dichlorobenzene	ug/L	624	0.5	0.27	ND	0.5	0.27	ND	0.5	0.27	ND
1,3 Dichlorobenzene	ug/L	624	0.5	0.27	ND	0.5	0.27	ND	0.5	0.27	ND
1,4 Dichlorobenzene	ug/L	624	0.5	0.32	ND	0.5	0.32	ND	0.5	0.32	ND
Dichlorodifluromethane	ug/L	624	0.5	0.23	ND	0.5	0.23	ND	0.5	0.23	ND
1,1-Dichloroethane	ug/L	624	0.5	0.26	ND	0.5	0.26	ND	0.5	0.26	ND
1,2-Dichloroethane	ug/L	624	0.5	0.27	ND	0.5	0.27	ND	0.5	0.27	ND
1,1-Dichloroethene	ug/L	624	0.5	0.23	ND	0.5	0.23	ND	0.5	0.23	ND
cis-1,2-Dichloroethene	ug/L	624	0.5	0.25	ND	0.5	0.25	ND	0.5	0.25	ND
trans-1,2-Dichloroethene	ug/L	624	0.5	0.23	ND	0.5	0.23	ND	0.5	0.23	ND
1,2-Dichloropropane	ug/L	624	0.5	0.28	ND	0.5	0.28	ND	0.5	0.28	ND
cis-1,3-Dichloropropene	ug/L	624	0.5	0.29	ND	0.5	0.29	ND	0.5	0.29	ND
trans-1,3-Dichloropropene	ug/L	624	0.5	0.34	ND	0.5	0.34	ND	0.5	0.34	ND
Dichlorotrifluroethane	ug/L	624	0.5	0.29	ND	0.5	0.29	ND	0.5	0.29	ND
Ethylbenzene	ug/L	624	0.5	0.26	ND	0.5	0.26	ND	0.5	0.26	ND
MTBE	ug/L	624	0.5	0.28	ND	0.5	0.28	ND	0.5	0.28	ND
Methylene chloride	ug/L	624	0.5	0.28	ND	0.5	0.28	ND	0.5	0.28	ND
1,1,2,2-Tetrachloroethane	ug/L	624	0.5	0.30	ND	0.5	0.30	ND	0.5	0.30	ND
Tetrachloroethene	ug/L	624	0.5	0.21	ND	0.5	0.21	ND	0.5	0.21	ND
Toluene	ug/L	624	0.5	0.24	ND	0.5	0.24	ND	0.5	0.24	ND
1,1,2-Trichloroethane	ug/L	624	0.5	0.30	ND	0.5	0.30	ND	0.5	0.30	ND
1,1,1-Trichloroethane	ug/L	624	0.5	0.23	ND	0.5	0.23	ND	0.5	0.23	ND
Trichloroethene	ug/L	624	0.5	0.26	ND	0.5	0.26	ND	0.5	0.26	ND
Trichloroflurometh ane	ug/L	624	0.5	0.32	ND	0.5	0.32	ND	0.5	0.32	ND
1,2,3-Trichoropropane	ug/L	624	0.5	0.30	ND	0.5	0.30	ND	0.5	0.30	ND
Trichlorotrifluroethane	ug/L	624	1	0.28	ND	1	0.28	ND	1	0.28	ND
Vinyl Chloride	ug/L	624	0.5	0.36	ND	0.5	0.36	ND	0.5	0.36	ND
Xylenes (Total)	ug/L	624	0.5	0.26	ND	0.5	0.26	ND	0.5	0.26	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified

Table O-3C

OJAI VALLEY SANITARY DISTRICT
2008 ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
GRAB SEMI-VOLATILE ORGANICS

Lab: Caltest Analytical			R3			R4			R5		
Date Sampled: August 6, 2008											
Constituent	Units	EPA Method	RL	MDL	Result	RL	MDL	Result	RL	MDL	Result
Flow (Estimated)	MGD				9.2			11.1			11.1
Acenaphthene	ug/L	625	0.30	0.030	ND	0.30	0.030	ND	0.30	0.030	ND
Acenaphthylene	ug/L	625	0.20	0.020	ND	0.20	0.020	ND	0.20	0.020	ND
Anthracene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzidine	ug/L	625	5	5.00	ND	5	5.00	ND	5	5.00	ND
Benzo(a)anthracene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzo(a)pyrene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzo(b)fluoranthene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Benzo(ghi)perylene	ug/L	625	0.10	0.020	ND	0.10	0.020	ND	0.10	0.020	ND
Benzo(k)fluoranthen	ug/L	625	0.30	0.030	ND	0.30	0.030	ND	0.30	0.030	ND
Benzylbutylphthalate	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
4-Bromophenylphenylether	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
Bis(2-chloroethoxy)methane	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
Bis(2-chloroethyl)ether	ug/L	625	1	0.90	ND	1	0.90	ND	1	0.90	ND
Bis(2-chloroisopropyl)ether	ug/L	625	2	0.60	ND	2	0.60	ND	2	0.60	ND
4-Chloro-3-methylphenol	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
2-Chloronaphthalene	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
2-Chlorophenol	ug/L	625	2	0.80	ND	2	0.80	ND	2	0.80	ND
4-Chlorophenylphenylether	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
Chrysene	ug/L	625	0.30	0.020	ND	0.30	0.020	ND	0.30	0.020	ND
Dibenzo(a,h)anthracene	ug/L	625	0.10	0.020	ND	0.10	0.020	ND	0.10	0.020	ND
1,2-Dichlorobenzene	ug/L	625	2	0.90	ND	2	0.90	ND	2	0.90	ND
1,3-Dichlorobenzene	ug/L	625	1	0.80	ND	1	0.80	ND	1	0.80	ND
1,4-Dichlorobenzene	ug/L	625	1	0.90	ND	1	0.90	ND	1	0.90	ND
3,3-Dichlorobenzidine	ug/L	625	5	1.00	ND	5	1.00	ND	5	1.00	ND
2,4-Dichlorophenol	ug/L	625	1	0.70	ND	1	0.70	ND	1	0.70	ND
Diethylphthalate	ug/L	625	2	0.60	ND	2	0.60	ND	2	0.60	ND
2,4-Dimethylphenol	ug/L	625	2	0.80	ND	2	0.80	ND	2	0.80	ND
Dimethylphthalate	ug/L	625	2	0.70	ND	2	0.70	ND	2	0.70	ND
Di-n-butylphthalate	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
2,4-Dinitrophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
2,4-Dinitrotoluene	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
2,6-Dinitrotoluene	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
Di-n-octylphthalate	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
1,4 Dioxane	ug/L	625	10	5.00	ND	10	5.00	ND	10	5.00	ND
1,2-Diphenylhydrazine	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Bis(2-ethylhexyl)phthalate	ug/L	625	3	0.60	ND	3	0.60	ND	3	0.60	ND
Fluoranthene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
Fluorene	ug/L	625	0.10	0.020	ND	0.10	0.020	ND	0.10	0.020	ND
Hexachlorobenzene	ug/L	625	1	1.00	ND	1	1.00	ND	1	1.00	ND
Hexachlorobutadiene	ug/L	625	1	1.00	ND	1	1.00	ND	1	1.00	ND
Hexachlorocyclopentadiene	ug/L	625	1	0.80	ND	1	0.80	ND	1	0.80	ND
Hexachloroethane	ug/L	625	1	1.00	ND	1	1.00	ND	1	1.00	ND
Ideno(1,2,3-cd)pyrene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
Isophorone	ug/L	625	1	0.80	ND	1	0.80	ND	1	0.80	ND
2-Methyl-4,6-dinitrophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
Napthalene	ug/L	625	0.20	0.020	ND	0.20	0.020	ND	0.20	0.020	ND
Nitrobenzene	ug/L	625	1	0.70	ND	1	0.70	ND	1	0.70	ND
2-Nitrophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
4-Nitrophenol	ug/L	625	5	0.70	ND	5	0.70	ND	5	0.70	ND
N-Nitrosodimethylamine	ug/L	625	5	0.80	ND	5	0.80	ND	5	0.80	ND
N-Nitrosodi-N-propylamine	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND
N-Nitrosodiphenylamine	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Pentachlorophenol	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Phenanthrene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
Phenol	ug/L	625	1	0.60	ND	1	0.60	ND	1	0.60	ND
Pyrene	ug/L	625	0.05	0.020	ND	0.05	0.020	ND	0.05	0.020	ND
1,2,4-Trichlorobenzene	ug/L	625	5	2.00	ND	5	2.00	ND	5	2.00	ND
2,4,6-Trichlorophenol	ug/L	625	5	0.60	ND	5	0.60	ND	5	0.60	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

OJAI VALLEY SANITARY DISTRICT
2009 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
METALS / INORGANICS

Laboratory:		Caltest Analytical					
Date Sampled: February 4, 2009					Results		
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				3.6	5.4	5.4
Antimony (Sb)	ug/L	200.8	0.5	0.01	DNQ	DNQ	DNQ
Arsenic (As)	ug/L	200.8	0.5	0.07	0.6	0.6	0.6
Beryllium (Be)	ug/L	200.8	0.1	0.01	ND	ND	ND
Boron (B)	ug/L	200.8	10	2.8	370	400	540
Cadmium (Cd)	ug/L	200.8	0.1	0.06	ND	ND	ND
Chromium (Cr)	ug/L	200.8	0.5	0.03	0.5	0.6	0.6
Copper (Cu)	ug/L	200.8	0.5	1.20	1.2	2.3	2.9
Lead (Pb)	ug/L	200.8	0.25	0.010	ND	DNQ	DNQ
Mercury (Hg)	ug/L	1631E	0.0005	0.00020	0.0005	0.0006	DNQ
Nickel (Ni)	ug/L	200.8	0.5	0.02	3.8	3.7	3.7
Selenium (Se)	ug/L	200.8	1	0.11	1.7	1.5	1.3
Silver (Ag)	ug/L	200.8	0.1	0.009	ND	ND	ND
Thallium (Tl)	ug/L	200.8	0.1	0.02	ND	DNQ	ND
Zinc (Zn)	ug/L	200.8	1	0.2	5	13	21
Cyanide (Cn)	ug/L	335.2	3	0.6	ND	ND	DNQ

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
Est. Conc. = Estimated Concentration

R3 Antimony	DNQ= 0.08 Est Conc
R4 Antimony	DNQ= 0.1 Est Conc
R4 Lead	DNQ=0.13 Est Conc
R4 Thallium	DNQ= 0.04 Est Conc
R5 Antimony	DNQ= 0.1 Est Conc
R5 Lead	DNQ=0.2 Est Conc
R5 Mercury	DNQ= 0.00049 Est Conc
R5 Cyanide	DNQ= 0.81 Est Conc

OJAI VALLEY SANITARY DISTRICT
2009 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
CHLORINATED PESTICIDES / PCBs

Laboratory:			Caltest Analytical				
Date Sampled: February 4, 2009							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				3.6	5.4	5.4
Aldrin	ug/L	608	0.005	0.003	ND	ND	ND
Alpha-BHC	ug/L	608	0.01	0.002	ND	ND	ND
Beta-BHC	ug/L	608	0.005	0.002	ND	ND	ND
Delta-BHC	ug/L	608	0.005	0.002	ND	ND	ND
Gamma-BHC (Lindane)	ug/L	608	0.010	0.002	ND	ND	ND
Alpha-chlordane	ug/L	608	0.010	0.003	ND	ND	ND
Chlordane	ug/L	608	0.050	0.04	ND	ND	ND
Gamma-chlordane	ug/L	608	0.010	0.003	ND	ND	ND
2,4'-DDD	ug/L	608	0.010	0.003	ND	ND	ND
2,4'-DDE	ug/L	608	0.010	0.002	ND	ND	ND
2,4'-DDT	ug/L	608	0.010	0.003	ND	ND	ND
4,4'-DDD	ug/L	608	0.010	0.003	ND	ND	ND
4,4'-DDE	ug/L	608	0.010	0.003	ND	ND	ND
4,4'-DDT	ug/L	608	0.010	0.003	ND	ND	ND
Dieldrin	ug/L	608	0.010	0.003	ND	ND	ND
Endosulfan I	ug/L	608	0.010	0.003	ND	ND	ND
Endosulfan II	ug/L	608	0.010	0.003	ND	ND	ND
Endosulfan Sulfate	ug/L	608	0.010	0.003	ND	ND	ND
Endrin	ug/L	608	0.010	0.003	ND	ND	ND
Endrin Aldehyde	ug/L	608	0.010	0.002	ND	ND	ND
Endrin Ketone	ug/L	608	0.010	0.003	ND	ND	ND
Heptachlor	ug/L	608	0.010	0.003	ND	ND	ND
Heptachlor Epoxide	ug/L	608	0.010	0.003	ND	ND	ND
Methoxychlor	ug/L	608	0.010	0.004	ND	ND	ND
PCB 1016	ug/L	608	0.10	0.05	ND	ND	ND
PCB 1221	ug/L	608	0.10	0.06	ND	ND	ND
PCB 1232	ug/L	608	0.10	0.04	ND	ND	ND
PCB 1242	ug/L	608	0.10	0.04	ND	ND	ND
PCB 1248	ug/L	608	0.10	0.04	ND	ND	ND
PCB 1254	ug/L	608	0.10	0.06	ND	ND	ND
PCB 1260	ug/L	608	0.10	0.05	ND	ND	ND
Toxaphene	ug/L	608	0.5	0.43	ND	ND	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

OJAI VALLEY SANITARY DISTRICT
2009 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
VOLATILE ORGANICS

Laboratory:			Caltest Analytical				
Date Sampled: February 4, 2009							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				3.6	5.4	5.4
Acrolein	ug/L	624	5	1.30	ND	ND	ND
Acrylonitrile	ug/L	624	2.0	0.66	ND	ND	ND
Benzene	ug/L	624	0.5	0.25	ND	ND	ND
Bromodichloromethane	ug/L	624	0.5	0.25	ND	ND	ND
Bromoform	ug/L	624	0.5	0.32	ND	ND	ND
Bromomethane	ug/L	624	0.5	0.27	ND	ND	ND
Carbon Tetrachloride	ug/L	624	0.5	0.22	ND	ND	ND
Chlorobenzene	ug/L	624	0.5	0.29	ND	ND	ND
Chloroethane	ug/L	624	0.5	0.37	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	624	1	0.56	ND	ND	ND
Chloroform	ug/L	624	0.5	0.26	ND	ND	ND
Chloromethane	ug/L	624	0.5	0.27	ND	ND	ND
Dibromochloromethane	ug/L	624	0.5	0.31	ND	ND	ND
1,2 Dichlorobenzene	ug/L	624	0.5	0.27	ND	ND	ND
1,3 Dichlorobenzene	ug/L	624	0.5	0.27	ND	ND	ND
1,4 Dichlorobenzene	ug/L	624	0.5	0.31	ND	ND	ND
Dichlorodifluromethane	ug/L	624	0.5	0.23	ND	ND	ND
1,1-Dichloroethane	ug/L	624	0.5	0.26	ND	ND	ND
1,2-Dichloroethane	ug/L	624	0.5	0.27	ND	ND	ND
1,1-Dichloroethene	ug/L	624	0.5	0.23	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	624	0.5	0.25	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	624	0.5	0.23	ND	ND	ND
1,2-Dichloropropane	ug/L	624	0.5	0.28	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	624	0.5	0.29	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	624	0.5	0.34	ND	ND	ND
Dichlorotrifluroethane	ug/L	624	0.5	0.29	ND	ND	ND
Ethylbenzene	ug/L	624	0.5	0.26	ND	ND	ND
MTBE	ug/L	624	0.5	0.28	ND	ND	ND
Methylene chloride	ug/L	624	0.5	0.18	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	624	0.5	0.30	ND	ND	ND
Tetrachloroethene	ug/L	624	0.5	0.21	ND	ND	ND
Toluene	ug/L	624	0.5	0.24	ND	ND	ND
1,1,2-Trichloroethane	ug/L	624	0.5	0.30	ND	ND	ND
1,1,1-Trichloroethane	ug/L	624	0.5	0.23	ND	ND	ND
Trichloroethene	ug/L	624	0.5	0.26	ND	ND	ND
Trichlorofluromethane	ug/L	624	0.5	0.32	ND	ND	ND
1,2,3-Trichoropropane	ug/L	624	0.5	0.30	ND	ND	ND
Trichlorotrifluroethane	ug/L	624	1	0.28	ND	ND	ND
Vinyl Chloride	ug/L	624	0.5	0.36	ND	ND	ND
Xylenes (Total)	ug/L	624	0.5	0.26	ND	ND	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified

OJAI VALLEY SANITARY DISTRICT
2009 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
GRAB SEMI-VOLATILE ORGANICS

Laboratory:			Caltest Analytical				
Endrin							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				3.6	5.4	5.4
Acenaphthene	ug/L	625	0.30	0.030	ND	ND	ND
Acenaphthylene	ug/L	625	0.20	0.030	ND	ND	ND
Anthracene	ug/L	625	0.30	0.030	ND	ND	ND
Benzidine	ug/L	625	5	5.00	ND	ND	ND
Benzo(a)anthracene	ug/L	625	0.30	0.030	ND	ND	ND
Benzo(a)pyrene	ug/L	625	0.30	0.030	ND	ND	ND
Benzo(b)fluoranthene	ug/L	625	0.30	0.030	ND	ND	ND
Benzo(ghi)perylene	ug/L	625	0.10	0.030	ND	ND	ND
Benzo(k)fluoranthen	ug/L	625	0.30	0.030	ND	ND	ND
Benzylbutylphthalate	ug/L	625	5	0.98	ND	ND	ND
4-Bromophenylphenylether	ug/L	625	5	0.97	ND	ND	ND
Bis(2-chloroethoxy)methane	ug/L	625	5	0.93	ND	ND	ND
Bis(2-chloroethyl)ether	ug/L	625	1	0.95	ND	ND	ND
Bis(2-chloroisopropyl)ether	ug/L	625	2	0.81	ND	ND	ND
4-Chloro-3-methylphenol	ug/L	625	1	0.91	ND	ND	ND
2-Chloronaphthalene	ug/L	625	5	0.98	ND	ND	ND
2-Chlorophenol	ug/L	625	2	0.98	ND	ND	ND
4-Chlorophenylphenylether	ug/L	625	5	0.99	ND	ND	ND
Chrysene	ug/L	625	0.30	0.030	ND	ND	ND
Dibenzo(a,h)anthracene	ug/L	625	0.10	0.030	ND	ND	ND
1,2-Dichlorobenzene	ug/L	625	2	0.95	ND	ND	ND
1,3-Dichlorobenzene	ug/L	625	1	0.87	ND	ND	ND
1,4-Dichlorobenzene	ug/L	625	1	0.93	ND	ND	ND
3,3-Dichlorobenzidine	ug/L	625	5	5.00	ND	ND	ND
2,4-Dichlorophenol	ug/L	625	1	0.99	ND	ND	ND
Diethylphthalate	ug/L	625	2	0.86	ND	ND	ND
2,4-Dimethylphenol	ug/L	625	2	0.87	ND	ND	ND
Dimethylphthalate	ug/L	625	2	0.97	ND	ND	ND
Di-n-butylphthalate	ug/L	625	5	0.91	ND	ND	ND
2,4-Dinitrophenol	ug/L	625	5	0.83	ND	ND	ND
2,4-Dinitrotoluene	ug/L	625	5	0.60	ND	ND	ND
2,6-Dinitrotoluene	ug/L	625	5	0.98	ND	ND	ND
Di-n-octylphthalate	ug/L	625	5	0.92	ND	ND	ND
1,4 Dioxane	ug/L	625	10	0.90	ND	ND	ND
1,2-Diphenylhydrazine	ug/L	625	1	0.90	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ug/L	625	3	0.95	ND	ND	ND
Fluoranthene	ug/L	625	0.05	0.030	ND	ND	ND
Fluorene	ug/L	625	0.10	0.030	ND	ND	ND
Hexachlorobenzene	ug/L	625	1	0.91	ND	ND	ND
Hexachlorobutadiene	ug/L	625	1	0.92	ND	ND	ND
Hexachlorocyclopentadiene	ug/L	625	1	0.90	ND	ND	ND
Hexachloroethane	ug/L	625	1	0.94	ND	ND	ND
Ideno(1,2,3-cd)pyrene	ug/L	625	0.05	0.030	ND	ND	ND
Isophorone	ug/L	625	1	0.93	ND	ND	ND
2-Methyl-4,6-dinitrophenol	ug/L	625	5	0.91	ND	ND	ND
Napthalene	ug/L	625	0.20	0.030	ND	ND	ND
Nitrobenzene	ug/L	625	1	0.95	ND	ND	ND
2-Nitrophenol	ug/L	625	5	0.89	ND	ND	ND
4-Nitrophenol	ug/L	625	5	0.83	ND	ND	ND
N-Nitrosodimethylamine	ug/L	625	5	0.88	ND	ND	ND
N-Nitrosodi-N-propylamine	ug/L	625	5	0.97	ND	ND	ND
N-Nitrosodiphenylamine	ug/L	625	1	0.83	ND	ND	ND
Pentachlorophenol	ug/L	625	1	0.81	ND	ND	ND
Phenanthrene	ug/L	625	0.05	0.030	ND	ND	ND
Phenol	ug/L	625	1	0.69	ND	ND	ND
Pyrene	ug/L	625	0.05	0.030	ND	ND	ND
1,2,4-Trichlorobenzene	ug/L	625	5	0.98	ND	ND	ND
2,4,6-Trichlorophenol	ug/L	625	5	0.97	ND	ND	ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit

Table O-3C

OJAI VALLEY SANITARY DISTRICT
WASTEWATER TREATMENT PLANT
2009 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
Dioxin Congeners

Laboratory:			Caltest Analytical				
Date Sampled: February 4, 2009							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				3.6	5.4	5.4
2,3,7,8-TCDD	pg/L	1613	0.84	0.234	ND	ND	ND
1,2,3,7,8-PeCDD	pg/L	1613	1.59	0.714	ND	ND	ND
1,2,3,4,7,8-HxCDD	pg/L	1613	1.18	1.78	ND	ND	ND
1,2,3,6,7,8-HxCDD	pg/L	1613	1.69	1.72	ND	ND	ND
1,2,3,7,8,9-HxCDD	pg/L	1613	1.18	1.68	ND	ND	ND
1,2,3,4,6,7,8-HpCDD	pg/L	1613	2.01	3.92	ND	ND	ND
OCDD	pg/L	1613	2.45	1.6	ND	ND	ND
2,3,7,8-TCDF	pg/L	1613	0.97	0.257	ND	ND	ND
1,2,3,7,8-PeCDF	pg/L	1613	1.09	0.395	ND	ND	ND
2,3,4,7,8-PeCDF	pg/L	1613	1.48	0.435	ND	ND	ND
1,2,3,4,7,8-HxCDF	pg/L	1613	1.06	0.754	ND	ND	ND
1,2,3,6,7,8-HxCDF	pg/L	1613	0.73	0.793	ND	ND	ND
2,3,4,6,7,8-HxCDF	pg/L	1613	1.26	0.874	ND	ND	ND
1,2,3,7,8,9-HxCDF	pg/L	1613	0.94	1.28	ND	ND	ND
1,2,3,4,6,7,8-HpCDF	pg/L	1613	1.7	1.94	ND	ND	ND
1,2,3,4,7,8,9-HpCDF	pg/L	1613	0.96	2.26	ND	ND	ND
OCDF	pg/L	1613	3.66	1.28	ND	ND	ND
Toxic Equivilent Quotient		1613			0	0	0

DL = Sample Specific Detection Limit
ND = Not Detected
MDL = Method Detection Limit

OJAI VALLEY SANITARY DISTRICT
2010 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
METALS / INORGANICS

Laboratory:		Caltest Analytical					
Date Sampled: February 3, 2010					Results		
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				29.0	**	31.0
Antimony (Sb)	ug/L	200.8	0.5	0.063	DNQ		DNQ
Arsenic (As)	ug/L	200.8	0.5	0.008	DNQ		DNQ
Beryllium (Be)	ug/L	200.8	0.1	0.041	ND		ND
Boron (B)	ug/L	200.8	10	1.900	390		410
Cadmium (Cd)	ug/L	200.8	0.1	0.011	DNQ		DNQ
Chromium (Cr)	ug/L	200.8	0.5	0.020	DNQ		DNQ
Copper (Cu)	ug/L	200.8	0.5	0.060	0.69		1.1
Lead (Pb)	ug/L	200.8	0.25	0.071	ND		DNQ
Mercury (Hg)	ug/L	1631E	0.0005	0.0002	0.0006		0.0008
Nickel (Ni)	ug/L	200.8	0.5	0.010	0.96		1.2
Selenium (Se)	ug/L	200.8	1	0.130	2.1		2
Silver (Ag)	ug/L	200.8	0.1	0.063	ND		ND
Thallium (Tl)	ug/L	200.8	0.1	0.070	ND		ND
Zinc (Zn)	ug/L	200.8	1	0.800	1.2		5.5
Cyanide (Cn)	ug/L	SM4500-CN E	3	0.600	ND		DNQ

**R4 location no longer exists due to recent heavy rains. River splits above outfall and now does not

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
Est. Conc. = Estimated Concentration

R3 Antimony	DNQ= 0.11 Est Conc
R5 Antimony	DNQ= 0.12 Est Conc
R3 Arsenic	DNQ=0.34 Est Conc
R5 Arsenic	DNQ= 0.38 Est Conc
R3 Cadmium	DNQ= 0.04 Est Conc
R5 Cadmium	DNQ=0.05 Est Conc
R3 Chromium	DNQ= 0.20 Est Conc
R5 Chromium	DNQ= 0.36 Est Conc
R5 Lead	DNQ= 0.11 Est Conc
R5 Cyanide	DNQ= 1.0 Est Conc

OJAI VALLEY SANITARY DISTRICT
2010 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
CHLORINATED PESTICIDES / PCBs

Laboratory:			Caltest Analytical				
Date Sampled: February 3, 2010							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				29.0	**	31.0
Aldrin	ug/L	608	0.005	0.004	ND		ND
Alpha-BHC	ug/L	608	0.01	0.005	ND		ND
Beta-BHC	ug/L	608	0.005	0.003	ND		ND
Delta-BHC	ug/L	608	0.005	0.004	ND		ND
Gamma-BHC (Lindane)	ug/L	608	0.010	0.004	ND		ND
Alpha-chlordane	ug/L	608	0.010	0.004	ND		ND
Chlordane	ug/L	608	0.050	0.04	ND		ND
Gamma-chlordane	ug/L	608	0.010	0.004	ND		ND
2,4'-DDD	ug/L	608	0.010	0.004	ND		ND
2,4'-DDE	ug/L	608	0.010	0.004	ND		ND
2,4'-DDT	ug/L	608	0.010	0.004	ND		ND
4,4'-DDD	ug/L	608	0.010	0.004	ND		ND
4,4'-DDE	ug/L	608	0.010	0.004	ND		ND
4,4'-DDT	ug/L	608	0.010	0.004	ND		ND
Dieldrin	ug/L	608	0.010	0.004	ND		ND
Endosulfan I	ug/L	608	0.010	0.005	ND		ND
Endosulfan II	ug/L	608	0.010	0.005	ND		ND
Endosulfan Sulfate	ug/L	608	0.010	0.005	ND		ND
Endrin	ug/L	608	0.010	0.003	ND		ND
Endrin Aldehyde	ug/L	608	0.010	0.005	ND		ND
Endrin Ketone	ug/L	608	0.010	0.004	ND		ND
Heptachlor	ug/L	608	0.010	0.004	ND		ND
Heptachlor Epoxide	ug/L	608	0.010	0.004	ND		ND
Methoxychlor	ug/L	608	0.010	0.005	ND		ND
PCB 1016	ug/L	608	0.10	0.05	ND		ND
PCB 1221	ug/L	608	0.10	0.05	ND		ND
PCB 1232	ug/L	608	0.10	0.05	ND		ND
PCB 1242	ug/L	608	0.10	0.04	ND		ND
PCB 1248	ug/L	608	0.10	0.05	ND		ND
PCB 1254	ug/L	608	0.10	0.05	ND		ND
PCB 1260	ug/L	608	0.10	0.05	ND		ND
Toxaphene	ug/L	608	0.5	0.2	ND		ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
**R4 location no longer exists due to recent heavy rains. River splits above outfall and now does not

OJAI VALLEY SANITARY DISTRICT
2010 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
VOLATILE ORGANICS

Laboratory:			Caltest Analytical				
Date Sampled: February 3, 2010							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				29.0	**	31.0
Acrolein	ug/L	624	5	1.70	ND		ND
Acrylonitrile	ug/L	624	2.0	0.69	ND		ND
Benzene	ug/L	624	0.5	0.18	ND		ND
Bromodichloromethane	ug/L	624	0.5	0.16	ND		ND
Bromoform	ug/L	624	0.5	0.15	ND		ND
Bromomethane	ug/L	624	0.5	0.17	ND		ND
Carbon Tetrachloride	ug/L	624	0.5	0.16	ND		ND
Chlorobenzene	ug/L	624	0.5	0.18	ND		ND
Chloroethane	ug/L	624	0.5	0.38	ND		ND
2-Chloroethylvinyl ether	ug/L	624	1	0.28	ND		ND
Chloroform	ug/L	624	0.5	0.19	ND		ND
Chloromethane	ug/L	624	0.5	0.23	ND		ND
Dibromochloromethane	ug/L	624	0.5	0.17	ND		ND
1,2 Dichlorobenzene	ug/L	624	0.5	0.27	ND		ND
1,3 Dichlorobenzene	ug/L	624	0.5	0.18	ND		ND
1,4 Dichlorobenzene	ug/L	624	0.5	0.18	ND		ND
Dichlorodifluromethane	ug/L	624	0.5	0.20	ND		ND
1,1-Dichloroethane	ug/L	624	0.5	0.19	ND		ND
1,2-Dichloroethane	ug/L	624	0.5	0.18	ND		ND
1,1-Dichloroethene	ug/L	624	0.5	0.21	ND		ND
cis-1,2-Dichloroethene	ug/L	624	0.5	0.20	ND		ND
trans-1,2-Dichloroethene	ug/L	624	0.5	0.22	ND		ND
1,2-Dichloropropane	ug/L	624	0.5	0.18	ND		ND
cis-1,3-Dichloropropene	ug/L	624	0.5	0.16	ND		ND
trans-1,3-Dichloropropene	ug/L	624	0.5	0.16	ND		ND
Dichlorotrifluroethane	ug/L	624	0.5	0.14	ND		ND
Ethylbenzene	ug/L	624	0.5	0.26	ND		ND
MTBE	ug/L	624	0.5	0.15	ND		ND
Methylene chloride	ug/L	624	0.5	0.20	ND		ND
1,1,2,2-Tetrachloroethane	ug/L	624	0.5	0.10	ND		ND
Tetrachloroethene	ug/L	624	0.5	0.19	ND		ND
Toluene	ug/L	624	0.5	0.19	ND		ND
1,1,2-Trichloroethane	ug/L	624	0.5	0.60	ND		ND
1,1,1-Trichloroethane	ug/L	624	0.5	0.19	ND		ND
Trichloroethene	ug/L	624	0.5	0.20	ND		ND
Trichlorofluromethane	ug/L	624	0.5	0.29	ND		ND
1,2,3-Trichoropropane	ug/L	624	0.5	0.19	ND		ND
Trichlorotrifluroethane	ug/L	624	1	0.11	ND		ND
Vinyl Chloride	ug/L	624	0.5	0.25	ND		ND
Xylenes (Total)	ug/L	624	0.5	0.26	ND		ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
DNQ = Detected, but Not Quantified
**R4 location no longer exists due to recent heavy rains. River splits above outfall and now does not combine until just above station R-5

OJAI VALLEY SANITARY DISTRICT
2010 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
GRAB SEMI-VOLATILE ORGANICS

Laboratory:			Caltest Analytical				
Endrin							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				29.0	**	31.0
Acenaphthene	ug/L	625	0.30	0.030	ND		ND
Acenaphthylene	ug/L	625	0.20	0.030	ND		ND
Anthracene	ug/L	625	0.30	0.030	ND		ND
Benzidine	ug/L	625	5	5.00	ND		ND
Benzo(a)anthracene	ug/L	625	0.30	0.030	ND		ND
Benzo(a)pyrene	ug/L	625	0.30	0.030	ND		ND
Benzo(b)fluoranthene	ug/L	625	0.30	0.030	ND		ND
Benzo(ghi)perylene	ug/L	625	0.10	0.030	ND		ND
Benzo(k)fluoranthen	ug/L	625	0.30	0.030	ND		ND
Benzylbutylphthalate	ug/L	625	5	0.98	ND		ND
4-Bromophenylphenylether	ug/L	625	5	0.97	ND		ND
Bis(2-chloroethoxy)methane	ug/L	625	5	0.93	ND		ND
Bis(2-chloroethyl)ether	ug/L	625	1	0.95	ND		ND
Bis(2-chloroisopropyl)ether	ug/L	625	2	0.81	ND		ND
4-Chloro-3-methylphenol	ug/L	625	1	0.91	ND		ND
2-Chloronaphthalene	ug/L	625	5	0.98	ND		ND
2-Chlorophenol	ug/L	625	2	0.98	ND		ND
4-Chlorophenylphenylether	ug/L	625	5	0.99	ND		ND
Chrysene	ug/L	625	0.30	0.030	ND		ND
Dibenzo(a,h)anthracene	ug/L	625	0.10	0.030	ND		ND
1,2-Dichlorobenzene	ug/L	625	2	0.95	ND		ND
1,3-Dichlorobenzene	ug/L	625	1	0.87	ND		ND
1,4-Dichlorobenzene	ug/L	625	1	0.93	ND		ND
3,3-Dichlorobenzidine	ug/L	625	5	5.00	ND		ND
2,4-Dichlorophenol	ug/L	625	1	0.99	ND		ND
Diethylphthalate	ug/L	625	2	0.86	ND		ND
2,4-Dimethylphenol	ug/L	625	2	0.87	ND		ND
Dimethylphthalate	ug/L	625	2	0.97	ND		ND
Di-n-butylphthalate	ug/L	625	5	0.91	ND		ND
2,4-Dinitrophenol	ug/L	625	5	0.83	ND		ND
2,4-Dinitrotoluene	ug/L	625	5	0.96	ND		ND
2,6-Dinitrotoluene	ug/L	625	5	0.98	ND		ND
Di-n-octylphthalate	ug/L	625	5	0.92	ND		ND
1,4 Dioxane	ug/L	625	10	0.86	ND		ND
1,2-Diphenylhydrazine	ug/L	625	1	0.90	ND		ND
Bis(2-ethylhexyl)phthalate	ug/L	625	3	0.95	ND		ND
Fluoranthene	ug/L	625	0.05	0.030	ND		ND
Fluorene	ug/L	625	0.10	0.030	ND		ND
Hexachlorobenzene	ug/L	625	1	0.91	ND		ND
Hexachlorobutadiene	ug/L	625	1	0.92	ND		ND
Hexachlorocyclopentadiene	ug/L	625	1	0.90	ND		ND
Hexachloroethane	ug/L	625	1	0.94	ND		ND
Ideno(1,2,3-cd)pyrene	ug/L	625	0.05	0.030	ND		ND
Isophorone	ug/L	625	1	0.93	ND		ND
2-Methyl-4,6-dinitrophenol	ug/L	625	5	0.91	ND		ND
Napthalene	ug/L	625	0.20	0.030	ND		ND
Nitrobenzene	ug/L	625	1	0.95	ND		ND
2-Nitrophenol	ug/L	625	5	0.89	ND		ND
4-Nitrophenol	ug/L	625	5	0.83	ND		ND
N-Nitrosodimethylamine	ug/L	625	5	0.88	ND		ND
N-Nitrosodi-N-propylamine	ug/L	625	5	0.97	ND		ND
N-Nitrosodiphenylamine	ug/L	625	1	0.83	ND		ND
Pentachlorophenol	ug/L	625	1	0.81	ND		ND
Phenanthrene	ug/L	625	0.05	0.030	ND		ND
Phenol	ug/L	625	1	0.69	ND		ND
Pyrene	ug/L	625	0.05	0.030	ND		ND
1,2,4-Trichlorobenzene	ug/L	625	5	0.98	ND		ND
2,4,6-Trichlorophenol	ug/L	625	5	0.97	ND		ND

RL = Reporting Limit
ND = Not Detected
MDL = Method Detection Limit
**R4 location no longer exists due to recent heavy rains. River splits above outfall and now does not combine until just above station R-5

OJAI VALLEY SANITARY DISTRICT
WASTEWATER TREATMENT PLANT
2010 SEMI-ANNUAL RIVER PRIORITY POLLUTANTS RESULTS
Dioxin Congeners

Laboratory:			Caltest Analytical				
Date Sampled: February 3, 2010							
Constituent	Units	Method	RL	MDL	R3	R4	R5
Flow (Estimated)	MGD				29.0	**	31.0
2,3,7,8-TCDD	pg/L	1613	1.02	0.355	ND		ND
1,2,3,7,8-PeCDD	pg/L	1613	1.6	0.986	ND		ND
1,2,3,4,7,8-HxCDD	pg/L	1613	2.95	1.14	ND		ND
1,2,3,6,7,8-HxCDD	pg/L	1613	2.98	0.946	ND		ND
1,2,3,7,8,9-HxCDD	pg/L	1613	3.03	1.1	ND		ND
1,2,3,4,6,7,8-HpCDD	pg/L	1613	1.99	1.24	ND		ND
OCDD	pg/L	1613	3.61	3.2	4.32		ND
2,3,7,8-TCDF	pg/L	1613	1.02	0.401	ND		ND
1,2,3,7,8-PeCDF	pg/L	1613	1.87	0.671	ND		ND
2,3,4,7,8-PeCDF	pg/L	1613	1.99	0.656	ND		ND
1,2,3,4,7,8-HxCDF	pg/L	1613	0.959	0.618	ND		ND
1,2,3,6,7,8-HxCDF	pg/L	1613	1.05	0.597	ND		ND
2,3,4,6,7,8-HxCDF	pg/L	1613	1.18	0.644	ND		ND
1,2,3,7,8,9-HxCDF	pg/L	1613	1.5	1.47	ND		ND
1,2,3,4,6,7,8-HpCDF	pg/L	1613	1.14	1.34	ND		ND
1,2,3,4,7,8,9-HpCDF	pg/L	1613	1.07	1.5	ND		ND
OCDF	pg/L	1613	1.78	2.48	ND		ND
Toxic Equivilent Quotient		1613			0.000432		0

DL = Sample Specific Detection Limit
ND = Not Detected
MDL = Method Detection Limit
**R4 location no longer exists due to recent heavy rains. River splits above outfall and now does not combine until just above station R-5

Table O-4
Southern California Costal Water Research Project
2009 Bioassessment

Summary table

Station Code	Station	Target Latitude	Target Longitude	Sample Date	SC-IBI Score (Adjusted)	Impaired	Condition
SMC00271	SMC00271	34.55	-119.17	04/Jun/2009	57.8	No	Fair
SMC00827	SMC00827	34.56	-119.19	15/Jun/2009	57.8	No	Fair
SMC00911	SMC00911	34.51	-119.30	04/Jun/2009	52.1	No	Fair
SMC01151	SMC01151	34.37	-118.97	17/Jun/2009	20.7	Yes	Poor
SMC01684	SMC01684	34.28	-118.92	03/Jun/2009	16.4	Yes	Very poor
SMC01748	SMC01748	34.29	-118.83	03/Jun/2009	22.1	Yes	Poor
SMC01860	SMC01860	34.22	-118.98	28/May/2009	20.7	Yes	Poor
SMC02127	SMC02127	34.42	-119.26	04/Jun/2009	30.7	Yes	Poor
SMC02436	SMC02436	34.26	-118.97	28/May/2009	17.8	Yes	Very poor
SMC03268	SMC03268	34.16	-119.06	28/May/2009	27.8	Yes	Poor
SMC04047	SMC04047	34.46	-119.29	14/May/2009	17.8	Yes	Very poor
SMC04175	SMC04175	34.41	-119.28	11/Jun/2009	43.6	No	Fair
SMC04239	SMC04239	34.36	-119.31	11/Jun/2009	35	Yes	Poor
SMC04308	SMC04308	34.19	-118.91	17/Jun/2009	20.7	Yes	Poor
SMC04399	SMC04399	34.31	-119.30	11/Jun/2009	33.5	Yes	Poor

Very good	0
Good	0
Fair	4
Poor	8
Very poor	3

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Table O-5
Los Angeles Regional Water Quality Control Board
Surface Water Ambient Monitoring Program

Program	ParentProject	StationName	StationCode	SampleDate	LocationCode	MatrixName	MethodName	Analyte	Unit	Result	MDL
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Aldrin, Total	ng/g dw		0.387
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Aluminum, Total	mg/Kg dw	99141	220
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Aluminum, Total	mg/Kg dw	102337	220
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Arsenic, Total	mg/Kg dw	5.8	0.1
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Arsenic, Total	mg/Kg dw	5.89	0.1
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Bifenthrin, Total	ng/g dw	2.55	0.5
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Cadmium, Total	mg/Kg dw	0.63	0.03
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Cadmium, Total	mg/Kg dw	0.52	0.03
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Chlordane, cis-, Total	ng/g dw		0.374
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Chlordane, trans-, Total	ng/g dw		0.421
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Chlorpyrifos methyl, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Chlorpyrifos, Total	ng/g dw		5
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Chromium, Total	mg/Kg dw	57.6	0.29
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Chromium, Total	mg/Kg dw	45.6	0.29
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Clay <0.0039 mm, Coarse 0.00195 to <0.0039 mm	%	1.95	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Clay <0.0039 mm, Fine <0.00098 mm	%	4.21	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Clay <0.0039 mm, Medium 0.00098 to <0.00195 mm	%	1.25	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Copper, Total	mg/Kg dw	14.2	0.54
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Copper, Total	mg/Kg dw	13.8	0.54
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Cyfluthrin, total, Total	ng/g dw		2
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Cyhalothrin, lambda, total, Total	ng/g dw		1
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Cypermethrin, total, Total	ng/g dw		2
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Dacthal, Total	ng/g dw		0.09
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	DDD(o,p'), Total	ng/g dw		0.09
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	DDD(p,p'), Total	ng/g dw	0.208	0.116
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	DDE(o,p'), Total	ng/g dw		0.166
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	DDE(p,p'), Total	ng/g dw	1.23	0.449
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	DDMU(p,p'), Total	ng/g dw		0.101
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	DDT(o,p'), Total	ng/g dw	0.272	0.202
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	DDT(p,p'), Total	ng/g dw	0.794	0.146
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Deltamethrin, Total	ng/g dw		2
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Diazinon, Total	ng/g dw		5
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Dichlofenthion, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Dieldrin, Total	ng/g dw		0.404
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Dioxathion , Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Endosulfan I, Total	ng/g dw		0.524
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Endrin, Total	ng/g dw		0.168
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Esfenvalerate/Fenvalerate, total, Total	ng/g dw		1
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Ethion, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Ethoprop, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Fenchlorphos, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Fenitrothion, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Fenpropathrin, Total	ng/g dw		2
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Fonofos, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Granule 2.0 to <4.0 mm	%	0.03	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	HCH, alpha , Total	ng/g dw		0.245
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	HCH, beta, Total	ng/g dw		0.196
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	HCH, gamma, Total	ng/g dw		0.135
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Heptachlor epoxide, Total	ng/g dw		0.23
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Heptachlor, Total	ng/g dw		0.333
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Hexachlorobenzene, Total	ng/g dw		0.324
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Lead, Total	mg/Kg dw	14.4	0.21
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Lead, Total	mg/Kg dw	13.9	0.21
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Malathion, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Manganese, Total	mg/Kg dw	482	1.08
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Manganese, Total	mg/Kg dw	520	1.08

Table O-5
Los Angeles Regional Water Quality Control Board
Surface Water Ambient Monitoring Program

Program	ParentProject	StationName	StationCode	SampleDate	LocationCode	MatrixName	MethodName	Analyte	Unit	Result	MDL
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	DFG SOP 103	Mercury, Total	mg/Kg dw	0.021	0.004
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	DFG SOP 103	Mercury, Total	mg/Kg dw	0.016	0.004
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Merphos, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Methoxychlor, Total	ng/g dw	0.199	0.137
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Mirex, Total	ng/g dw		0.281
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	SM 2540 G	Moisture, Total	%	22.2	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	Moisture, Total	%	2.4	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Moisture, Total	%	3.11	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	DFG SOP 103	Moisture, Total	%	30.46	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Moisture, Total	%	3.11	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Moisture, Total	%	33.9	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	DFG SOP 103	Moisture, Total	%	33.85	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Moisture, Total	%	22.8	-88
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Nickel, Total	mg/Kg dw	27.1	0.12
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Nickel, Total	mg/Kg dw	28.5	0.12
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Nonachlor, cis-, Total	ng/g dw		0.288
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Nonachlor, trans-, Total	ng/g dw	0.244	0.181
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Oxadiazon, Total	ng/g dw	1.36	0.509
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Oxychlordane, Total	ng/g dw		0.443
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Parathion, Ethyl, Total	ng/g dw		10
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Parathion, Methyl, Total	ng/g dw		10
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 008, Total	ng/g dw		0.106
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 018, Total	ng/g dw		0.087
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 027, Total	ng/g dw		0.059
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 028, Total	ng/g dw		0.138
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 029, Total	ng/g dw		0.059
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 031, Total	ng/g dw		0.111
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 033, Total	ng/g dw		0.111
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 044, Total	ng/g dw		0.115
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 049, Total	ng/g dw		0.065
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 052, Total	ng/g dw		0.153
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 056, Total	ng/g dw	0.054	0.05
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 060, Total	ng/g dw		0.054
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 064, Total	ng/g dw		0.044
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 066, Total	ng/g dw		0.091
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 070, Total	ng/g dw	0.17	0.121
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 074, Total	ng/g dw		0.066
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 077, Total	ng/g dw		0.053
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 087, Total	ng/g dw	0.129	0.071
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 095, Total	ng/g dw	0.273	0.103
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 097, Total	ng/g dw	0.098	0.058
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 099, Total	ng/g dw	0.108	0.079
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 101, Total	ng/g dw	0.288	0.116
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 105, Total	ng/g dw	0.147	0.125
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 110, Total	ng/g dw	0.465	0.159
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 114, Total	ng/g dw		0.049
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 118, Total	ng/g dw	0.327	0.198
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 126, Total	ng/g dw		0.056
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 128, Total	ng/g dw	0.095	0.062
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 137, Total	ng/g dw		0.039
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 138, Total	ng/g dw	0.301	0.172
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 141, Total	ng/g dw	0.068	0.053
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 146, Total	ng/g dw		0.042

Table O-5
Los Angeles Regional Water Quality Control Board
Surface Water Ambient Monitoring Program

Program	ParentProject	StationName	StationCode	SampleDate	LocationCode	MatrixName	MethodName	Analyte	Unit	Result	MDL
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 149, Total	ng/g dw	0.222	0.075
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 151, Total	ng/g dw	0.055	0.031
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 153, Total	ng/g dw	0.222	0.165
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 156, Total	ng/g dw		0.054
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 157, Total	ng/g dw		0.042
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 158, Total	ng/g dw	0.052	0.038
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 169, Total	ng/g dw		0.04
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 170, Total	ng/g dw		0.08
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 174, Total	ng/g dw		0.055
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 177, Total	ng/g dw		0.035
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 180, Total	ng/g dw	0.066	0.05
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 183, Total	ng/g dw		0.04
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 187, Total	ng/g dw		0.065
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 189, Total	ng/g dw		0.04
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 194, Total	ng/g dw		0.05
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 195, Total	ng/g dw		0.054
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 198/199, Total	ng/g dw		0.032
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 200, Total	ng/g dw		0.039
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 201, Total	ng/g dw		0.06
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 203, Total	ng/g dw		0.032
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 206, Total	ng/g dw		0.056
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8082M	PCB 209, Total	ng/g dw		0.025
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Newman, et al., 1988	PCB AROCLOR 1248, Total	ng/g dw		4.68
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Newman, et al., 1988	PCB AROCLOR 1254, Total	ng/g dw	5	1.87
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Newman, et al., 1988	PCB AROCLOR 1260, Total	ng/g dw		1.87
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Pebble 4 to <64 mm, Small 4 to <8 mm	%	0	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Permethrin, cis-, Total	ng/g dw		4
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Permethrin, trans-, Total	ng/g dw		4
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Phosphamidon, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	SM 4500-P E	Phosphorus as P, Total	mg/Kg dw	710	3.2
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Sand 0.0625 to <2.0 mm, Coarse 0.5 to <1.0 mm	%	0.23	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Sand 0.0625 to <2.0 mm, Fine 0.125 to <0.25 mm	%	16.87	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Sand 0.0625 to <2.0 mm, Medium 0.25 to <0.5 mm	%	2.33	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Sand 0.0625 to <2.0 mm, V. Coarse 1.0 to <2.0 mm	%	0.07	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Sand 0.0625 to <2.0 mm, V. Fine 0.0625 to <0.125 mm	%	33.57	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Selenium, Total	mg/Kg dw	1.16	0.27
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Selenium, Total	mg/Kg dw	0.96	0.27
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Silt 0.0039 to <0.0625 mm, Coarse 0.031 to <0.0625 mm	%	24.51	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Silt 0.0039 to <0.0625 mm, Fine 0.0078 to <0.0156 mm	%	3.54	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Silt 0.0039 to <0.0625 mm, Medium 0.0156 to <0.031 mm	%	9.24	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	Plumb, 1981, GS	Silt 0.0039 to <0.0625 mm, V. Fine 0.0039 to <0.0078 mm	%	2.2	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Silver, Total	mg/Kg dw	0.25	0.08
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Silver, Total	mg/Kg dw	0.32	0.08
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Sulfotep, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8081BM	Tedion, Total	ng/g dw		0.997
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Thionazin, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Tokuthion, Total	ng/g dw		25
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 9060A	Total Organic Carbon	% dw	0.4	0.01
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 8141AM	Trichloronate, Total	ng/g dw		10
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment, <63 um	EPA 200.8	Zinc, Total	mg/Kg dw	44.6	3.2
Surface Water Ambient Monitoring Program	SWAMP Stream Pollution Trends	Ventura River Bio 0	402VRB0xx	5/19/2008	Reach	sediment	EPA 200.8	Zinc, Total	mg/Kg dw	42	3.2

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Table O-6

United States Environmental Protection Agency

Long Term 2 Enhanced Surface Water Treatment Rule (LT2)

June 23, 2006

State Department of Health Services
Drinking Water Field Operations Branch
1180 Eugenia Place, Suite 200
Carpinteria, CA 93013

Re: City of San Buenaventura (System No. 56100170)
Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)
Source Water Monitoring Plan

Compliance Schedule

The City of Ventura is a public water system; classified as a large combined water system with a population of about 110,000. It is required to meet LT2ESWTR Schedule 1 compliance dates as follows:

- The Source Water Monitoring Plan is due by July 1, 2006
- Source water monitoring begins October 1, 2006 and ends September 30, 2008
- The Bin Classification report is due April 1, 2009

Combined Distribution Systems

A letter was sent to CMWD on March 6, 2006, to inform them of the City's population and its compliance schedule since the City is the largest system connected to the combined distribution systems of CMWD and its retailers.

Casitas Municipal Water District (CMWD) treats surface water from Lake Casitas and provides water to retailers. The City is not connected to any of the retailers that receive water from CMWD. The City has two connections with the CMWD including:

- Avenue Plant (CM1): Kingston Reservoir and the 210 Zone
- Hall Canyon Reservoir (CM2)

Source Water Production Facilities

The City has Ventura River has four (4) raw water production facilities near Foster Park located along Highway 33 north of the City. The facilities are operated throughout the year and are considered the primary source of drinking water for the City. The facilities are only offline when maintenance is needed. The City treats the raw water at the Avenue Water Treatment Plant a conventional surface water treatment plant. Water

(Subpart H GWUDI) is extracted from three shallow wells (about 40 to 60 feet deep) and from one subsurface collector (about 15 feet deep). The facilities are perforated in shallow river alluvium of sand and cobblestone. The City's surface water diversion structure has been out of service for about 10 years and not expected to be restored to service.

The four points of extraction of raw water combine in the plant influent box just prior to the Flume. The 24-inch pipe in Foster Park conveys combined well raw water by gravity to influent box. A 36-inch raw waterline from the subsurface collector also flows by gravity to the plant influent box.

Source Water Sample Location

The sample location will be at Flume (City Sample Location No. 27) at the northeast corner of the Avenue Treatment Plant. The Flume is upstream of free chlorine pretreatment, and the uncovered Kingston raw water reservoir. Plant recycle filter backwash water is mixed with the Kingston influent. The City does not plan to make any significant changes to its disinfection practice or pretreatment.

Sample Schedule, Frequency, & Monitoring

Monthly sampling will be conducted for 24 months on Wednesday of the first, full 5-day workweek of each month. If a sample cannot be taken due to circumstances out of the control of the sampler or the plant is out of service for maintenance the City will collect a sample within 21 days of notice of the problem. The City will notify the State with a written explanation if the sample date is changed. If the plant is not operating during the designated sample week, a sample will be taken the week before the plant shutdown. The City expects to begin sampling July 2006 and end June 2008.

Specific sample dates for 24 months include:
<u>2006</u>
Jul 5, Aug 9, Sep 6, Oct 4, Nov 8, Dec 6

<u>2007</u>
Jan 10, Feb 7, Mar 7, Apr. 4, May 9, June 6, Jul 11, Aug 8, Sep 5, Oct 3, Nov 7, Dec 5.

<u>2008</u>
Jan 9, Feb 6, Mar 5, Apr. 9, May 7, June 4

Sample monitoring will include:
- Cryptosporidium
- Giardia
- E. coli

- Turbidity

Approved Laboratory & Analytical Methods

The City will use the EPA approved Biovir Laboratory to analyze the Cryptosporidium samples with EPA Method 1623 by Filtration/IMS/FA. A 10 liter, filtered sample will be shipped to Biovir in accordance with proper temperature and holding times. Biovir will also analyze for E. Coli (100 ml enumeration method meeting section 141.74), and Giardia.

The City's State approved laboratory (ELC No. 1193) will analyze for turbidity, since Biovir is not certified by the State.

The City does not believe arrangements for an approved backup lab will be needed. Biovir Laboratories, Inc. is located at 685 Stone Road, Unit 6 in Benicia, CA 94510 707.747.5906; Dr. Richard Danielson; red@biovir.com. However, the City of San Diego Water Operations Division, and the Modesto Irrigation District are also approved labs and accept outside samples under the LT2 rule.

Reporting Source Water Monitoring Results

LT2 results will be reported electronically (http://cdx.epa.gov) no later than 10 days after the end of the first month following the month when the sample is collected (by the 10th of the second month after sampling). https://intranet.epa.gov/lt2 appears in the Federal Register as the location for electronic reporting.

Mike Oakley, Treatment Supervisor is designated the Administrative User and primary contact for the City, and Biovir will be designated the Contract Lab. The City is responsible for ensuring the lab information reported to the IPMC (Information Processing and Management Center) is correct. The City will review and verify the labs on-line entries.

The following data elements will be reported electronically for each cryptosporidium analysis:

- PWS ID
- Facility ID
- Sample collection date
- Sample type (field)
- Sample volume filtered (L), to nearest ¼ L
- Was 100% of the filtered volume examined?
- Number of oocysts counted.

The following data elements will be reported electronically (IPMC) for each E. Coli analysis:

- PWS ID
- Facility ID
- Sample collection date
- Analytical method number
- Method type
- Source type (flowing stream, lake/reservoir, GWUDI)
- E. coli /100ml
- Turbidity

Recordkeeping of Source Water Monitoring Results

The City will keep the results of the first and second round of source water monitoring for three (3) years after bin classification.

Grandfathering Previously Collected Data

The City does not intend to submit any data previously collected. The City does have some quarterly source water monitoring data for the Ventura River watershed.

Sanitary Survey

The City is required by the rule to respond to significant source water deficiencies identified in the Sanitary Survey. The Sanitary Survey was updated March 2006. Some cattle are in the watershed and were identified as a potential source of contamination. Results of past sampling for Cryptosporidium and Giardia do not indicate any significant presence in the watershed. Some E. coli and streptococcus bacteria were detected.

The City intends to continue sampling after the required 24 month source water monitoring for Cryptosporidium, Giardia, E. coli, and turbidity as part of an ongoing watershed sampling program recommended and implemented as part of the 2001 and 2006 Sanitary Surveys. The next Sanitary survey update will be in 2011 and will include about five years of data. The recycle backwash water return will be evaluated if elevated levels of these contaminants are detected in the source water samples. The City will report any significant deficiencies to the State as soon as possible when detected.

Bin Classification

Following the initial round of 24 months of monthly sampling of source water monitoring the City will calculate the initial Crytosporidium bin concentration for the Avenue Plant. The City will have at least 24 samples and not more than 47 samples. The bin

concentration is equal to the highest arithmetic mean of all the sample concentrations in any 12 consecutive months during which Crytosporidium samples were collected.

The City will report the initial bin classification to the State for approval no later than 6 months after the City is required to complete initial source water monitoring. The City will then apply the bin classification to the Microbial Tool Box and determine the level of treatment required.

Appendix P

Consumer Confidence Reports

2006 – 2010

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Ventura's Water Quality Summary 2006

Utilizing data collected in 2005.

Only water quality constituents detected by laboratory testing appear in the chart.

PRIMARY STANDARDS (PDWS)	Units	Maximum Level MCL	State Goal PHG	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range	Major Sources of Contamination in Drinking Water
Water Clarity										
Treated Turbidity	NTU	TT	NA	0.11 (a)	0.09 - 0.17(a)	NA	NA	0.09 (b)	0.01-0.09 (b)	1
Radioactive Contaminants (e)										
Gross Alpha particle activity	pCi/l	15	NA	4.65	1.7 - 10.0	7.5	1.9 - 17.5	1.1	0.3 - 2.1	2
Radium 226	pCi/l	5	NA	0.10	ND - 0.23	0.50	0.12 - 0.89	NA	NA	2
Uranium (c)	pCi/l	20	0.5	3.13	2.1 - 4.0	4.8	3.8 - 6.8	NA	NA	2
Inorganic Contaminants										
Arsenic	ppb	50	0	ND	ND	ND	ND	ND	ND	3
Fluoride	ppm	2	1	0.39	0.32 - 0.45	0.51	0.40 - 0.61	0.4	0.4	4
Selenium	ppb	50	NA	ND	ND	12	ND - 40	ND	ND	5
Nitrate (as Nitrogen)	ppm	10	10	0.2	ND - .07	0.7	ND - 2.0	0.1	0.1	6

Lead and Copper Samples	Units	RAL	PHG	Samples Collected	Above RAL	90th Percentile	Major Sources of Contamination in Drinking Water
Lead	ppb	15	2	55 (d)	1	9	7
Copper	ppm	1.3	0.17	55 (d)	1	1.09	7

[1]Process and source variations [2]Erosion of natural deposits [3]Erosion of natural deposits; runoff from orchards; glass and electronics production waste [4]Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories [5] Discharge from refineries or manufacturers; erosion of natural deposits. [6] Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits. [7] Internal corrosion of household plumbing systems.

PRIMARY STANDARDS for Distribution System	Units	MCL MRDL	PHG (MCLG) MRDLG	Distribution System Average	Distribution System Range	Major Sources of Contamination in Drinking Water
Disinfection						
Chloramine Residual	ppm	4	4	2.8	0.5 - 4.8	Drinking water disinfectant added for treatment.
Disinfection By Products						
Total Trihalomethanes	ppb	80	NA	42 (c)	1-99	By-product of drinking water chlorination.
Total Haloacetic Acids	ppb	60	NA	48 (c)	ND - 136	By-product of drinking water chlorination.
Microbiological Contaminant Samples						
Total Coliform Bacteria	NA	5%	0	0	0-1	Naturally present in the environment.
Fecal Coliform Bacteria	NA	0	0	0	0	Human and animal fecal waste.

SECONDARY STANDARDS		Units	Maximum Level MCL	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range
Aesthetic Standards	Color	Color	15	ND	ND	2.2	ND - 21	ND	ND
	Odor	Threshold	3	ND	ND	ND	ND-2	1	1 - 2
	Chloride	ppm	500	26	20 - 41	67	48 - 105	14	14
	Corrosivity	ppb	Non corrosive	-0.13	-0.42 - 0.26	0.56	0.2 - 1.22	0.1	0.1
	Iron (TT)	ppb	300	ND	ND - 0.11	ND	ND - 200	NS	NS
	Total dissolved solids	ppm	1000	440	322 - 600	1268	852 - 1644	340	340
	Specific conductance	umhos	1600	621	518 - 769	1704	1417 - 2210	502	502
	Sulfate	ppm	500	140	117 - 168	559	379 - 896	116	116
Additional Constituents	pH	pH units	6.5 - 8.5	7.5	7.3 - 7.7	7.5	7.2 - 8.2	7.9	7.9
	Hardness	ppm	NS	263	218 - 337	621	489 - 867	205	205
	Calcium	ppm	NS	69	55 - 90	168	131 - 223	49	49
	Magnesium	ppm	NS	22	20 - 27	49	38 - 76	19	19
	Manganese (TT)	ppb	50	ND	ND	ND	ND - 30	NS	NS
	Sodium	ppm	NS	28	22 - 36	130	90 - 204	23	23
	Phosphate	ppm	NS	0.41	0.19 - 1.28	0.11	ND - 0.26	NS	NS
	Potassium	ppm	NS	2.4	2.0 - 2.7	4.8	3.6 - 7.0	2	2
	Total Alkalinity	ppm	NS	128	111 - 179	249	205 -278	120	120

Footnotes (a) Average is maximum reading, Avenue Plant Surface Filtration (TT) = 0.3 NTU in 95% of samples not to exceed 1.0 NTU for more than one hour. (b) Average is maximum reading, CMWD Direct Filtration (TT) = 95% of samples equal or below 0.2 NTU (c) Highest running average cannot exceed the MCL (d) Samples were taken at selected households on a first draw in August 2005. (e) Monitoring completed in 2003 and 2004.

Legend

ppm: Parts per million or milligrams per liter.
pCi/l: Picocuries per liter; a measure of radioactivity in water.
CMWD: Casitas Municipal Water District
TT: A required process intended to reduce the level of contaminant in drinking water
ppb: Parts per billion or micrograms per liter.
NA: Not applicable
ND: Not detectable
NS: No standard
NTU: Turbidity, a measure of the clarity or cloudiness of the water.

Water Quality Terminology

The Water Quality Summary shows constituents measured in Ventura's water and reported to the State Department of Health Services, and in some cases the USEPA. Some of the terminology used is described below:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary (health related) MCLs are set as close to the Public Health Goals (PHGs) or Maximum Contaminant Level Goals (MCLGs) as is economically and technologically feasible. Secondary (aesthetically related) MCLs are set to protect the odor, taste and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of contaminant in drinking water below which there is no known or expected risk to one's health. MCLGs are set by the USEPA.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to one's health. The California Environmental Protection Agency sets PHGs.

Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below, which there is no known or expected risk to health. MRDLs are set by the USEPA.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Regulatory Action Level (RAL): The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

WATER CONSUMER CONFIDENCE REPORT 2006

The City of Ventura welcomes this opportunity to provide you with water quality information. Ventura's Water Division works to ensure that Ventura's water meets or exceeds state and federal standards. This Water Consumer Confidence Report was prepared in compliance with regulatory requirements. The data presented was gathered predominantly in 2005; however, many constituents are monitored less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some data, though representative, can be more than one year old.

In order to produce, treat and distribute safe water to our customers, the City owns and operates 11 wells, three water treatment plants, 23 booster pump stations, 31 water storage reservoirs and more than 500 miles of distribution pipelines.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien. Para más información, por favor llame 652-4500. Copias del informe de agua en espanol pueden ser obtenidas llamando al 652-4500.

Ventura's water meets or exceeds state and federal primary standards.

WATER CONSERVATION BEGINS WITH **YOU**!

Nicholas Santoyo
5th grade Poinsettia Elementary School
2006 Conserve Our Water
Coloring Contest Winner

The City's Water Conservation Program continues to be effective in controlling water demand. As a result, residents today use the same amount of water as they did in 1973, even though the population has increased by 70%. Below are some helpful water conservation tips:.

- Instead of running the tap to get water cold, keep water in the refrigerator.
- When letting the sink or shower water run to heat up, capture this water for watering plants at your home.
- Twice yearly, check faucets indoors and out. Replace worn-out fixtures, washers and hose connections. Turn faucets off firmly.
- Cover pools and spas to reduce evaporation.
- Match washer's load selector to your load size. Wash full loads.
- Plant water-saving plants, trees and shrubs — particularly native species. Mulch to retain water.

For more information about water conservation or to receive this document in an alternate format please contact Will Santoyo at 805/652-4567.

CITY OF VENTURA
cityofventura.net

Ventura's Water Sources

The City has three local water sources; each accounts for approximately one third of the entire water supply. A portion of Ventura's water is from the Ventura River and is pumped from four shallow wells and a subsurface collector. Water is also purchased from Lake Casitas, which is operated and treated by the Casitas Municipal Water District (CMWD), for distribution through the City system to customers. Additional water is pumped from groundwater wells located in the City's east side.

Water Treatment

All of the City's water receives treatment. Water from the Ventura River is treated by a method referred to as Conventional Surface Water Treatment. This process involves coagulation (chemical addition), flocculation (gentle agitation), sedimentation (settling particles), filtration, and disinfection with chloramines. The groundwater sources are also treated with direct media filtration to remove iron, manganese and turbidity. Additional treatment is provided at each plant to help prevent the corrosion of plumbing in your home. CMWD treats the water from Lake Casitas with direct media filtration and with chloramines for disinfection prior to delivery into the City's system.

The City uses chloramines for disinfection. Chloramines are chemicals that contain chlorine and ammonia. Chloramines were selected as the preferred disinfectant because of their ability to provide disinfection over an extended period of time, and for better taste and fewer odors compared to using chlorine alone. Chloramines have been proven to effectively kill microorganisms while producing lower levels of byproducts such as trihalomethanes (TTHMs) and haloacetic acids (HAAs), which are potentially harmful. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

Although Chloramines are desirable in protecting the water distribution system, their use requires additional precautions for some water uses. If a member of your household requires dialysis, you should contact your physician or dialysis service provider to assure proper protective equipment is used. If you use tap water for fish or other aquatic animals that use gills for breathing, you need to test and be sure the chloramines are completely removed before use. Setting water in an open container for 24 hours prior to use will not remove all chloramines in the water. Your local pet store can provide information and products for the proper removal of chloramines. Some people who use water containing chloramines and chlorine well in excess of the Maximum Residual Disinfectant Level (MRDL), the maximum level allowed in our water systems, could experience irritating effects to their eyes and nose. Some people who drink water containing these chemicals well in excess of the MRDL could experience stomach discomfort and in the case of chloramines, anemia.

Turbidity is a measure of the cloudiness of the water. The City monitors for turbidity because it is a good indicator of water quality and the effectiveness of the filtration processes. High turbidity can hinder the effectiveness of the disinfectants.

Water Quality Monitoring and Reporting

Ventura owns and operates a full-scale, state-certified laboratory to monitor water quality. Outside labs are also used as necessary. State-certified operators run Ventura's treatment plants. The plants have instrumentation that continuously monitors specific water constituents to ensure that the water is of high quality. Water quality constituents that were detected during 2005 are listed on the Water Quality Summary Table (see back page).

The United States Environmental Protection Agency (USEPA) through the Safe Drinking Water Act establishes drinking water standards, monitoring and reporting protocols. The California Department of Health Services (state) enforces the drinking water standards for the USEPA and has the authority to make standards more stringent if applicable to California. The City conducts monitoring beyond the minimum requirements of the federal and state regulations.

The City submits monthly and annual reports to the state for review that summarize treatment performance and drinking water quality. The state inspects the City's water system each year and submits their findings to the City. The state prepared an Engineering Report dated February 2006, and found that the sources, works, and operation are capable of producing a safe, wholesome and reliable quality of water supply. The quality of the water served and the City water system facilities and operation meet the state's standards for drinking water.

Since 2002, the City has monitored water quality along the Ventura River and San Antonio Creek for Cryptosporidium, Giardia, Bacteria, Nutrients, Bromide, Total Organic Carbon, Chloride and Conductivity. This additional testing is part of an expanded sampling program to detect potential contaminants in the watershed allowing the City to better plan future production and treatment improvements.

Water System Studies & Improvements

A Water System Master Plan is prepared every 10 years and is underway. The current plan will be completed by the end of 2006. The plan will include recommendations for capital improvements based on an analysis of water supply, distribution and quality. Current improvement projects underway include replacement of the Avenue Water Treatment Plant filtration process, evaluating Foster Park well field strategies, additional water storage on the eastside of the City, improvement of various water mains throughout the City, addition of new well capacity in the Saticoy area, emergency generators for operation of critical facilities, energy efficient electrical systems for booster stations, and expansion of the Saticoy Water Treatment Plant.

The City, like other water purveyors in the country, completed a federally mandated review of its water system security. This review evaluated the water facilities and prioritized security measures that can help minimize the risk of damage or contamination. The City already has and will continue to take steps to improve the protection of City water facilities.

In April 2006 the City completed the five-year update to the Sanitary Survey of the Lower Ventura River Watershed. The purpose of the study is to identify potential sources of contamination within the watershed, to make recommendations on how to reduce risks to the water supply, and to make adjustments to the ongoing watershed monitoring program.

A separate Drinking Water Source Assessment for the City's water supplies was completed in January 2002. The purpose of the assessment is to identify existing or potential threats to every source of supply including groundwater. No contaminants have been detected in the water supply from such surrounding sources as gas stations, agricultural drainage, dry cleaners, urban run off, sewer systems, metal plating/finishing and repair shops.

As a water supplier, the City must complete an evaluation of its drinking water supply with respect to Public Health Goals (PHG) every three years. The goals are advisory only, requiring public notification, and are not mandatory limits. The City completed the last evaluation in 2004, which determined that six chemicals, although well below the maximum contaminant level limit, exceeded a PHG. These were lead, copper, uranium, gross alpha & beta particles, and radium 226. Copper and lead can be found in water as a result of the corrosion of plumbing fixtures used in most homes. The City has conducted tests to optimize its treatment with corrosion inhibitors in an effort to further reduce lead and copper levels. High levels of lead can result in kidney problems or high blood pressure, and delays in physical and mental development in children. High levels of copper are known to cause gastrointestinal disturbance and kidney damage. The remaining four chemicals are naturally occurring radioactive isotopes that typically occur in drinking water by the erosion of natural deposits and are considered carcinogenic. Noncarcinogenic effects of uranium on the kidneys and the liver have been documented. Radium is known to cause tumors.

Potential Concerns

In order to ensure tap water is safe, the United States Environmental Protection Agency (USEPA) and the California Department of Health Services prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The City of Ventura treats its water to meet these regulations. The regulations of the Food and Drug Administration establish limits for contaminants in bottled water, which must provide the same protection for the public health.

Drinking water, including bottled water, may contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up contaminants resulting from the presence of animals or from human activity.

Contaminants that *may* be present in source water include:

- Microbial contaminants, such as viruses and bacteria from sewage treatment plants, septic systems, agriculture and livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.
- Radioactive contaminants can be naturally occurring or be the result of oil and gas production and mining activities.

Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals, such as people with cancer, those undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people and infants can be particularly at risk from infections and are at greater risk of developing life-threatening illnesses. The City encourages immuno-compromised individuals to consult their doctors regarding appropriate precautions to avoid infection.

The City takes precautions to eliminate the risk of infection from microbial contaminants, including Giardia and Cryptosporidium, from its water system. The new membrane filtration improvements being installed at the Avenue Treatment Plant are effective at removing these contaminants.

These organisms are found in surface water throughout the United States and ingesting them may cause an abdominal infection. Symptoms of infection include nausea, diarrhea and abdominal cramps. The City has been sampling for possible risks present in the Ventura River Watershed since 2000. The City's current treatment processes for surface water include coagulation, filtration and Chloramine disinfection to remove these organisms. The USEPA and the Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial contaminants are available from the Safe Drinking Hotline at 1-800-426-4791.

For More Information

If you would like more information regarding the City's water quality or studies, please contact Ventura's Water Superintendent at 652-4500. This Water Consumer Confidence Report is also available on the City's website at www.cityofventura.net

You are invited to express your opinions at City Council meetings held each Monday at 7 p.m. in the Council Chambers at Ventura City Hall, 501 Poli Street.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien. Para más información, por favor llame 652-4500. Copias del informe de agua en espanol pueden ser obtenidas llamando al 652-4500.

WATER CONSUMER CONFIDENCE REPORT 2006

WATER QUALITY CONFIDENCE REPORT 2007

The City of Ventura welcomes this opportunity to provide you with water quality information. Ventura's Water Division works to ensure that Ventura's water meets or exceeds state and federal standards. This Water Consumer Confidence Report was prepared in compliance with regulatory requirements. The data presented was gathered predominantly in 2006; however, many constituents are monitored less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some data, though representative, may be more than one year old.

In order to produce, treat and distribute safe water to our customers, the City owns and operates 11 wells, three water treatment plants, 23 booster pump stations, 31 water storage reservoirs and more than 500 miles of distribution pipelines.

Este informe contiene información muy importante sobre su agua potable. Para más información o obtener copias del informe de agua en español llame 805.652.4500.

Ventura River at Foster Park

Ventura's water meets or exceeds state and federal primary standards.

YOUR WATER CONSERVATION EFFORTS ARE IMPORTANT!

Water is a precious commodity in Southern California, especially during drought years. The needless waste of water raises everyone's bill. Unused water can be stored and made available for future needs. Here are some important ways for water users to conserve our water supply:

Nestor Rodriguez
Will Rogers Elementary
2007 Conserve Our Water
Coloring Contest Winner

- Request a free Customer Service Guide for conservation tips at 805.667.6500.
- Irrigate your landscape in the later evening or early morning to prevent evaporation.
- Use only the amount of water your lawn can absorb – never let water run to the gutter.
- **NEVER** hose down sidewalks, driveways, etc. – use a broom instead.
- Always use hose nozzles that shut-off flow when washing vehicles and other equipment.

Water customers may call 805.652.4568 for helpful ways to conserve water or to schedule an appointment with City staff for a free onsite evaluation to obtain timed watering plans for winter and summer irrigation. Free water conserving showerheads are also available to our customers at the information counter in City Hall.

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Ventura's Water Quality Summary 2007

Utilizing data collected in 2006.
Only water quality constituents detected by laboratory testing appear in the chart.

PRIMARY STANDARDS (PDWS)	Units	Maximum Level MCL	State Goal PHG	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range	Major Sources of Contamination in Drinking Water (Footnotes)
Water Clarity										
Treated Turbidity	NTU	TT	NA	0.17 (a)	0.12 - 0.24(a)	0.17	0.1 - 0.44	0.06 (b)	0.01-0.06 (b)	1
Radioactive Contaminants (e)										
Gross Alpha particle activity	pCi/l	15	NA	4.65	1.7 - 10.0	7.5	1.9 - 17.5	1.1	0.3 - 2.1	2
Radium 226	pCi/l	5	NA	0.10	ND - 0.23	0.50	0.12 - 0.89	NA	NA	2
Uranium (c)	pCi/l	20	0.5	3.13	2.1 - 4.0	4.8	3.8 - 6.8	NA	NA	2
Inorganic Contaminants										
Arsenic	ppb	50	0	ND	ND	ND	ND	ND	ND	3
Fluoride	ppm	2	1	0.39	0.32 - 0.48	0.49	0.37 - 0.58	0.4	0.4	4
Selenium	ppb	50	NA	ND	ND	15	ND - 20	ND	ND	5
Nitrate (as Nitrogen)	ppm	10	10	ND	ND - 0.20	1.9	ND - 2.2	2.6	1.8 - 4.1	6

Lead and Copper Samples	Units	RAL	PHG	Samples Collected	Above RAL	90th Percentile	Major Sources of Contamination in Drinking Water
Lead	ppb	15	2	55 (d)	1	9	7
Copper	ppm	1.3	0.17	55 (d)	1	1.09	7

Footnotes: [1] Process and source variations [2] Erosion of natural deposits [3] Erosion of natural deposits; runoff from orchards; glass and electronics production waste [4] Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories [5] Discharge from refineries or manufacturers; erosion of natural deposits [6] Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits [7] Internal corrosion of household plumbing systems

PRIMARY STANDARDS for Distribution System	Units	MCL MRDL	PHG (MCLG) MRDLG	Distribution System Average	Distribution System Range	Major Sources of Contamination in Drinking Water
Disinfection						
Chloramine Residual	ppm	4	4	2.3	1.1 - 3.9	Drinking water disinfectant added for treatment.
Disinfection By Products						
Total Trihalomethanes	ppb	80	NA	35 (c)	5 - 84	By-product of drinking water chlorination.
Total Haloacetic Acids	ppb	60	NA	35 (c)	2 - 103	By-product of drinking water chlorination.
Microbiological Contaminant Samples						
Total Coliform Bacteria	NA	5%	0	0	0	Naturally present in the environment.
Fecal Coliform Bacteria	NA	0	0	0	0	Human and animal fecal waste.

SECONDARY STANDARDS		Units	Maximum Level MCL	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range
Aesthetic Standards	Color	Color	15	1.6	ND - 4	5.3	ND - 16	ND	ND
	Odor	Threshold	3	ND	ND	ND	ND	ND	ND
	Chloride	ppm	500	27	17 - 43	67	55 - 79	14	14
	Corrosivity	ppb	Non corrosive (+)	0.07	-0.16 - 0.47	0.48	0.3 - 0.85	-0.3	-0.3
	Iron (TT)	ppb	300	ND	ND	ND	ND - 110	NS	NS
	Total dissolved solids	ppm	1000	526	418 - 760	1292	1042 - 1546	340	340
	Specific conductance	umhos	1600	692	521 - 931	1662	1421 - 2160	541	541
	Sulfate	ppm	500	166	117 - 247	537	388 - 776	120	120
Additional Constituents	pH	pH units	6.5 - 8.5	7.6	7.3 - 7.9	7.5	7.3 - 7.8	7.3	7.3
	Hardness	ppm	NS	300	229 - 402	602	528 - 689	217	217
	Calcium	ppm	NS	82	58 - 113	161	144 - 180	54	54
	Magnesium	ppm	NS	23	20 - 29	49	36 - 58	20	20
	Manganese (TT)	ppb	50	ND	ND	ND	ND - 40	ND	ND
	Sodium	ppm	NS	31	21 - 54	131	94 - 174	23	23
	Phosphate	ppm	NS	0.22	0.15 - 0.40	0.21	ND - 0.51	NS	NS
	Potassium	ppm	NS	2.3	2.0 - 2.5	4.7	3.7 - 6.3	3	3
	Total Alkalinity	ppm	NS	155	131 - 194	260	219 -283	130	130

Footnotes (a) Average is maximum reading. Avenue Plant Surface Filtration (TT) = 95% of samples equal or below 0.3 NTU (b) Average is maximum reading. CMWD Direct Filtration (TT) = 95% of samples equal or below 0.5 NTU
(c) Highest running average cannot exceed the MCL. (d) Samples were taken at selected households on a first draw in August 2005. (e) Monitoring completed in 2003 and 2004.

Legend

ppm: Parts per million or milligrams per liter.
pCi/l: Picocuries per liter, a measure of radioactivity in water.
CMWD: Casitas Municipal Water District
TT: A required process intended to reduce the level of contaminant in drinking water
ppb: Parts per billion or micrograms per liter.
NA: Not applicable
ND: Not detectable
NS: No standard
NTU: Turbidity, a measure of the clarity or cloudiness of the water.

Water Quality Terminology

The Water Quality Summary shows constituents measured in Ventura's water and reported to the State Department of Health Services, and in some cases the USEPA. Some of the terminology used is described below.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary (health related) MCLs are set as close to the Public Health Goals (PHGs) or Maximum Contaminant Level Goals (MCLGs) as is economically and technologically feasible. Secondary (aesthetically related) MCLs are set to protect the odor, taste and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of contaminant in drinking water below which there is no known or expected risk to one's health. MCLGs are set by the USEPA.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to one's health. The California Environmental Protection Agency sets PHGs.
Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below, which there is no known or expected risk to health. MRDLs are set by the USEPA.
Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.
Regulatory Action Level (RAL): The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

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Ventura's Water Sources

The City has three local water sources; each accounts for approximately one third of the entire water supply. A portion of Ventura's water is from the Ventura River and is pumped from four shallow wells and a subsurface collector. Water is also purchased from Lake Casitas, which is operated and treated by the Casitas Municipal Water District (CMWD), for distribution through the City system to customers. Additional water is pumped from groundwater wells located in the City's east side.

Water Treatment

All of the City's water receives treatment. Water from the Ventura River is treated by a method referred to as Conventional Surface Water Treatment. This process involves coagulation (chemical addition), flocculation (gentle agitation), sedimentation (settling particles), filtration (removing particles), and disinfection (killing bacteria and viruses) with chloramines. The groundwater sources are treated with direct media filtration to remove iron, manganese, and turbidity, and disinfected with chloramines. Additional treatment is provided at each plant to help minimize the corrosion of plumbing in your home.

CMWD treats the water from Lake Casitas with direct media filtration and with chloramines for disinfection prior to delivery into the City's system. Turbidity is a measure of the cloudiness of the water. The City and CMWD are required to monitor for turbidity because it is a good indicator of water quality and the effectiveness of the filtration processes. High turbidity can hinder the effectiveness of the disinfectants.

The City uses chloramines for disinfection. Chloramines are chemicals that contain chlorine and ammonia. Chloramines were selected as the preferred disinfectant because of their ability to provide disinfection over an extended period of time, and for better taste and fewer odors compared to using chlorine alone. Chloramines have been proven to effectively kill microorganisms while producing lower levels of byproducts such as trihalomethanes (TTHMs) and haloacetic acids (HAAs), which are potentially harmful. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

Although Chloramines are desirable in protecting the water distribution system, their use requires additional precautions for some water uses. If a member of your household requires dialysis, you should contact your physician or dialysis service provider to assure proper protective equipment is used. If you use tap water for fish or other aquatic animals that use gills for breathing, you need to test and be sure the chloramines are completely removed before use. Setting water in an open container for 24 hours prior to use will not remove all chloramines in the water. Your local pet store can provide information and products for the proper removal of chloramines.

Water Quality Monitoring and Reporting

Ventura owns and operates a full-scale, state-certified laboratory to monitor water quality. Outside state-certified labs are also used as necessary. State-certified operators run Ventura's treatment plants. The plants have instrumentation that continuously monitors specific water constituents to ensure that the water is of high quality. Water quality constituents that were detected during 2006 are listed on the Water Quality Summary Table (see back page).

The United States Environmental Protection Agency (USEPA) through the Safe Drinking Water Act establishes drinking water standards, monitoring and reporting protocols. The California Department of Health Services enforces the drinking water standards for the USEPA and has the authority to make standards more stringent if applicable to California. The City conducts monitoring beyond the minimum requirements for some federal and state regulations.

The City submits monthly and annual reports to the state for review that summarize treatment performance and drinking water quality. The state inspects the City's water system each year and submits their findings to the City. The state prepared an Engineering Report dated February 2006, finding that the city's sources, facilities, and operation are capable of producing a safe, wholesome and reliable quality of water supply; and meet the state and federal standards and regulations for drinking water.

Since 2002, the City has monitored water quality along the Ventura River and San Antonio Creek for Cryptosporidium, Giardia, Bacteria, Nutrients, Bromide, Total Organic Carbon, Chloride and Conductivity. This additional testing is part of an expanded sampling program to detect potential contaminants in the watershed allowing the City to better plan future production and treatment improvements.

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Potential Concerns

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Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agriculture and livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals that may be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.
- Radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities.

Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals, such as people with cancer, those undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people and infants can be particularly at risk from infections and are at greater risk of developing life-threatening illnesses. The City encourages immuno-compromised individuals to consult their doctors regarding appropriate precautions to avoid infection.

The City takes precautions to eliminate the risk of infection from microbial contaminants, including Giardia and Cryptosporidium, from its water system. The new membrane filtration improvements being installed at the Avenue Treatment Plant are very effective at removing these contaminants. These organisms are found in surface water throughout the United States and ingesting them may cause an abdominal infection. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the infection within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness, and are encouraged to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. The City has been sampling for possible risks present in the Ventura River Watershed since 2000, with only one sample detected for Cryptosporidium. Casitas monitored for Cryptosporidium during 2006 on a monthly basis with a result of non-detect for 11 samples of 12 total. The City's and Casitas' current treatment processes for surface water including coagulation, filtration and Chloramines disinfection to remove these organisms are not 100% effective. The USEPA and the Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial contaminants are available from the Safe Drinking Hotline at 1-800-426-4791.

For More Information

If you would like more information regarding the City's water quality, facility improvements, or studies, please contact Ventura's Water Superintendent at 805.652.4500. This Water Quality Confidence Report is also available on the City's website at www.cityofventura.net

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WATER QUALITY CONFIDENCE REPORT 2007

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Ventura's Water Quality Summary 2007

Utilizing data collected in 2006.

Only water quality constituents detected by laboratory testing appear in the chart.

PRIMARY STANDARDS (PDWS)	Units	Maximum Level MCL	State Goal PHG	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range	Major Sources of Contamination in Drinking Water (Footnotes)
Water Clarity										
Treated Turbidity	NTU	TT	NA	0.17 (a)	0.12 - 0.24(a)	0.17	0.1 - 0.44	0.06 (b)	0.01-0.06 (b)	1
Radioactive Contaminants (e)										
Gross Alpha particle activity	pCi/l	15	NA	4.65	1.7 - 10.0	7.5	1.9 - 17.5	1.1	0.3 - 2.1	2
Radium 226	pCi/l	5	NA	0.10	ND - 0.23	0.50	0.12 - 0.89	NA	NA	2
Uranium (c)	pCi/l	20	0.5	3.13	2.1 - 4.0	4.8	3.8 - 6.8	NA	NA	2
Inorganic Contaminants										
Arsenic	ppb	50	0	ND	ND	ND	ND	ND	ND	3
Fluoride	ppm	2	1	0.39	0.32 - 0.48	0.49	0.37 - 0.58	0.4	0.4	4
Selenium	ppb	50	NA	ND	ND	15	ND - 20	ND	ND	5
Nitrate (as Nitrogen)	ppm	10	10	ND	ND - 0.20	1.9	ND - 2.2	2.6	1.8 - 4.1	6

Lead and Copper Samples	Units	RAL	PHG	Samples Collected	Above RAL	90th Percentile	Major Sources of Contamination in Drinking Water
Lead	ppb	15	2	55 (d)	1	9	7
Copper	ppm	1.3	0.17	55 (d)	1	1.09	7

Footnotes: [1] Process and source variations [2] Erosion of natural deposits [3] Erosion of natural deposits; runoff from orchards; glass and electronics production waste [4] Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories. [5] Discharge from refineries or manufacturers; erosion of natural deposits. [6] Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits. [7] Internal corrosion of household plumbing systems

PRIMARY STANDARDS for Distribution System	Units	MCL MRDL	PHG (MCLG) MRDLG	Distribution System Average	Distribution System Range	Major Sources of Contamination in Drinking Water
Disinfection						
Chloramine Residual	ppm	4	4	2.3	1.1 - 3.9	Drinking water disinfectant added for treatment.
Disinfection By Products						
Total Trihalomethanes	ppb	80	NA	35 (c)	5 - 84	By-product of drinking water chlorination.
Total Haloacetic Acids	ppb	60	NA	35 (c)	2 - 103	By-product of drinking water chlorination.
Microbiological Contaminant Samples						
Total Coliform Bacteria	NA	5%	0	0	0	Naturally present in the environment.
Fecal Coliform Bacteria	NA	0	0	0	0	Human and animal fecal waste.

SECONDARY STANDARDS		Units	Maximum Level MCL	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range
Aesthetic Standards	Color	Color	15	1.6	ND - 4	5.3	ND - 16	ND	ND
	Odor	Threshold	3	ND	ND	ND	ND	ND	ND
	Chloride	ppm	500	27	17 - 43	67	55 - 79	14	14
	Corrosivity	ppb	Non corrosive (+)	0.07	-0.16 - 0.47	0.48	0.3 - 0.85	-0.3	-0.3
	Iron (TT)	ppb	300	ND	ND	ND	ND - 110	NS	NS
	Total dissolved solids	ppm	1000	526	418 - 760	1292	1042 - 1546	340	340
	Specific conductance	umhos	1600	692	521 - 931	1662	1421 - 2160	541	541
	Sulfate	ppm	500	166	117 - 247	537	388 - 776	120	120
Additional Constituents	pH	pH units	6.5 - 8.5	7.6	7.3 - 7.9	7.5	7.3 - 7.8	7.3	7.3
	Hardness	ppm	NS	300	229 - 402	602	528 - 689	217	217
	Calcium	ppm	NS	82	58 - 113	161	144 - 180	54	54
	Magnesium	ppm	NS	23	20 - 29	49	36 - 58	20	20
	Manganese (TT)	ppb	50	ND	ND	ND	ND - 40	ND	ND
	Sodium	ppm	NS	31	21 - 54	131	94 - 174	23	23
	Phosphate	ppm	NS	0.22	0.15 - 0.40	0.21	ND - 0.51	NS	NS
	Potassium	ppm	NS	2.3	2.0 - 2.5	4.7	3.7 - 6.3	3	3
	Total Alkalinity	ppm	NS	155	131 - 194	260	219 -283	130	130

Footnotes: (a) Average is maximum reading Avenue Plant Surface Filtration (TT) = 95% of samples equal or below 0.3 NTU. (b) Average is maximum reading CMWD Direct Filtration (TT) = 95% of samples equal or below 0.5 NTU
(c) Highest running average cannot exceed the MCL. (d) Samples were taken at selected households on a first draw in August 2005. (e) Monitoring completed in 2003 and 2004.

Legend

ppm: Parts per million or milligrams per liter.
pCi/l: Picocuries per liter; a measure of radioactivity in water.
CMWD: Casitas Municipal Water District
TT: A required process intended to reduce the level of contaminant in drinking water
ppb: Parts per billion or micrograms per liter.
NA: Not applicable
ND: Not detectable
NS: No standard
NTU: Turbidity, a measure of the clarity or cloudiness of the water.

Water Quality Terminology

The Water Quality Summary shows constituents measured in Ventura's water and reported to the State Department of Health Services, and in some cases the USEPA. Some of the terminology used is described below:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary (health related) MCLs are set as close to the Public Health Goals (PHGs) or Maximum Contaminant Level Goals (MCLGs) as is economically and technologically feasible. Secondary (aesthetically related) MCLs are set to protect the odor, taste and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of contaminant in drinking water below which there is no known or expected risk to one's health. MCLGs are set by the USEPA.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to one's health. The California Environmental Protection Agency sets PHGs.

Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below, which there is no known or expected risk to health. MRDLs are set by the USEPA.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Regulatory Action Level (RAL): The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

WATER QUALITY CONFIDENCE REPORT 2008

The City of Ventura welcomes this opportunity to provide you with annual water quality and supply information. Its Water Division personnel work diligently to ensure that our city's water meets or exceeds state and federal drinking water standards and regulations with no violations.

The United States Environmental Protection Agency (USEPA) through the Safe Drinking Water Act establishes federal drinking water standards, monitoring and reporting protocols enforced by the California Department of Public Health, which has the authority to make state standards more stringent than federal standards. The City of Ventura conducts monitoring beyond the minimum requirements for some federal and state regulations.

The City of Ventura has prepared this 2008 Water Quality Consumer Confidence Report in compliance with the State Health and Safety Code requirements gathering most data in 2007; however, many constituents are monitored less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some data, though representative, can be more than one year old.

In order to produce, treat and distribute safe drinking water to our customers, the City owns and operates 11 wells, three water treatment plants, two treated water connections from Lake Casitas, 23 booster pump stations, 31 water storage reservoirs, and more than 500 miles of distribution pipelines.

For More Information

If you would like more information regarding the City's water quality, facility improvements, or studies, please contact Ventura's Water Superintendent at 805.652.4500. This Water Quality Confidence Report is also available on the City's website at www.cityofventura.net.

You are invited to express your opinions at City Council meetings held each Monday at 7 pm in the Council Chambers at Ventura City Hall, 501 Poli Street.

Este informe contiene información muy importante sobre su agua potable. Para más información o obtener copias del informe de agua en espanol llame 652-4500.

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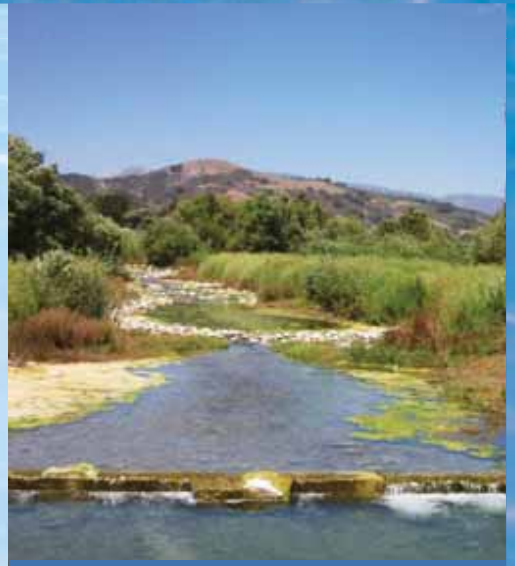

Source of supply from the Ventura River at Foster Park

Ventura's Water Sources

The City has three local water sources; each accounts for approximately one third of the entire water supply. A portion of Ventura's water is from the Ventura River and is pumped from four shallow wells and a subsurface collector. This water drains from a 51,000-acre lower watershed in the Ojai and Ventura River Valleys that include the tributaries of the San Antonio and the Coyote Creeks. Water is also purchased from Lake Casitas, which is operated and treated by the Casitas Municipal Water District (CMWD) for distribution through the City system to customers. Most of this water drains from the upper watershed that is federally protected to limit contamination of the lake. Water quality in the river and the lake are similar. Additional water is pumped from deep groundwater wells located in the City's east side near Victoria Avenue and in Saticoy. Water quality from the aquifers in the Fox Canyon, Mound, and Santa Paula groundwater basins are similar, but include about twice as much total dissolved solids (TDS) or minerals (hardness) than from the upper and lower watersheds that drain to the river. The TDS for the City's blended groundwater averages around 1,300 ppm, resulting in taste and odor concerns for some people.

Ventura's water meets or exceeds state and federal primary standards.

Water Treatment

All of the City's water receives treatment. Major changes in the method to treat water from the Ventura River at the Avenue Water Treatment Plant occurred during the last half of 2007. Since 1939 water from the Ventura River was treated by a method referred to as Conventional Surface Water Treatment. This process involves prechlorination (control bacteria and algae), coagulation (chemical addition), flocculation (gentle agitation), sedimentation (settling particles), filtration with sand and anthracite (removing bacteria and turbidity), and disinfection (killing bacteria and viruses) with chlorine.

JACOB FOKO

Since August, water from the Ventura River is treated with a more reliable method referred to membrane ultrafiltration (UF). This is a more effective treatment process than media filtration. It involves prechlorination (control bacteria and algae), coagulation (chemical addition), membrane filtration (removing bacteria and turbidity), and disinfection with chlorine to ensure effective removal of viruses and bacteria. After the membrane process, caustic soda and polyphosphate are added to help minimize the corrosion of plumbing in your home. Ammonia is also added that combines with chlorine to form the final disinfectant for the drinking water. Thousands of UF hollow fiber filtration membranes provide a physical barrier to pathogens and particles in the water larger than the 0.02 micron pore size. This pore size excludes anything larger including bacteria, giardia, and cryptosporidium, and to large extent viruses that are all larger than 0.02 microns.

The groundwater sources are treated at either the Bailey or Saticoy Plants with prechlorination and direct media filtration to remove iron, manganese, and turbidity particles, and disinfected with chloramines. Additional treatment with polyphosphate is provided at each plant to help minimize the corrosion of plumbing in your home. CMWD also treats the water from Lake Casitas with direct media filtration and with chloramines for disinfection prior to delivery into the City's system.

The City uses chloramines for disinfection in the distribution system. Chloramines are chemicals that contain chlorine and ammonia. Chloramines were selected as the preferred disinfectant because of their ability to provide disinfection over an extended period of time, and for better taste and fewer odors compared to using chlorine alone. Chloramines have been proven to effectively kill microorganisms while producing lower levels of byproducts such as trihalomethanes (TTHMs) and haloacetic acids (HAAs), which are potentially harmful. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

Although Chloramines are desirable in protecting the water distribution system, their use requires additional precautions for some water uses. If a member of your household requires dialysis, you should contact your physician or dialysis service provider to assure proper protective equipment is used. If you use tap water for fish or other aquatic animals that use gills for breathing, you need to test and be sure the chloramines are completely removed before use. Setting water in an open container for 24 hours prior to use will not remove all chloramines in the water. Your local pet store can provide information and products for the proper removal of chloramines.

Water Quality Monitoring and Reporting

Ventura owns and operates a full-scale, state-certified laboratory to monitor water quality. Outside state-certified labs are also used as necessary. State-certified personnel are required to operate Ventura's treatment plants and the distribution system. Additionally, the plants have instrumentation that continuously monitors specific water constituents to ensure that the treatment method is producing water of high quality. Water quality constituents that were detected by the laboratories during 2007 are listed on the Water Quality Summary Table (see back page).

The City submits monthly and annual reports to the state for review that summarize treatment performance and drinking water quality. The state inspects the City's water system each year and submits their findings to the City. The state prepared an Engineering Report dated August 3, 2007, finding that the city's sources, facilities, and operation are capable of producing a safe, wholesome and reliable quality of water supply; and meet the state and federal standards and regulations for drinking water.

Since 2002, the City has monitored water quality along the Ventura River, Coyote Creek and San Antonio Creek for Cryptosporidium, Giardia, Bacteria, Nutrients, Bromide, Total Organic Carbon, Chloride and Conductivity. This additional testing is part of an expanded sampling program to detect potential contaminants in the watershed allowing the City to better plan future production and treatment improvements.

Turbidity is a measure of the cloudiness of the water. The City and CMWD are required to monitor for turbidity every 15 minutes because it is a good indicator of water quality and the effectiveness of the filtration processes, especially for surface waters. High turbidity can hinder the effectiveness of the microbial disinfectants.

Water System Studies & Improvements

A Water System Master Plan is prepared about every 10 years and will be completed by the end of 2008. The plan will include an evaluation of the water systems capacity and delivery capabilities and provide recommendations for capital improvements based on an analysis of water supply, distribution, and water quality. Current improvement projects underway include addition of two wells on the Eastside, evaluating Foster Park well field strategies, improvement of various water mains throughout the City, and an emergency generator for uninterrupted operation of one of the critical booster pump stations.

The City, like other water purveyors in the country, completed a federally mandated review of its water system security. This review evaluated the water facilities and prioritized security measures that can help minimize the risk of damage or contamination due to a malevolent act. The City already has and will continue to take steps to improve the protection of City water facilities.

In April 2006 the City completed the five-year update to the Sanitary Survey of the Lower Ventura River Watershed. The purpose of the study is to identify potential sources of contamination within the watershed, to make recommendations on how to reduce risks to the water supply, and to make adjustments to the ongoing watershed water quality monitoring program.

A separate Drinking Water Source Assessment for the City's water supplies was completed in January 2002. The purpose of the assessment is to identify existing or potential threats to every source of supply including groundwater. No contaminants have been detected in the water supply from surrounding sources such as gas stations, agricultural drainage, dry cleaners, urban run off, sewer systems, metal plating/finishing and repair shops.

As a water supplier, the City must complete an evaluation of its drinking water supply with respect to Public Health Goals (PHG) every three years. The goals are advisory only, requiring public notification, and are not mandatory limits. The City completed the last evaluation in 2007, which determined that ten chemicals, although well below the maximum contaminant level limit, exceeded a state PHG or the federal MCLG. These were lead, copper, arsenic, uranium, gross alpha & beta particles, radium 226, bromodichloromethane, bromoform, and dichloroacetic acid.

Copper and lead can be found in water as a result of the corrosion of plumbing fixtures used in most homes. The City has conducted tests to optimize its treatment with corrosion inhibitors in an effort to further reduce lead and copper levels. High levels of lead can result in kidney problems or high blood pressure, and delays in physical and mental development in children. High levels of copper are known to cause gastrointestinal disturbance and kidney damage. Arsenic, and the four naturally occurring radioactive isotopes that typically occur in drinking water by the erosion of natural deposits are considered carcinogenic. Noncarcinogenic effects of uranium on the kidneys and the liver have been documented. Radium is known to cause tumors. Bromodichloromethane, bromoform, and dichloroacetic acid are formed during the disinfection process with chlorine and can increase the risk of cancer and effects on the liver, kidney and central nervous system.

Potential Concerns

In order to ensure tap water is safe, the United States Environmental Protection Agency (USEPA) and the California Department of Public Health prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The City of Ventura treats its water to meet these regulations. The regulations of the Food and Drug Administration establish limits for contaminants in bottled water, which must provide the same protection for the public health.

Drinking water, including bottled water, may contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up contaminants resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agriculture and livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals that may be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.
- Radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities.

JACOB FOKO

The uranium content in the City's water supplies is generally well below the maximum contaminant level of 20 pCi/L. However, during 2007, the average of quarterly samples for the Mound Well was 17 pCi/L. This well also contains higher than average total dissolved solids and sulfate levels. The well is operated less often than the other wells and its water is blended with the other groundwater sources to lower the TDS, sulfate and uranium content in the water. Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.

Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals, such as people with cancer, those undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people and infants can be particularly at risk from infections and are at greater risk of developing life-threatening illnesses. The City encourages immuno-compromised individuals to consult their doctors regarding appropriate precautions to avoid infection.

The City takes precautions to eliminate the risk of infection from microbial contaminants, including viruses, bacteria, Giardia and Cryptosporidium, from its water system. These organisms are found in surface water throughout the United States and ingesting them may cause an abdominal infection. The City has been sampling for possible risks in the watershed since 2000. The new membrane filtration and disinfection improvements installed at the Avenue Treatment Plant are very effective at removing these contaminants. The media filtration used by Casitas, although good and removal of Giardia and/or Cryptosporidium are not considered 100% effective. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the infection within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness, and are encouraged to consult their doctor regarding appropriate precautions to take to avoid microbial infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. The USEPA and the Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial contaminants are available from the Safe Drinking Hotline at 1-800-426-4791.

Ventura's Water Quality Summary 2009

Utilizing data collected in 2008, unless noted.

Only water quality constituents detected by laboratory testing appear in the chart.

PRIMARY STANDARDS (PDWS)	Units	Maximum Level MCL	State Goal PHG	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range	Major Sources of Contamination in Drinking Water (Footnotes)
Water Clarity										
Treated Turbidity	NTU	TT	NA	0.10 (a)	0.02 - 0.10(a)	0.23	0.1 - 0.5	0.08 (b)	0.01-0.08 (b)	1
Radioactive Contaminants (e)										
Gross Alpha particle activity	pCi/l	15	NA	4.26	1 - 10	9.2	2.9 - 20.4	1.1	0.3 - 2.1	2
Radium 226	pCi/l	5	NA	0.08	ND - 0.3	0.7	0.1 - 0.4	NA	NA	2
Uranium (c)	pCi/l	20	0.5	3.0	1.8 - 4.9	8.2	3.4 - 19.3	NA	NA	2
Inorganic Contaminants										
Fluoride	ppm	2	1	0.51	0.44 - 0.55	0.52	0.43 - 0.64	0.2	0.2	4
Selenium	ppb	50	NA	ND	ND	7.2	ND - 18	ND	ND	5
Nitrate (as Nitrogen)	ppm	10	10	1.1	ND - 1.9	1.2	ND - 3.3	ND	ND	6

Lead and Copper Samples	Units	RAL	PHG	Samples Collected	Above RAL	90th Percentile	Major Sources of Contamination in Drinking Water
Lead	ppb	15	2	50 (d)	0	1	7
Copper	ppb	1300	0.17	50 (d)	2	970	7

Footnotes: [1] Process and source variations [2] Erosion of natural deposits [3] Erosion of natural deposits; runoff from orchards; glass and electronics production waste [4] Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories [5] Discharge from refineries or manufacturers; erosion of natural deposits. [6] Runoff and leaching from fertilizer use leaching from septic tanks and sewage; erosion of natural deposits. [7] Internal corrosion of household plumbing systems

PRIMARY STANDARDS for Distribution System	Units	MCL MRDL	PHG (MCLG) MRDLG	Distribution System Average	Distribution System Range	Major Sources of Contamination in Drinking Water
Disinfection						
Chloramine Residual	ppm	4	4	2.3	0.4 - 4.0	Drinking water disinfectant added for treatment.
Disinfection By Products						
Total Trihalomethanes	ppb	80	NA	33 (c)	3 - 86	By-product of drinking water chlorination.
Total Haloacetic Acids	ppb	60	NA	27 (c)	2 - 75	By-product of drinking water chlorination.
Microbiological Contaminant Samples						
Total Coliform Bacteria	NA	5%	0	0	0-1	Naturally present in the environment.
Fecal Coliform Bacteria	NA	0	0	0	0	Human and animal fecal waste.

SECONDARY STANDARDS		Units	Maximum Level MCL	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range
Aesthetic Standards	Color	Color	15	5	ND - 5	5	ND - 10	ND	ND
	Odor	Threshold	3	ND	ND	ND	ND	ND	ND
	Chloride	ppm	500	42	40-49	65	54 - 91	14	14
	Corrosivity	ppb	Non corrosive (+)	0.26	-0.02 - 0.54	0.36	0.12 - 0.65	0.3	0.3
	Iron (TT)	ppb	300	ND	ND	ND	ND	NS	NS
	Total dissolved solids	ppm	1000	713	633- 772	1296	1056 - 1642	310	310
	Specific conductance	umhos	1600	966	893 -1027	1631	1354 - 2150	547	547
	Sulfate	ppm	500	244	219 - 270	539	404 - 783	127	127
Additional Constituents	pH	pH units	6.5 - 8.5	7.6	7.3- 7.8	7.4	7.2 - 7.6	7.6	7.6
	Hardness	ppm	NS	378	346 - 414	564	441 - 752	217	217
	Calcium	ppm	NS	104	91 - 118	143	96 - 194	54	54
	Magnesium	ppm	NS	29	28 - 33	50	40 - 65	20	20
	Manganese (TT)	ppb	50	ND	ND - 0.02	ND	ND - 60	ND	ND
	Sodium	ppm	NS	44	40 - 49	126	96 - 187	23	23
	Phosphate	ppm	NS	ND	ND - 0.05	0.19	0.15 - 0.34	NS	NS
	Potassium	ppm	NS	2.1	2.0 - 2.3	4.7	4.0 - 6.6	2	2
	Total Alkalinity	ppm	NS	208	163 - 236	262	230 -290	140	140

Footnotes: (a) Average is maximum reading, Avenue Plant Surface Filtration (TT) = 95% of samples equal or below 0.1 NTU. (b) Average is maximum reading, CMWD Direct Filtration (TT) = 100% of samples equal or below 0.2 NTU (c) Highest running average cannot exceed the MCL. (d) Samples were taken at selected households on a first draw in August 2005. (e) Monitoring completed in 2007 and 2008.

Legend

ppm: Parts per million or milligrams per liter.
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CMWD: Casitas Municipal Water District
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Water Quality Terminology

The Water Quality Summary shows constituents measured in Ventura's water and reported to the State Department of Health Services, and in some cases the USEPA. Some of the terminology used is described below:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary (health related) MCLs are set as close to the Public Health Goals (PHGs) or Maximum Contaminant Level Goals (MCLGs) as is economically and technologically feasible. Secondary (aesthetically related) MCLs are set to protect the odor, taste and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of contaminant in drinking water below which there is no known or expected risk to one's health. MCLGs are set by the USEPA.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to one's health. The California Environmental Protection Agency sets PHGs.

Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below, which there is no known or expected risk to health. MRDLs are set by the USEPA.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Regulatory Action Level (RAL): The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

WATER QUALITY CONFIDENCE REPORT 2009

Since 1923, the City of Ventura has reliably provided safe and clean water for drinking as well as fire protection to our community, which is essential for health of our families, businesses and the environment. The Public Works Environmental and Water Resources Division welcomes this opportunity to provide our residents with important water quality information about the City's drinking water supply, special health requirements, and our efforts to identify potential contaminants. The 2009 Water Quality Consumer Confidence Report has been prepared in compliance with the Federal and State Health and Safety Code requirements based on the most current 2008 data.

To ensure tap water is safe, the United States Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The City of Ventura successfully treats its water to consistently meet these regulations. The regulations of the Food and Drug Administration (FDA) establish limits for contaminants in bottled water, which must provide the same level of protection for the public health.

Ventura Avenue Water Treatment Facility

For More Information

If you would like more information regarding the City's water quality, facility improvements, or studies, please contact Ventura's Water Utility Manager's office at 652-4500. This Water Quality Confidence Report is available in Spanish and on the City's website at www.cityofventura.net

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Este informe contiene información muy importante sobre su agua potable. Traduzcalo o hable con alguien que lo entienda bien. Para más información o obtener copias del informe de agua en espanol llame 652-4500.

CITY OF VENTURA
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Ventura's Water System & Sources

In order to produce, treat and deliver safe and clean drinking water to our residents, the City of Ventura owns and operates 11 groundwater wells, three water treatment plants, two treated water connections from Lake Casitas, 23 booster pump stations, 31 water storage reservoirs, 14 pressure zones and more than 380 miles of distribution pipelines. Based on the number of facilities and assets, the CDPH has categorized the City's water system operations as a "5" – indicating the highest degree of treatment and distribution complexity.

The City is fortunate to have **three local water sources**, each producing approximately one third of the entire water supply. One portion is from the **Ventura River at Foster Park**, pumped from four shallow wells and a subsurface collector. This water drains from a 51,000-acre lower watershed in the Ojai and Ventura River Valleys that includes the tributaries of the San Antonio and the Coyote Creeks. Water is also purchased from Lake Casitas, which is operated and treated by the **Casitas Municipal Water District (CMWD)** for distribution through the City's system to customers. Most of this water drains from the upper watershed that is federally protected to limit contamination of the lake. Water quality in the river and the lake are similar. Water is also pumped from deep **groundwater wells** located in the City's east side near Victoria Avenue and in Saticoy. Water quality from the aquifers in the Fox Canyon, Mound, and Santa Paula groundwater basins are similar, but include about two times the total dissolved solids (TDS) or minerals (hardness) than the water from the other watersheds.

Ventura's water meets or exceeds state and federal primary standards.

Water Treatment

All of the City's water is treated to meet strict State and Federal regulations. In 2007, the Avenue Water Treatment Facility was modernized to treat water from the Ventura River with a reliable and effective process known as membrane ultrafiltration (UF). Thousands of UF hollow fiber filtration membranes provide a physical barrier to pathogens and particles larger than the 0.02 micron pore size, including bacteria, viruses, giardia, and cryptosporidium.

The groundwater sources are treated at either the Bailey or Saticoy Plants with prechlorination and direct media filtration to remove iron, manganese, and turbidity particles, and disinfected with chloramines. Additional treatment with polyphosphate is provided at each plant to help minimize the corrosion of plumbing in your home. CMWD treats the water from Lake Casitas with direct media filtration and with chloramines for disinfection prior to delivery into the City's system.

The City uses chloramines, (chemicals that contain chlorine and ammonia), for continuous disinfection of the drinking water in the distribution system. Chloramines were selected as the preferred disinfectant because of their ability to provide disinfection over a longer period of time, and improve taste and odor as compared to using chlorine alone. Chloramines have been proven to effectively kill microorganisms while producing lower levels of disinfection byproducts such as trihalomethanes (TTHMs) and haloacetic acids (HAAs), which are potentially harmful contaminants. Drinking water containing these byproducts in excess of the regulated maximum contaminant level (MCL) may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

Although chloramines are desirable in protecting the water distribution system, their use requires additional precautions for some water uses. If a member of your household requires dialysis, you should contact your physician or dialysis service provider to assure proper protective equipment is used during the treatment. If you use tap water for fish or other aquatic animals that use gills for breathing, you need to test and be sure the chloramines are completely removed before use. Setting water in an open container for 24 hours prior to use will not remove all chloramines in the water. Your local pet store can provide information and products for the proper removal of chloramines.

Water Quality Monitoring & Results

Ventura owns and operates a full-scale, State-certified laboratory and may also use outside State-certified labs to monitor water quality. Water quality constituents that were detected by the laboratories during 2008 are listed on the Water Quality Summary Table (see back page). All drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk. As reflected in the summary, Ventura's water system did not have any violations during the reporting period and we are proud that our drinking water meets or exceeds all State and Federal requirements.

Our operations are also designed to protect and monitor public health. All treatment and distribution water system operating personnel must earn increasingly rigorous State certifications from the CDPH and maintain this certification through continuing education.

Treatment plants are continuously monitored for specific water constituents by special automated instrumentation to ensure that the process is always producing water of high quality. Turbidity (cloudiness of the water) is monitored to indicate the effectiveness of the filtration processes, especially for surface waters. The City and CMWD are required to measure turbidity levels every 15 minutes because high turbidity can hinder the effectiveness of the chloramines disinfectant that kills bacteria and viruses.

Water Quality Reporting

The City submits monthly and annual reports to the State for review that summarize treatment and distribution operations and drinking water quality. The State annually inspects the City's water system, and prepared an Engineering Report in August 2007, finding that the City's sources, facilities, and operations are capable of producing safe and reliable water quality, which meet State and Federal drinking water standards and regulations.

In 2008, the City met the triennial lead and copper corrosion monitoring requirements by sampling 50 locations to test consumer's tap water. The tests results indicated that no additional corrosion control treatment is required and a summary is provided in the Water Quality Summary Table (see back page).

Water System Studies & Improvements

Prepared every 10 years, a new Water System Master Plan is currently nearing completion and will include an evaluation of capacity and delivery and recommendations for capital improvements based on an analysis of water supply, distribution, and water quality. While the City has adequate supplies for the near future, planning is underway for additional reliability and redundancy improvements to ensure future supply, even during drought conditions. Supplemental water supply sources are also being evaluated to determine their cost effectiveness and water quality benefits.

Current improvement projects include two new wells on the Eastside, renovation of the Saticoy Plant, evaluation of the Ventura River Foster Park well field strategies, replacement of aging water mains throughout the City (including the Foster Hillsides neighborhoods), and installation of emergency generators for uninterrupted operation of two critical booster pump stations. Due to our aging infrastructure and environmental regulations, we expect to continue our aggressive capital project program over the next few decades. Significant financial investment by the community will be required to replace our systems and protect our water supply for future generations.

The City, like other water purveyors in the country, completed a federally mandated review of the security of its water system. This review evaluated all water facilities and prioritized security measures to minimize the risk of damage or contamination due to a malevolent act. As a result, the City has upgraded its security and will continue to take steps to improve the protection of our water system.

Water Health Evaluation

Identifying threats to our water quality as well as potential contaminants is important to sustaining a healthy water supply. In 2006, the City completed a five-year update to the Sanitary Survey of the Lower Ventura River Watershed. The purpose of the study was to identify potential sources of contamination within the watershed and offer recommendations to reduce possible risks to the water supply and accordingly adjust the ongoing watershed water quality monitoring program. Since 2002, the City has also conducted an expanded testing program for specific water quality contaminants along the Ventura River, Coyote Creek, which may aid in early detection and direct planning for future improvements.

In addition, a separate Drinking Water Source Assessment for all the City's water supplies was completed in January 2002 to identify existing or potential threats to sources of supply, including groundwater. No contaminants were detected then or occur now in the water supply from surrounding activities such as gas stations, agricultural drainage, dry cleaners, urban runoff, sewer systems, metal plating/finishing and repair shops.

As a water supplier, the City must complete an evaluation of its drinking water supply with respect to Public Health Goals (PHG) every three years. The goals are advisory only, requiring public notification, and are not mandatory limits. The City completed the last evaluation in 2007, which determined that ten chemicals, although well below the maximum contaminant level limit, exceeded a State PHG or the Federal Maximum Contaminant Level Goal (MCLG). The identified contaminants were lead, copper, arsenic, uranium, gross alpha and beta particles, radium 226, bromodichloromethane, bromoform, and dichloroacetic acid.

Copper and lead can be found in water as a result of the corrosion of plumbing fixtures used in most homes. The City has conducted tests to optimize its treatment with corrosion inhibitors in an effort to further reduce lead and copper levels. High levels of lead can result in kidney problems or high blood pressure, and delays in physical and mental development in children. High levels of copper are known to cause gastrointestinal disturbance and kidney damage. Arsenic, and the four naturally occurring radioactive isotopes that typically occur in drinking water by the erosion of natural deposits, are considered carcinogenic. Noncarcinogenic effects of uranium on the kidneys and the liver have been documented. Radium is known to cause tumors. Bromodichloromethane, bromoform, and dichloroacetic acid are formed during the disinfection process with chlorine and can increase the risk of cancer and effects on the liver, kidney and central nervous system.

Potential Concerns

Drinking water, including bottled water, may contain small amounts of some contaminants, which does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up contaminants resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agriculture and livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals that may be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.
- Radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities.

The uranium content in the City's water supplies is generally well below the maximum contaminant level of 20 pCi/L. However, during 2008, the average of quarterly samples for the Mound Well was 19 pCi/L. This well also contains higher than average total dissolved solids and sulfate levels. The well is operated less often than the other wells with better water quality and its water is blended with the other groundwater sources to lower the TDS, sulfate and uranium content in the water. Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of developing cancer.

Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals, such as people with cancer, those undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, and some elderly people and infants can be particularly at risk from infections and are at greater risk of developing life-threatening illnesses. The City encourages immuno-compromised individuals to consult their doctors regarding appropriate precautions to avoid infection.

The City takes precautions to eliminate the risk of infection from microbial contaminants, including viruses, bacteria, Giardia and Cryptosporidium, from its water system. These organisms are found in surface water throughout the United States and ingesting them may cause an abdominal infection. The City has been conducting monthly sampling for possible risks in the watershed for the last two years. There was no detection of the Giardia or Cryptosporidium in any of the 24 samples. The new membrane filtration improvements installed at the Avenue Treatment Plant are very effective at removing these contaminants. The media filtration used by Casitas, although good at the removal of Giardia and/or Cryptosporidium, is not considered 100% effective. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the infection within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness, and are encouraged to consult their doctor regarding appropriate precautions to take to avoid microbial infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. The USEPA and the Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial contaminants are available from the Safe Drinking Hotline at 1-800-426-4791.

WATER QUALITY CONFIDENCE REPORT 2010

Since 1923, the City of Ventura has reliably provided clean water to our community for drinking and fire protection, and is essential to the health of our families, businesses and the environment. Our 2010 Water Quality Consumer Confidence Report includes details about where your water comes from, what it contains, and how it compares to State standards. The report also contains special health information and our efforts to identify potential contaminants and other risks to our water supply. The City of Ventura's Public Works Environmental and Water Resources Division is the responsible agency that supervises and maintains the delivery of tap water within City limits and some County areas. We welcome this opportunity to publish this important report because informed customers are our best allies to protect Ventura's precious water resources, now and in the future.

For More Information

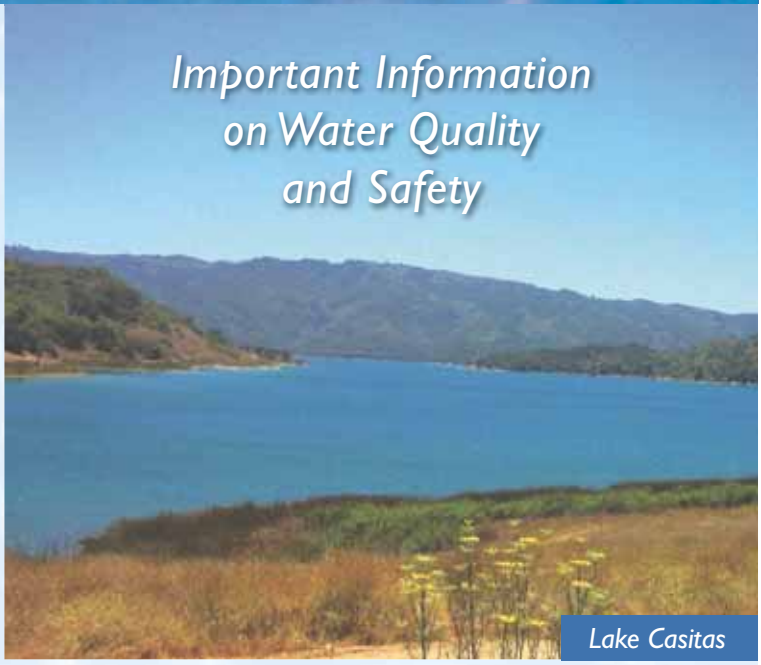
If you would like more information regarding the City's water quality, facility improvements, or studies, please contact the Ventura Water Utility Manager's office at 652-4500. This Water Quality Confidence Report is available in Spanish and on the City's website at ***www.cityofventura.net****.*

You are also invited to express your opinions at City Council meetings held most Monday evenings in the Council Chambers at Ventura City Hall, 501 Poli Street. Please visit the City Council link at www.cityofventura.net for a complete schedule.

Este informe contiene información muy importante sobre su agua potable. Traduzcalo o hable con alguien que lo entienda bien. Para más información o obtener copias del informe de agua en espanol llame 652-4500.

Our Water. Our Future.
Ours to Protect.

CITY OF
VENTURA
Environmental & Water Resources



Lake Casitas

Ventura's Water System & Sources

In order to produce, treat and deliver safe and clean drinking water to our residents, the City of Ventura owns and operates 11 groundwater wells, three water treatment plants, two treated water connections from Lake Casitas, 23 booster pump stations, 31 water storage reservoirs, 14 pressure zones, more than 3,000 fire hydrants and 380 miles of distribution pipelines. Based on the number of facilities and assets, the California Department of Public Health (CDPH) has categorized the City's water system operations as a "5," indicating the highest degree of treatment and distribution complexity.

The City is fortunate to have **three local water sources**, each producing approximately one third of the entire water supply. One portion is from the **Ventura River at Foster Park**, pumped from four shallow wells and a subsurface collector. This water drains from a 51,000-acre lower Ventura River Watershed in the Ojai and Ventura River Valleys that includes the tributaries of the San Antonio and the Coyote Creeks. Water is also purchased from **Lake Casitas**, which is operated and treated by the Casitas Municipal Water District (CMWD). Most of this water drains from the upper watershed that is federally protected to limit contamination of the lake. Water quality in the river and the lake are similar. Water is also pumped from **deep groundwater wells** located in the City's east side near Victoria Avenue and in Saticoy. Water quality from the Santa Clara River Watershed aquifers in the Fox Canyon, Mound and Santa Paula groundwater basins is similar to the water from the Ventura River and Lake Casitas but includes about two times the total dissolved solids (TDS) or minerals (hardness).

Ventura River

Water Treatment

All of the City's water is treated to meet strict State and Federal regulations. In 2007, the Avenue Water Treatment Facility was modernized to treat water from the Ventura River with a reliable and effective process known as membrane ultrafiltration (UF). Thousands of UF hollow fiber filtration membranes provide a physical barrier to remove pathogens and particles larger than the 0.02 micron pore size, including bacteria, viruses, Giardia, and Cryptosporidium.

The groundwater sources are treated at either the Bailey or Saticoy Plants with prechlorination and direct media filtration to remove iron, manganese, and turbidity particles, and disinfected with chloramines. Additional treatment with polyphosphate is provided at each plant to help minimize the corrosion of plumbing in your home. CMWD treats the water from Lake Casitas with direct media filtration and with chloramines for disinfection prior to delivery into the City's system.

The City uses chloramines, (chemicals that contain chlorine and ammonia), for continuous disinfection of the drinking water in the distribution system. Chloramines were selected as the preferred disinfectant because of their ability to provide disinfection over a longer period of time, and improve taste and odor as compared to using chlorine alone. Chloramines have been proven to effectively kill microorganisms while producing lower levels of disinfection byproducts such as trihalomethanes (TTHMs) and haloacetic acids (HAAs), which are potentially harmful contaminants. Drinking water containing these byproducts in excess of the regulated maximum contaminant level (MCL) may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

Although chloramines are desirable in protecting the water distribution system, their use requires additional precautions for some water uses. If a member of your household requires dialysis, you should contact your physician or dialysis service provider to assure proper protective equipment is used during the treatment. If you use tap water for fish or other aquatic animals that use gills for breathing, you need to test and be sure the chloramines are completely removed before use. Setting water in an open container for 24 hours prior to use will not remove all chloramines in the water. Your local pet store can provide information and products for the proper removal of chloramines.

Water Quality Monitoring & Results

Ventura owns and operates a full-scale, State-certified laboratory and may also use outside State-certified labs to monitor water quality. Water quality constituents that were detected by the laboratories during 2009 are listed on the Water Quality Summary Table (see back page). As reflected, Ventura's water system did not have any violations during the reporting period and we are proud that our drinking water successfully met the State and Federal requirements.

PHOTO BY JACOB FOKO

Our operations are also designed to protect and monitor public health. All treatment and distribution water system operating staff must provide evidence of competency by passing rigorous State certification exams from the CDPH and maintain this certification through continuing education.

Treatment plants are continuously monitored for specific water constituents by special automated instrumentation to ensure that the process is always producing water of high quality. Turbidity (cloudiness of the water) is monitored to indicate the effectiveness of the filtration processes, especially for surface waters. The City and CMWD are required to measure turbidity levels every 15 minutes because high turbidity can hinder the effectiveness of the chloramines disinfectant that kills bacteria and viruses.

Water Quality Reporting

The City submits monthly and annual reports to the State for review that summarize treatment and distribution operations and drinking water quality. The State annually inspects the City's water system. An Engineering Report, prepared by the State in August 2007, found that the City's water sources, facilities, and operations are capable of producing safe and reliable water quality, which meet State and Federal drinking water standards and regulations.

The City of Ventura's water meets or exceeds state and federal primary standards.

Ventura Avenue Water Treatment Facility

In 2008, the City met the triennial lead and copper corrosion monitoring requirements by sampling 50 locations to test consumer's tap water. The tests results indicated that no additional corrosion control treatment is required and a summary is provided in the Water Quality Summary Table (see last pages).

Water System Planning & Improvements

Prepared every 10 years, a new Water System Master Plan is currently nearing completion and will include an evaluation of capacity and delivery and recommendations for capital improvements based on an analysis of water supply, distribution, and water quality. While the City has adequate supplies for the near future, additional reliability and redundancy improvements are being planned to ensure future supply, even during drought conditions. Supplemental water supply sources are also being evaluated to determine their cost effectiveness and water quality benefits.

Water pumped from groundwater wells contains higher levels of dissolved solids, minerals and sulfur than Ventura's other two sources of water. Its mineralized content results in deposits on plumbing fixtures and less aesthetically pleasing water. While treated groundwater meets all health requirements, the Draft Water Master Plan, as well as the CDPH, recommends that the City develop a Water Quality Improvement Program to lower the mineral levels in the future. As a first step, an engineering study will be completed later this year to determine the most feasible options to meet higher water quality goals and will include cost estimates for each alternative.

Current improvement projects underway include two new wells on the Eastside, Saticoy Plant renovation design, evaluation of the Ventura River Foster Park well field strategies, replacement of aging water mains throughout the City (including the Foster Hillsides neighborhood and Tower Square), and installation of a emergency generator for uninterrupted operation of two critical booster pump stations. Due to our aging infrastructure and environmental regulations, we expect to continue our aggressive capital project program over the next few decades.

Significant financial investment by the community will be required to replace our systems and protect our water supply for future generations.

The City, like other water purveyors in the country, completed a federally mandated review of the security of its water system. This review evaluated all water facilities and prioritized security measures to minimize the risk of damage or contamination due to a malevolent act. As a result, the City has upgraded its security and will continue to improve the protection of our water system.

Water Health Evaluation

Identifying threats to our water quality as well as potential contaminants is important to sustaining a healthy water supply. This year, the City will conduct a five-year update to the Sanitary Survey of the Lower Ventura River Watershed to identify potential sources of water contamination. The study will also offer recommendations to reduce possible risks to the water supply and adjust the ongoing watershed water quality-monitoring program accordingly. Also, since 2002, the City has conducted an expanded testing program for specific water quality contaminants along the Ventura River and Coyote Creek, which may aid in early detection and direct planning for future improvements.

Separate Drinking Water Source Assessments are completed for all new water supplies, such as groundwater wells, to identify existing or potential threats. No contaminants have been detected in the water supply from surrounding activities such as gas stations, agricultural drainage, dry cleaners, urban runoff, sewer systems, metal plating/finishing and repair shops.

As a water supplier, the City must evaluate its drinking water supply every three years with respect to Public Health Goals (PHG). The goals are advisory only and are not mandatory limits, but do require public notification. The last evaluation in 2007 determined that ten chemicals, although well below the maximum contaminant level limit, exceeded a State PHG or the Federal Maximum Contaminant Level Goal (MCLG). The identified contaminants were lead, copper, arsenic, uranium, gross alpha and beta particles, radium 226, bromodichloromethane, bromoform, and dichloroacetic acid. Arsenic, and the four naturally occurring radioactive isotopes that typically occur in drinking water by the erosion of natural deposits, are considered carcinogenic. Noncarcinogenic effects of uranium on the kidneys and the liver have been documented. Radium is known to cause tumors. Bromodichloromethane, bromoform, and dichloroacetic acid are formed during the disinfection process with chlorine and can increase the risk of cancer and effects on the liver, kidney and central nervous system.

Water Recovery Basins

Copper and lead can be found in water as a result of the corrosion of plumbing fixtures used in most homes. The City has conducted tests to optimize its treatment with corrosion inhibitors in an effort to further reduce copper and lead levels. High levels of copper are known to cause gastrointestinal disturbance and kidney damage. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or www.epa.gov/safewater/lead.

Potential Concerns

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Drinking water, including bottled water, may contain small amounts of some contaminants, which does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Safe Drinking Water Hotline at 1-800-426-4791.

Sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up contaminants resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agriculture and livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals that may be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.
- Radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities.

The City takes precautions to eliminate the risk of infection from microbial contaminants, including viruses, bacteria, Giardia and Cryptosporidium, from its water system. These organisms are found in surface water throughout the United States and ingesting them may cause an abdominal infection. The City has been conducting monthly sampling for possible risks in the watershed for the last two years. There was no detection of Giardia or Cryptosporidium in any of the 24 samples. The new membrane filtration improvements installed at the Avenue Treatment Plant are very effective at removing these contaminants. The media filtration used by Casitas, although good at the removal of Giardia and/or Cryptosporidium, is not considered 100% effective. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the infection within a few weeks.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Ventura's Water Quality Summary 2010

Utilizing data collected in 2009, unless noted.
Only water quality constituents detected by laboratory testing appear in the chart.

PRIMARY STANDARDS (PDWS)	Units	Maximum Level MCL	State Goal PHG	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range	Major Sources of Contamination in Drinking Water (Footnotes)
Water Clarity										
Treated Turbidity	NTU	TT	NA	0.04 (a)	0.02 - 0.04(a)	0.33	0.1 - 1.4	0.13 (b)	0.01-0.13 (b)	1
Radioactive Contaminants (e)										
Gross Alpha particle activity	pCi/l	15	NA	3.2	1 - 5.5	8.5	4.6 - 19.2	1.1	0.3 - 2.1	2
Radium 226	pCi/l	5	NA	0.2	ND - 0.3	0.3	0.1 - 0.4	NA	NA	2
Uranium (c)	pCi/l	20	0.5	3.3	1.6 - 4.9	4.6	3.4 - 16.8	NA	NA	2
Inorganic Contaminants										
Fluoride	ppm	2	1	0.5	0.4 - 0.6	0.51	0.41 - 0.64	0.3	0.3	4
Selenium	ppb	50	NA	ND	ND	13.5	ND - 19.7	ND	ND	5
Nitrate (as Nitrogen)	ppm	10	10	1.1	ND - 1.0	1.2	ND - 3.5	ND	ND	6
Thalium	ppb	2	0.1	1.0	1.0	1.4	1.4	ND	ND	7

Lead and Copper Samples	Units	RAL	PHG	Samples Collected	Above RAL	90th Percentile	Major Sources of Contamination in Drinking Water
Lead	ppb	15	2	52 (d)	0	1	8
Copper	ppb	1300	300	52 (d)	2	970	8

PRIMARY STANDARDS for Distribution System	Units	MCL MRDL	PHG (MCLG) MRDLG	Distribution System Average	Distribution System Range	Major Sources of Contamination in Drinking Water
Disinfection						
Chloramine Residual	ppm	4	4	2.2	1.0 - 3.7	Drinking water disinfectant added for treatment.
Disinfection By Products						
Total Trihalomethanes	ppb	80	NA	31 (c)	3 - 97	By-product of drinking water chlorination.
Total Haloacetic Acids	ppb	60	NA	25 (c)	2 - 74	By-product of drinking water chlorination.
Microbiological Contaminant Samples						
Total Coliform Bacteria	NA	5%	0	0	0-1	Naturally present in the environment.
Fecal Coliform Bacteria	NA	0	0	0	0	Human and animal fecal waste.

SECONDARY STANDARDS		Units	Maximum Level MCL	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range
Aesthetic Standards	Color	Color	15	5	ND - 5	5	ND - 5	5	5
	Odor	Threshold	3	ND	ND	ND	ND	ND	ND
	Chloride	ppm	500	50	45-61	66	58 - 77	17	17
	Corrosivity	ppb	Non corrosive (+)	0.4	0.1 - 0.7	0.3	0.1 - 0.6	- 0.1	- 0.1
	Iron (TT)	ppb	300	ND	ND	ND	ND	NS	NS
	Total dissolved solids	ppm	1000	722	665- 820	1241	1037 - 1528	330	330
	Specific conductance	umhos	1600	985	931 -1028	1616	1387 - 1924	548	548
	Sulfate	ppm	500	252	238 - 274	548	440 - 715	129	129
Additional Constituents	pH	pH units	6.5 - 8.5	7.7	7.4- 7.8	7.4	7.1 - 7.6	7.6	7.6
	Hardness	ppm	NS	391	366 - 426	554	461 - 713	212	212
	Calcium	ppm	NS	110	101 - 125	142	118 - 194	52	52
	Magnesium	ppm	NS	29	27 - 34	49	39 - 60	20	20
	Manganese (TT)	ppb	50	ND	ND - 0.1	ND	ND - 50	ND	ND
	Sodium	ppm	NS	45	42 - 47	126	97 - 177	23	23
	Phosphate	ppm	NS	ND	ND - 0.1	0.2	0.1 - 0.8	ND	ND
	Potassium	ppm	NS	2.1	2.0 - 2.3	4.7	3.9 - 5.7	3	3
	Total Alkalinity	ppm	NS	209	184 - 223	253	213 - 270	120	120

Water Quality Terminology

The Water Quality Summary shows constituents measured in Ventura's water and reported to the State Department of Health Services, and in some cases the USEPA. Some of the terminology used is described below:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary (health related) MCLs are set as close to the Public Health Goals (PHGs) or Maximum Contaminant Level Goals (MCLGs) as is economically and technologically feasible. Secondary (aesthetically related) MCLs are set to protect the odor, taste and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of contaminant in drinking water below which there is no known or expected risk to one's health. MCLGs are set by the USEPA.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to one's health. The California Environmental Protection Agency sets PHGs.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Regulatory Action Level (RAL): The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

Footnotes

[1] Process and source variations.

[2] Erosion of natural deposits.

[3] Erosion of natural deposits; runoff from orchards; glass and electronics production waste.

[4] Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.

[5] Discharge from refineries or manufacturers; erosion of natural deposits.

[6] Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits.

[7] Leaching from ore-processing sites, discharge from electronics and glass factories.

[8] Internal corrosion of household plumbing systems.

(a) Average is maximum reading. Avenue Plant Surface Filtration (TT) = 95% of samples equal or below 0.1 NTU.

(b) Average is maximum reading. CMWD Direct Filtration (TT) = 100% of samples equal or below 0.2 NTU

(c) Highest running average cannot exceed the MCL.

(d) Samples were taken at selected households on a first draw in August 2008.

(e) Monitoring completed in 2007 and 2008.

Legend

ppm: Parts per million or milligrams per liter.

ppb: Parts per billion or micrograms per liter.

pCi/l: Picocuries per liter, a measure of radioactivity in water.

CMWD: Casitas Municipal Water District

TT: A required process intended to reduce the level of contaminant in drinking water

NA: Not applicable

ND: Not detectable

NS: No standard

NTU: Turbidity, a measure of the clarity or cloudiness of the water.

Victoria Well No. 2

Continued from Page 3

What's New With Chloramine Disinfection?

All public drinking water must be disinfected to prevent water-borne diseases. Casitas disinfects the water by adding chlorine and a small amount of ammonia to the water to form chloramines. Chloramine disinfection is approved by the California Department of Public Health and the Environmental Protection Agency. Many United States and Canadian cities have used chloramines for decades to disinfect water. The Metropolitan Water District of Southern California supplies water to nearly 18 million people and has been successfully using chloramines for disinfection since 1984. Chloramines reduce the level of unwanted disinfection byproducts in our water. Disinfection byproducts are formed when chlorine mixes with naturally occurring organic material in water. Currently, regulated disinfection byproducts include trihalomethanes and haloacetic acids. Chloramines stop the formation of these byproducts and the chloraminated water has less of a chlorine taste and odor than chlorinated water. Chloramines do not pose a health hazard to the general population. Chloraminated water is safe for drinking, bathing, cooking and other normal uses. Two specific groups of people, however, do need to take special care with chloraminated water - kidney dialysis patients and tropical fish hobbyists.

Dialysis Patients Have Special Needs

Kidney patients are not harmed from drinking, cooking or bathing in chloraminated water. However, there is a problem that needs to be addressed for individuals who are undergoing dialysis treatment on artificial kidney machines. Chloramines must not be present in the water used in dialysis machines. They can be removed through a filtration system. We have worked with the California Department of Public Health to ensure that everyone involved with treatment of dialysis patients is alerted to the facts about chloraminated water.

Chloramines and Your Aquarium or Fishpond

Chloramines are toxic to fish or animals that use gills to breath. While chlorine will evaporate rather quickly from standing water, it may take weeks for chloramines to disappear. Thus it is necessary to dechlorinate water used for aquariums and fishponds. We suggest using a filter system or a dechlorinating agent sold at most pet stores for fresh and saltwater aquariums and fishponds. Another option is to install a high-quality granular activated carbon (GAC) filter in your home. The chloramine residual in water used for fish should be kept below 0.1 parts per million. Contact your local pet store or fish shop for additional assistance.

Chloramines Are Safe for Plants and Swimming Pools

Chloramines will not affect the chlorine balance in your backyard swimming pool. You still need to add chlorine to retard algae and bacterial growth. Chloramines have no affect on plants, vegetables or fruit trees. For more information on chloramines call 805-649-2251, ext. 120.

What About Radon?

Radon is a radioactive gas that you can't see, taste or smell. Radon can get into the air when released from tap water from showering, washing dishes and other activities. Radon is a known human carcinogen. The water we send to our distribution system is well below the EPA proposed regulation of 300 pCi/L (picocuries/liter) of radon. Lake Casitas water measures at 0.0 pCi/L of radon, and the Mira Monte Well water measures at 500 pCi/L of radon. Mira Monte Well water is blended with Lake Casitas water, making the level of radon in the blended water approximately 16 pCi/L. For additional information, call your State radon program (1-800-745-7236) or call the EPA Safe Drinking Water Act Hotline (1-800-426-4791) or the National Safe Council Radon Hotline (1-800-SOS-RADON).

What about Cryptosporidium?

Cryptosporidium is a microbial pathogen found in surface water throughout the world. Although filtration removes it, the most commonly used filtration methods cannot guarantee 100 percent removal. Casitas monitored for Cryptosporidium during 2009 on a monthly basis with a result of non-detect for all of the samples. Low levels of Cryptosporidium were detected in the source water during 2006; since then results from monthly sampling have been negative. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection, because they are at a greater risk of developing life threatening illness. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

Fluoride

Casitas does not add fluoride, but there is some fluoride in the water that is naturally occurring. This level was tested at 0.3 mg/L in 2009. For more information on fluoride check the Department of Public Health's Fluoridation website for more information on fluoridation, oral health and current issues: www.cdph.ca.gov/certlic/drinkingwater/Pages/Fluoridation.aspx.

Lead and Copper

The latest results from Casitas' lead testing were below the action level. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Casitas is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at:
http: //www. epa.gov /safewater/ lead.
Elevated levels of copper can occur when corrosive water causes leaching of copper plumbing. To prevent this Casitas has implemented a corrosion-control plan by adding a small amount of phosphate to the water to lower the corrosivity and reduce copper levels

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than others. Immuno-compromised people such as cancer patients who are undergoing chemotherapy; those who have undergone organ transplants; people with HIV/AIDS or other immune system disorders; some elderly people; and infants can be particularly at risk for infections. These people should seek advice from their health care providers. The USEPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Ken Grinnell, Water Quality Laboratory Technician performs testing in Casitas lab

Casitas Keeps Your Water Safe

Casitas strives to provide you with water that meets or exceeds all federal and state standards for safe water. To ensure that you receive the highest quality drinking water, we test beyond what state and federal regulations mandate. This report shows the results of our monitoring for the period of January 1 through December 31, 2009, or the most recent testing period required.

Este informe contiene informacion muy importante sobre su agua beber. Traduzcalo hable con alguien que lo entienda bien. Para la informacion llame por favor 805-649-2251.

Board meetings are open to the public and are held on the second and fourth Wednesdays of each month at 4:30 p.m. at the district main office, 1055 Ventura Ave., Oak View, CA, 93022. For additional details on the subjects outlined here and for more information about Casitas Municipal Water District, visit us at our Web site:
www.casitaswater.org, or call Susan McMahon, Water Quality Supervisor, at 805-649-2251, ext. 120.

Your Tap Water Is Safe to Drink

To ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health set regulations that limit the amount of certain contaminants in water provided by public water systems. Health department regulations also establish limits for contaminants in bottled water.

It is reasonable to expect drinking water, including bottled water, to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. For more information about contaminants and potential health effects, call the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Painters at Lake Casitas

Do You Know the Source of Your Water?

The Casitas Municipal Water District is normally supplied by a blend of ground water and surface water that is treated before it is distributed to the public. Last year was a little different because the ground water source was turned off for maintenance. When in use, the ground water is drawn from the Mira Monte Well. The surface water comes from Lake Casitas, located near the junction of Highway 150 and Santa Ana Road. Most of the watershed is federally protected to limit contamination of the lake, and we inspect the watershed on a regular basis.

For more information, you may review the 1995 Watershed Sanitary Survey and the Survey's 2000 and 2006 updates, which are available at out main office in Oak View.

Lake Casitas is considered to be most vulnerable to the following activities not associated with any detected contaminants: boat services (repair and refinishing), petroleum pipelines and recreation. There have been no contaminants detected in the water supply, although the lake is still vulnerable to activities located near this major source of our drinking water. The potential sources of contaminants include private sewage disposal systems; livestock and wildlife grazing; limited pesticide and herbicide use; activities in the surrounding recreation area; unauthorized dumping; limited growth of new homes or urban areas; traffic accidents; and spills.
The 2002 drinking water source assessment for the Mira Monte Well is also available to the public at our office. This well is considered to be most vulnerable to the use of fertilizers and animal grazing, which raise nitrate levels in the water. In addition, the Mira Monte Well may be vulnerable to activities associated with an urban environment. However, these activities have not resulted in contamination of the well.

Nature and Man InfluenceYour Water Quality

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and, in some cases, radioactive material. It also can pick up substances resulting from the presence of animals or human activity.
Contaminants that may be present in source water include:

1). Microbial contaminants like viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
2). Inorganic contaminants like salts and metals, which can be naturally occurring or result from urban storm water runoff; industrial or domestic wastewater discharges; oil and gas production; mining or farming.
3). Pesticides and herbicides that may come from a variety of sources including agriculture, urban storm water runoff and residential uses.
4). Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production. They can come from gas stations, urban storm water runoff, agricultural application and septic systems.
5). Radioactive contaminants that can be naturally occurring or the result of oil and gas production and mining activities.
6). Lake Casitas has no urban or industrial water runoff and very few residents still live in the watershed. There is no oil, gas or mining production in our watershed.

Continued on Page 6

Casitas Water Quality Table 2010
(2009 Data)

Primary Standards

CONSTITUENTS		(MCLG)	LAKE CASITAS TREATED WATER		MIRA MONTE WELL		DISTRIBUTION SYSTEM		Date Sampled	Source of Contamination
	MCL	*PHG*	*LEVEL*	*RANGE*	*LEVEL*	*RANGE*	*LEVEL*	*RANGE*		
Turbidity	Treatment technique (TT)[a]								Dist. Sys./MMW	
Filter Effluent Turbidity (NTU) [a]	1 NTU	NA	Highest value = 0.13	0.01-0.13	NA	0.06	0.4	0.1-2.3	2009/2007	1
	95 % < 0.2 NTU	100% of turbidity measurements < 0.2							2009	
MICROBIOLOGICAL [b]										
Total Coliform Bacteria (Total Coliform Rule)	> 1 positive sample/month	(0)	NA	NA	NA	NA	0	0	2009	2
Fecal Coliform Bacteria (Total Coliform Rule)	> 1 positive sample/month	(0)	NA	NA	NA	NA	0	0	2009	3
INORGANIC CHEMICALS										
Fluoride (ppm)	2	1	0.3	0.3	0.5	0.5	NA	NA	2009/2007	4
Trihalomethanes (ppb)	80	NA	NA	NA	NA	NA	33.9	24.3-38.7	2009	5
Haloacetic acids (ppb)	60	NA	NA	NA	NA	NA	14	6-23	2009	6
DISINFECTION RESIDUALS										
Chloramines (ppm)	4 (MRDL)	4(MRDLG)	NA	NA	NA	NA	2.66	1.40-3.84	2009	7
RADIOACTIVITY										
Gross Alpha (pCi/L)	15	(0)	1.1	0.3-2.1	1.4	0.9-2.5	NA	NA	2004/2001	8
									(Most recent)	
INDIVIDUAL TAP MONITORING FOR: LEAD AND COPPER	**Regulatory Action Level**	**MCLG PHG**	**# of samples collected**	**Homes above AL**	**Level detected at 90th percentile**				**Date Sampled**	
Lead (ppb)	15	0.2	20	0		0.9			2008	9
Copper (ppm)c	1.3	0.3	20	0		0.950			2008	10

[1] Soil run-off [2] Naturally present in the environment [3] Human and animal fecal waste [4] Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories [5] By-product of drinking water disinfection [6] By-product of drinking water disinfection [7] Drinking water disinfectant added for treatment [8] Erosion of natural deposits [9] Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural products [10] Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

Secondary Standards Constituents	*MCL*		LAKE CASITAS			Mira Monte Well			Date Sampled Lake/Well	Sources of Contamination
			LEVEL	*RANGE*		*LEVEL*	*RANGE*			
Color (units)	15		5	5		5	5		2009/2007	11
Corrosivity (Langlier Index) (ppm)	Non-corrosive		-0.09	-0.09		-0.5	-0.5		2009/2007	12
0dor (units)	3		ND	ND		ND	ND		2009/2007	11
Turbidity(NTU)	5		ND	ND		0.6	0.6		2009/2007	13
Total Dissolved Solids (ppm)	1000		330	330		420	420		2009/2007	14
Specific Conductance (umhos)	1600		548	548		668	668		2009/2007	15
Chloride (ppm)	500		17	17		64	64		2009/2007	16
Sulfate (ppm)	500		129	129		32	32		2009/2007	17
ADDITIONAL CONSTITUENTS										
Total Hardness (ppm)	NS		212	212		207	207		2009/2007	18
Sodium (ppm)	NS		23	23		58	58		2009/2007	18
UNREGULATED CONTAMINANTS										
Boron (ppb)	N.L.=1000		200	200		ND	ND		2009/2007	
Vanadium (ppb)	N.L.=50		ND	ND		ND	ND		2008/2007	

[11] Naturally occurring organic materials [12] Natural or industrially influenced balance of hydrogen, carbon or oxygen in the water; affected by temperature or other factors [13] Soil run-off [14] Run-off/leaching from natural deposits [15] Substances that form ions in water; seawater influence [16] Run-off/leaching from natural deposits; seawater influence [17] Run-off /leaching from natural deposits; industrial wastes [18] Generally found in ground and surface water

TERMS USED IN THIS REPORT

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by USEPA.

ND: Not detectable at testing limit.

Notification Level: Health based advisory levels established by California Dept. of Public Health for chemicals in drinking water that lack MCLs.

ppb: parts per billion or micrograms per liter (ug/L)

ppm: Parts per million or milligrams per liter (mg/L)

ppt: parts per trillion or nanograms per liter (ng/L)

pCi/L: picocuries per liter (a measure of radiation)

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Primary Drinking Water Standards (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Regulatory Action Level (RAL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at these MCL levels.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Key To Table (ACRONYMS)

AL	Regulatory Action Level
umhos	Micromhos per centimeter (a measure of specific conductance)
NA	Not applicable
ND	None detected
NL	Notification Level
NS	No Sample
NTU	Nephelometric Turbidity Units (a measure of turbidity)
ppm	Parts per million, or milligrams per liter (mg/L)
ppb	Parts per billion, or micrograms per liter (ug/L)
pCi/L	Picocuries per liter (a measure of radioactivity)
SMCL	Secondary Maximum Contaminant Level
TT	Treatment Technique

Water Quality Table Footnotes:

a) 100% of the samples tested for turbidity were below the required TT level of 0.2 NTU. Turbidity is a measure of the cloudiness of water and is a good measure of water quality and filtration performance.

b) In 2009 we collected 160 samples for total coliform bacteria testing. Total coliform bacteria were not detected in any of these samples.

c) Casitas has implemented a corrosion control plan by adding a small amount of phosphate to the water to lower corrosivity and reduce copper levels.

Water is Precious

MEINERS OAKS WATER DISTRICT
CONSUMERS CONFIDENCE REPORT FOR 2009

Last year, as in years past, your tap water meets or exceeds all EPA and State drinking water health standards. Meiners Oaks Water District delivered safe drinking water that did not violate a maximum contaminant level; although we did violate our turbidity standard in August 2009. This was due to a maladjusted piece of equipment that never compromised the health or safety of our customers. This report details about where your water comes from, what it contains, and how it compares to State standards.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA and the California Department of Health Services prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish a limit for contaminants in bottled water that must provide the same protection for public health. To add to the delivery and protection of your drinking water, we have added a new EPA approved 2 stage filtration system. The first stage has a run of 10 filters and the second has a run of 8 filters. This filtration system has a minimum removal rate of 99.9% for Cryptosporidium and Giardia which equals a 3-log removal required by the State of California. With the addition of chlorine gas at .5 to .8 ppm (parts per million), we can help to ensure that the best water possible is being delivered to our customers.

Sources of your Water

Your water comes from four district wells drilled 100 to 400 feet into underground aquifers. Two groundwater wells are located at Lomita and Rice, and two wells three miles north of Meiners Oaks. We have one water system connection to receive surface water from Lake Casitas. Customers may receive Lake Casitas surface water if our wells need repair or cannot keep up with system demand. A blend of surface and ground water is delivered on those occasions.

Water Conservation

Meiners Oaks Water District would like to ask its customers to please conserve water every chance they get. It is a precious natural resource that we cannot afford to abuse. We would also like to remind everyone that this has been a normal year for rainfall at 29.05"; but that doesn't mean we can afford to slack off on our conservation. So please keep in mind to use positive shut off valves when washing your car or watering your plants or garden. Use low flow shower heads and faucets. Low flow toilets are also a big water saver. If you cannot afford a low flow toilet they offer bladders that can be installed in the tank of your toilet. At this point in the year our well levels are looking good, but if the weather doesn't become more cooperative in the upcoming years water levels could drop and conditions could become more severe. So please remember to conserve your precious resource.
Another way to save water is to use smart controllers for your irrigation valves. They are available through Casitas Municipal Water rebate program, let them know that you are one of our customers and present them a water bill from our district and they will take it from there. Please contact Ron Merckling at 649-2251 EXT. 118

Fun Facts

Studies have shown that house holds in America will use approximately 146,000 gallons annually. 42 percent of that or approximately 61,300 gallons is used indoors.
The 58 percent that is left approximately 84,700 gallons is being used outdoors.
A person needs 4 to 5 gallons of water per day to survive
1.1 billion People lack access to an improved water supply - approximately one in six people on earth.
Did you know that if you fixed all the leaks in your sprinkler system you could save up to 500 gallons a month?
Currently, the average household in southern California will use approximately 110 gallons of water per day. If efficient water use is practiced and efficient water fixtures are used that number could drop to 42 gallons per household per day.

For more information about saving water and doing your part go to www.bewaterwise.com or http://meinersoakswater.com/

Conclusion

Meiners Oaks Water District would like remind its customers that by using water efficient fixtures in their homes, they can cut back on their water usage considerably. We would also like to remind our customers that there is not an infinite supply of water in our state, and a few small changes in our life styles could help make a difference for everyone.

The Meiners Oaks Water District Board meets on the third Tuesday of each month at the water district office: 202 W. El Roblar. The meetings begin at 6:30 PM and anyone may attend any of these regular meetings. If you have any questions, please call (805) 646-2114.

WATER QUALITY DATA

The table below lists all the drinking water contaminants that we detected during the 2009 calendar year. The presence of these contaminants in water does not necessarily indicate that the water poses a health risk. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. All of the data is from the most recent monitoring done in compliance with regulations.

TERMS USED IN THIS REPORT:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.

Primary Drinking Water Standards (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Variances and Exemptions: Department permission to exceed an MCL or not comply with a treatment technique under certain conditions.

ND: not detectable at testing limit

ppm: parts per million or milligrams per liter (mg/L)

ppb: parts per billion or micrograms per liter (ug/L)

ppt: parts per trillion or nanograms per liter (ng/L)

pCi/L: picocuries per liter (a measure of radiation)

MFL : Million Fibers Per Liter

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides* that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems.
- *Radioactive contaminants*, which can be naturally-occurring or be the result of oil and gas production and mining activities.
- Disposing of unused, unwanted, and expired medications once it was common practice to flush these medications (also known as pharmaceuticals) down the toilet. Your doctor or pharmacist may have directed you to do this. We now know that these substances are bad for our environment - the ground, water, and air around us.
  For more information please look to (nodrugsdownthedrain.org)
  In order to ensure that tap water is safe to drink, the USEPA and the state Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Tables 1, 2, 3, 4, and 5 list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The Department allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old.

Table 1 - sampling results showing the detection of coliform bacteria					
Microbiological Contaminants (to be completed only if there was a detection of bacteria)	Highest No. of detections	No. of months in violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria	(0)	0	More than 1 sample in a month with a detection	0	Naturally present in the environment
Fecal Coliform or *E. coli*	(0)	0	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or *E. coli*	0	Human and animal fecal waste

Table 1.2	Sample Date	Level Detected	MCL	PHG	BY-Products of Disinfection
Total Trihalomethanes (TTHM	2009	ND	80 ug/L		
Chloroform	2009	ND			
Dibromochloromethane	2009	ND			
Bromoform	2009	ND			
Haloacetic acids (five) (HAA5)	2009	ND	60		
Dichloroacetic acid	2009	1			
Trichloroacetic acid	2009	ND			
Chlorite	2007	ND	1.0		
Bromate	2007	ND	10		
Perchlorate	2009	ND	6		

Table 2 - sampling results showing the detection of Lead and copper Last sample date 7-08-2008 Due 6-2011						
Lead and Copper (to be completed only if there was a detection of lead or copper in the last sample set)	No. of samples collected	90th percentile level detected	No. sites exceeding AL	AL	MCL	Typical Source of Contaminant
Lead (ppb)	19	1.0	0	15	15	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppm)	19	140	0	1.3	1300	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

TAble 3 - sampling results for sodium and hardness						
Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Sodium (ppm)	2009	62	54-68	none	none	Generally found in ground & surface water
Hardness (ppm)	2009	549	452-604	none	none	Generally found in ground & surface water

TAble 4 - detection of contaminants with a Primary Drinking Water Standard						
Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
Turbidity – NTU	2009	<.1	<.1-5	5 95%<0.2	NS	Any particulate matter that scatters light
Inorganic Chemicals Nitrate as NO3	2009	12.1	10-15.5mg/L	45 mg/L	1	Erosion of natural deposits
Fluoride - ppm	2009	.5	.5-.7	1.7	1	Natural deposits or injection
Gross Alpha pCi/L	2008	.975	.975 – 2.86	15	0	
Bacteriological						
Total Coliform	2009	<1.1	<1.1		0	Naturally Present in the Environment
Fecal Coliform or E.Coli	2009	<1.1	<1.1		0	Human and Animal fecal Waste

TAble 5 - detection of contaminants with a Secondary Drinking Water Standard						
Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Chloride - ppm	2009	36.7	26-49	500	NS	Run off/from natural deposits
Corrosivity (a)	2009	12.0	12.0-12.6	Non-corrosive	NS	Natural or industrial influenced balance of hydrogen, carbon or oxygen in the water – affected by temperature
Manganese – ppm	2009	ND	ND	50	NS	Normally found in ground water
Odor Threshold – Units	2009	ND	ND	3	NS	Natural occurring organic materials
Sulfate - ppm	2009	294	235-390	500	NS	Run-off from natural deposits, industrial wastes
Specifis Conductance – umhos	2009	1040	961-1180	1600	NS	Substances that form ions in water- sea water influence
Turbidity – NTU	2009	<.25	<.1-.5	5	NS	Soil runoff
TDS – ppm	2009	690	620-800	1000	NS	Run off – natural deposits
Additional Parameters						
Calcium - ppm	2009	161	125-186	Secondary	NS	Generally found in ground and surface water
Hardness – ppm	2009	549	452-604	Secondary	NS	Generally found in ground and surface water
Magnesium – ppm	2009	35	33-41	Secondary	NS	Generally found in ground and surface water
pH Units	2009	7.2	7.1-7.5	NS	NS	Measure of hydrogen ions
Sodium - ppm	2009	62	54-68	Secondary	NS	Naturally occurring
Asbestos	2009	ND	0	7 (MFL)	NS	Erosion of natural deposits

**Any violation of an MCL, MRDL, or TT is asterisked. Additional information regarding the violation is provided later in this report.*

Additional General Information on Drinking WaterDrinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Summary Information for Contaminants Exceeding an MCL, MRDL, or AL, or a Violation of Any Treatment Technique or Monitoring and Reporting Requirement

For Systems Providing Surface Water as a Source Of Drinking Water:

(Refer to page 1, "Type of water source in use" to see if your source of water is surface water or groundwater)

Table 7 - sampling results showing TREATMENT OF SURFACE WATER SOURCES	
Treatment Technique [(a)] (Type of approved filtration technology used)	Slow Sand filtration (18 pressure tanks) with a 99.9% log removal
Turbidity Performance Standards [(b)] (that must be met through the water treatment process)	Turbidity of the filtered water must: 1 – Be less than or equal to 1.0 NTU in 95% of measurements in a month. 2 – Not exceed .5 NTU for more than eight consecutive hours. 3 – Not exceed 5 NTU at any time.
Lowest monthly percentage of samples that met Turbidity Performance Standard No. 1.	100% October 2008
Highest single turbidity measurement during the year	.485
Number of violations of any surface water treatment requirements	1

(a) A required process intended to reduce the level of a contaminant in drinking water.

(b) Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

** Any violation of a TT is marked with an asterisk. Additional information regarding the violation is provided earlier in this report.*

Summary Information for Surface Water Treatment

Appendix Q

Ventura Countywide Stormwater Quality Management Program

2008-2009 Annual Report

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Annual Report for
Permit Year 9,
Reporting Year 15

October 2009

2008-09 Annual Report

Ventura Countywide Stormwater Quality Management Program

A cooperative project of the County of Ventura, the cities of Ventura County and the Ventura County Watershed Protection District

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EXECUTIVE SUMMARY

The purpose of this document is to comply with NPDES Permit No. CAS004002/Order No. 00-108, which requires submittal by October 1 of each year of an Annual Storm Water Report (Report). This Report discusses the Co-permittees' Second Term Permit compliance activities for the period of July 1, 2008 to June 30, 2009, includes a description of all activities conducted during the reporting period, and an assessment of the Ventura Countywide Stormwater Program's effectiveness. This Annual Report was prepared with the cooperation and assistance of the Ventura Countywide Co-permittees who contributed the detailed permit compliance information and data regarding their various stormwater programs. The Co-permittees through implementation of various comprehensive program elements, have achieved compliance with all requirements of the Permit.

Although the Regional Board adopted a new permit, (Order No. 09-0057), on May 7, 2009, the new Order did not become effective until August 5, 2009, after the reporting period ended on June 30, 2009. The new permit was not in effect for any part of the reporting year covered by this Report, and this Report only addresses compliance with Order No. 00-108.

The organization of the Report reflects the organization of the 2001 Stormwater Management Plan (SMP). The implementation portion of the SMP consists of the following elements, with this Report containing a section on each element: 2. Management, 3. Program for Residents, 4. Programs for Industrial and Commercial Businesses, 5. Programs for Planning and Land Development, 6. Programs for Construction Sites, 7. Programs for Public Agency Activities, 8. Programs for Illicit Discharges/Illegal Connections, 9. Stormwater Quality Monitoring.

For this year's annual Program Effectiveness Assessment (PEA), the Co-permittees utilized a series of measures (both *direct* and *indirect*) to verify program implementation and ultimately validate achievement of Program goals. The identified measures are designed to assess the effectiveness of the Program to improve stormwater water quality.

This year's PEA shows strong evidence of increasing program effectiveness:

A. For the past five years illicit discharges have decreased signaling a change in the public's behavior for the better;

B. Increased enforcement of stormwater requirements at construction sites even though there was a reduction in grading permits granted;

C. Increased program activities removing trash and debris from catch basins, channels, ditches and detentions basins resulting in more debris removed;

D. Land development projects are increasingly identified and conditioned for stormwater BMPs based on site activity and pollutants of concern, and not solely on permit requirements.

In addition, key baseline data has been compiled on a watershed and countywide basis for future comparative assessment and trends analysis in the areas of municipal activities, new and existing development, and construction.

<u>Notable accomplishments that occurred during this reporting period include:</u>

A. The achievement of over 4.6 million impressions in the countywide public outreach effort. 20% of media placed was in Spanish.

B. Over 1 million pet waste pickup bags were given out at local parks, beaches and trail heads countywide at a cost of over $100,000.

C. A cooperative effort with Police and Sheriffs to catch illicit discharges by installing hidden security cameras in areas of frequent illegal dumping.

D. 1197 food service facilities were inspected for stormwater compliance.

E. 644 automotive service facilities inspected for stormwater compliance.

F. 412 industrial facilities were visited for stormwater quality education.

G. 82 development projects identified within one or more of the SQUIMP categories were conditioned for stormwater quality controls.

H. 51 development projects that were not one of the SQUIMP categories were also conditioned for stormwater quality controls.

I. 268 stormwater quality inspections were made at active construction sites but only 159 grading permits issued.

J. Over 43,000 tons of debris was removed by public works crews by cleaning 15,453 catch basins, 220 miles of channels and ditches, and sweeping over 115,000 miles of curbs and gutters.

K. Inspectors responded to 541 reports of illicit discharges resulting in 357 enforcement actions taken, a decrease for the fifth consecutive year.

L. Permittees decided to voluntarily implement progressive stormwater programs in advance of permit renewal, even though these programs are not required by the current permit such as storm drain mapping, catch basin prioritization and a Youth Awareness Survey.

With respect to water quality monitoring, the Co-permittees continued to implement a very comprehensive monitoring program. Key points are highlighted below:

A. The Ventura Countywide Stormwater Monitoring Program met all the monitoring requirements of its Permit.

B. Water quality monitoring data were collected by the Stormwater Monitoring Program during four wet weather and two dry weather events.

C. All environmental and QA/AC water chemistry data thoroughly evaluated and accepted by VCWPD staff using *Data Quality Evaluation Plan* and *Data Quality Evaluation Standard Operating Procedures* guidance documents.

D. Acute toxicity of *Ceriodaphnia dubia* was observed at the agriculture dominated Receiving Water sites W-3 (La Vista) and W-4 (Revolon Slough) for the samples collected during Event 1.

E. No Chronic toxicity of *Strongylocentrotus purpuratus* (purple sea urchin) was observed at the Mass Emission station.

F. Toxaphene concentrations exceeded applicable water quality objectives at multiple locations during one or more wet weather monitoring events.

G. Elevated pollutant concentrations were observed at all monitoring sites during one or more monitored wet weather storm events, as well as ME-CC and ME-SCR during one or more dry weather events. See Section 9 for details and an explanation of monitoring results.

Future Program Activities

The Permittees are aggressively moving forward with implementation of the new permit. Subcommittees are working on developing new forms, protocols and procedures to ensure compliance with each program. Already a Youth Outreach Plan has been submitted to the Regional Board and a new Pesticide Application Protocol has been drafted. Monitoring stations have been installed at the four new monitoring sites and are standing by for the first rain of the season. There are many challenges for the Program this next year including revising the Technical Guidance Manual for Land Development, writing and adopting new ordinances, implementing the Youth Outreach Plan and developing a new annual report format.

SECTION 1.0 INTRODUCTION

The Watershed Protection District (Principal Co-permittee), the County of Ventura and the incorporated cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Ventura, Santa Paula, Simi Valley, Thousand Oaks, (each a Co-permittee and collectively known as Co-permittees) operate municipal storm drain systems and discharge stormwater and urban runoff pursuant to the countywide NPDES permit (Board Order No. 00-108). This permit, administrated by the Los Angeles Regional Water Quality Control Board (RWQCB), requires an Annual Storm Water Report and Assessment (Annual Report) submitted by October 1 of each year.

The first permit was adopted in 1994, and on July 27, 2000 a second permit was adopted. That permit was on administrative extension until October 7, 2009 when the current permit (Board Order 09-0057, adopted May 7, 2009) became effective. This new permit was not in effect for any part of the permit year covered by this report, and this report only address compliance with Board Order 00-108.

1.1 Purpose and Organization of Report

In accordance with the requirements of the permit, the primary purpose of the report is to document:

- The status of the general program and individual tasks contained in the Stormwater Management Plan (SMP);
- Results of the monitoring and reporting program CI 7388; and
- Compliance status and effectiveness of the implementation of permit requirements.

The organization of the report reflects the organization of the Program's 2001 SMP. Each section contains a review of co-permittee program activities and detailed descriptions of the 2007-2008 permit year:

- Program management framework (committee and subcommittee structure) and a fiscal analysis report (**Section 2.0**)
- Status and effectiveness of the public information dissemination and pollution prevention outreach program (**Section 3.0**)
- Inspection and enforcement activities directed at effectively prohibiting non-stormwater discharges from businesses and industrial sites in order to reduce stormwater pollution to the maximum extent practicable. **(Section 4.0)**
- Efforts to minimize the impact of new development and significant redevelopment on stormwater quality.(**Section 5.0**)
- Construction site practices to ensure the protection of stormwater quality to the maximum extent practicable **(Section 6.0)**
- Efforts to reduce the adverse effects that municipal activities may have on water quality **(Section 7.0)**
- Status of the control measures established under the Illicit Discharge/Illegal Connections elimination program (**Section 8.0**)
- A summary and analysis of the monitoring results from the water quality monitoring program (**Section 9.0**) and **(Appendix 3)**

1.2 Major Program Accomplishments

Notable accomplishments that occurred during the reporting period include:

- Regional Board adoption of new NPDES MS4 Permit (Order No. 08-0057);
- Development and distribution of new BMPS posters for restaurants and auto shops;
- Implementation of a new public education campaign on horse manure management;
- Initiated development of new Youth Outreach Campaign by performing an awareness survey:
- Stormwater Quality Monitoring (6 events, 4 wet and 2 dry);
- Regional TMDL participation;
- Southern California Coastal Water Research Project (SCCWRP) Participation:

- Cooperation and commitment to SCCWRP to aid in a hydromodification effects study;
- Cooperation and commitment to the Stormwater Monitoring Coalition of Southern California to a Low Impact Development Guidance and Training Project for Southern California;
- CASQA Participation;
- Calleguas Creek Watershed Management Plan Participation;
- Ventura River Watershed Council Participation;
- Integrated Regional Water Management Plan (IRWMP) Participation.

The Co-permittees have been working with Regional Board staff on the adoption of the new NPDES permit since 2005. Because it was reasonable to expect the new permit would substantially change program elements and strategies the Permittees have been conservative in starting and amending programs over the past years. This does not mean Co-permittees forestalled programs improvements or new programs, in fact the permittees have been proactively implementing some program elements found in the new permit.

1.3 Effectiveness Assessment Strategy

The SMP recognizes a number of separate, but nonetheless related, water quality planning processes. These processes are countywide, jurisdictional and watershed based water quality management tools. Each process is iterative and incorporates phases of assessment to determine whether programmatic goals are being achieved.

1.3.1 Measurable Goals

Measurable goals are a primary implementation tool of the SMP. They are described by USEPA as BMP design objectives or goals that quantify the progress of program implementation and the performance of BMPs. They are objective markers or milestones that track the progress of the co-permittees in implementing the provisions of the permit and the SMP to the Maximum Extent Practicable (MEP).

Measurable goals may be categorized in a variety of ways. In this report, two categories are acknowledged: (1) the shorter-term confirmation of BMP implementation (Implementation or Process Measures, also termed Programmatic Indicators) and (2) the longer-term verification of environmental improvement (Validation or Results Measures, typically actual indicators of environmental change). These two categories of measurable goals reflect two basic assessment questions:

- Are program elements being implemented correctly?
- Are desired outcomes (i.e. environmental improvements) being achieved?

Programmatic and environmental indicators may be constructed into a hierarchical relationship (See **Table 1.1 Hierarchy of Indicators**). This relationship helps to illustrate the fact that environmental outcomes rest on, or follow from, jurisdictional program implementation. Moreover, it points to the reality that scientific evidence of changing ecosystem quality will follow program implementation over time, and should not be expected to be evident concurrently.

Table 1.1 Hierarchy of Indicators (USEPA, 1998)

Environmental Indicators (Direct Measures)	6	Ultimate Impacts: Ecological Health Welfare
	5	Body Burden/Uptake
	4	Ambient Conditions
	3	Discharge/Emission
Programmatic Indicators (Indirect Measures)	2	Actions by Regulated Community
	1	Actions by Regulators

In the context of evaluating stormwater management program implementation, the distinction is also often made between *direct* and *indirect* measures. Direct measures are typically environmental indicators such as determinations of water quality. Indirect measures are essentially non-water quality indicators, such as reductions in pesticide use, from which improvements in water quality can be inferred.

A number of Performance Measures have been identified based upon the following selection criteria:

- Relevance: It has demonstrable relation to the strategy and objectives;
- Reliability: The measure will help identify the strengths and weakness of the program area/process;
- Clarity of Naming System: It is readily understandable by its name; and
- Availability of Data: The data are available at reasonable cost.

These Performance Measures comprise process and result (direct and indirect) measures that are used to highlight the progress of the Co-permittees in implementing water quality management, protection and enhancement requirements of the Permit. The Performance Measures are defined in the SMP and presented in **Table 1.2**

Table 1.2 Performance Measures

Program Element	Performance Measure	Type of Performance Measure	
		Process Measure	Result Measure
Program Management	Participation in Management Committee	X	
	Participation in subcommittee meetings	X	
	Submittal of Co-permittee Self-Audit	X	
	Submittal of the Annual Report	X	
	Annually submittal of Co-permittee program evaluation results	X	
	Stormwater program budget updates	X	
	Review and adopt or amend legal authority to implement stormwater management plan	X	
Public Outreach	Identify program contact person(s)	X	
	Catch basin stenciling	X	
	Signs prohibiting illegal dumping at designated public access points to creeks and channels		X
	Educational activities and participation in countywide events		X
	Household Hazardous Waste Collected		X
	Used Oil Collected		X
	Educational material distribution		
	No. of outreach contacts	X	
Industrial/ Commercial Businesses	No. of site education/inspections to automotive, food service and other targeted businesses	X	

Table 1.2 Performance Measures

Program Element	Performance Measure	Type of Performance Measure	
		Process Measure	Result Measure
	No. of follow up inspections	X	
	No. of additional businesses targeted based on Pollutants of Concern (POCs) as appropriate	X	
	No. of facilities identified as potentially subject to the General Industrial Permit given educational materials	X	
	No. of targeted employees trained	X	
Planning & Land Development	No. of Projects reviewed and conditioned for stormwater	X	
	Area to which BMPs have been applied		X
	No. of BMPs implemented		X
	Stormwater quality conditions included in environmental checklists, initial studies or EIRs required by CEQA and/or NEPA	X	
	Watershed and stormwater management considerations in Co-permittees' General Plan	X	
	Technical Guidance Manual	X	
	Environmentally Sensitive Areas	X	
	Development Community Outreach		X
	No. of targeted employees trained	X	
Construction Sites	No. of SWPCPs/SWPPPs developed and implemented		X
	No. of NOIs filed with the State		X
	No. of sites inspected	X	
	No. of follow up inspections	X	
	No. of enforcement actions	X	
	Construction Community Outreach		X
	No. of targeted employees trained	X	
Municipal Activities	Co-permittee corporate yard SWPCP		X
	Drainage System Operation and Maintenance		X
	Roadway Operation and Maintenance		X
	No. of Facilities Inspected	X	
	Solid Waste Collected		X
	Pesticide, Herbicide and Fertilizer Protocols		X
	Reduction in Total Pesticide Application		X
	Reduction in Total Fertilizer (Nitrogen) Application		X
	Reduction in Total Fertilizer (Phosphorus) Application		X

Table 1.2 Performance Measures

Program Element	Performance Measure	Type of Performance Measure	
		Process Measure	Result Measure
	No. of targeted employees trained	X	
Illicit Discharge/Illegal Connections	No. of complaints		X
	No. of enforcement actions	X	
	Educational material distribution		X
	No. of targeted employees trained	X	

1.3.2 Effectiveness Assessment

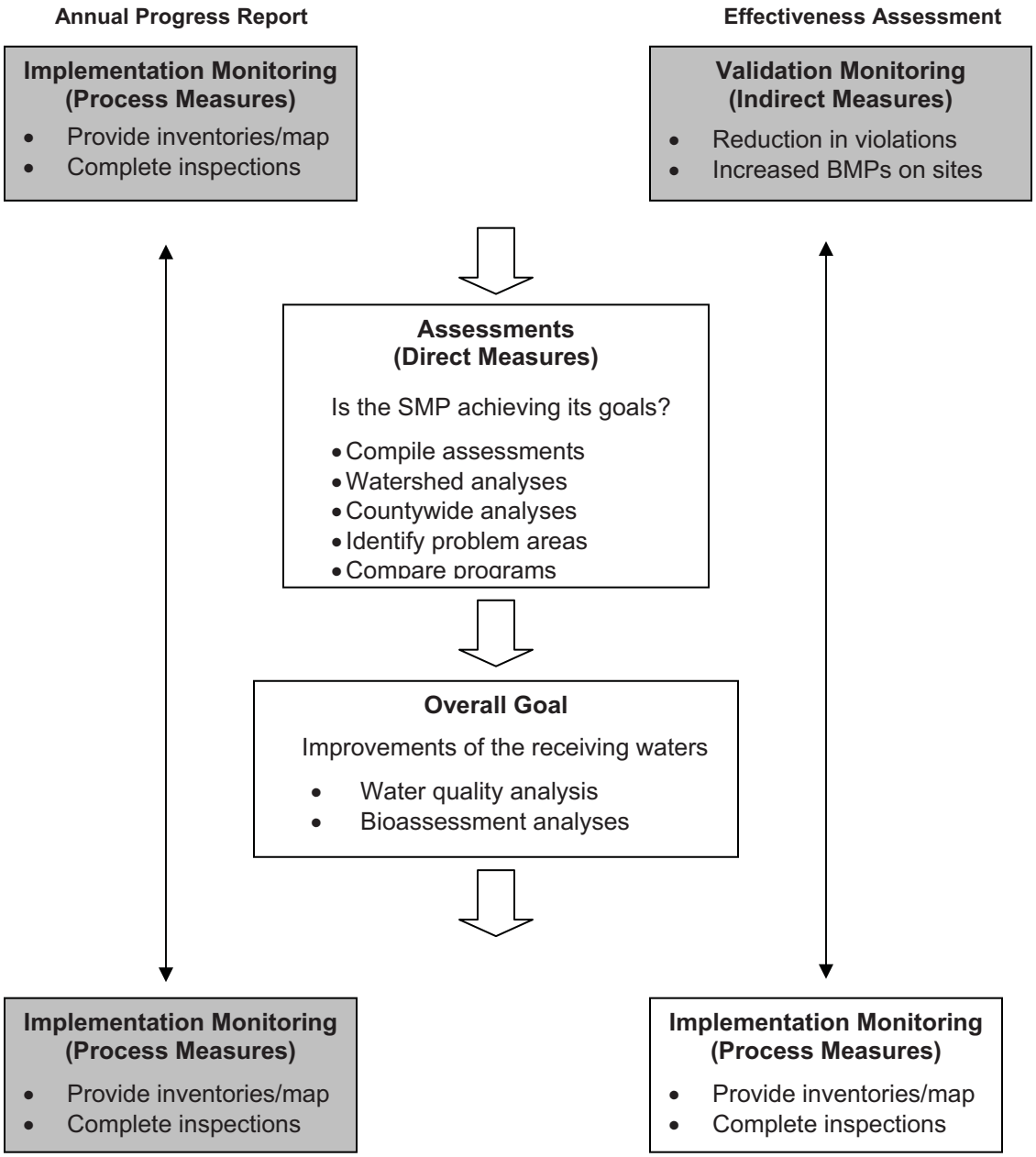
Effectiveness assessment requires the establishment of a set of baseline conditions. Thereafter, effectiveness can be evaluated by comparisons of indicator information against the baseline data over the years. Where the period of evaluation is characterized by the implementation of new program requirements, determinations of program effectiveness will initially be limited to confirmation of program implementation. Indeed, it must be recognized that direct measures of program effectiveness may not be available within the history of the Stormwater Quality Program. This challenge arises because:

- Baseline water quality conditions are not readily established;
- Water quality changes in response to program implementation are likely to be slow and may be marked by changes due to extreme weather events;
- Establishing a link between receiving water condition and program activities is difficult at the watershed scale when program elements are being implemented incrementally with the development/redevelopment cycle;
- The watersheds of Ventura County are not predominantly urbanized, so in-stream measurements cannot isolate changes due to urban or other sources.

The evaluation of stormwater program effectiveness assessment is also conducted at two levels. At the jurisdictional or Co-permittee level, the assessment is conducted annually and focuses on program implementation. Inferences about the connection of management program elements to water quality improvements made in these assessments will be drawn from the assessment of programmatic indicators and indirect measures of progress. The Co-permittees' program assessments are presented in **Sections 3.0 – 8.0**.

At the countywide program level, the major assessment is done principally on a permit cycle basis with an emphasis on using indirect measures of progress. The Annual Progress Report strategy is illustrated in **Figure 1-1**.

Figure 1-1 Annual Progress Report



SECTION 2.0 PROGRAM MANAGEMENT

2.1 Responsibilities

The responsibilities of the Principal Co-permittee and Co-permittees are defined within the Permit and the Implementation Agreement. These roles and responsibilities are outlined below.

2.1.1 ***Principal Co-permittee***

The role of the Principal Co-permittee is similar to the other Co-permittees with the addition of certain overall programmatic and facilitation responsibilities. These responsibilities are not to ensure the compliance of the Co-permittees as the Principal Co-permittee has no regulatory authority over the Co-permittees. These responsibilities include the following:

- Coordinate Permit activities;
- Establish uniform data submittal format;
- Set time schedules;
- Prepare regulatory reports;
- Forward information to the Co-permittees;
- Arrange for public review;
- Secure services of consultants as necessary;
- Implement activities of common interest;
- Develop/prepare/generate all materials and data common to all Co-permittees;
- Update Co-permittees on RWQCB and US Environmental Protection Agency (USEPA) regulations;
- Convene all Management Committee and Subcommittee meetings;
- Manage the countywide educational outreach program; and
- Manage the countywide stormwater quality monitoring program.

2.1.2 ***Co-permittees***

Each Co-permittee is responsible for implementing the NPDES Stormwater Program within their jurisdiction. The main responsibility of each Co-permittee includes:

- Review, approve and comment on budgets, plans, strategies, management programs and monitoring programs developed by the Principal Co-permittee or any subcommittee;
- Implement the various stormwater management programs outlined in the Permit and the Stormwater Management Plan (SMP) within its jurisdiction;
- Establish and maintain adequate legal authority;
- Take appropriate enforcement actions as necessary within its jurisdictions to ensure compliance with applicable ordinances;
- Coordinate among internal departments and agencies, as appropriate, to facilitate the implementation of the Permit and the SMP;
- Respond to/or arrange for response to emergency situations, such as accidental spills, leaks, illicit discharges/illegal connections, etc., to prevent or reduce the discharge of pollutants to the storm drain systems and waters of the U.S. within its jurisdiction;
- Conduct inspections of and perform maintenance on municipal infrastructure within its jurisdiction;
- Conduct and coordinate any surveys and source identification studies necessary to identify pollutant sources and drainage areas;
- Participate in the Management Committee meetings and subcommittee meetings as outlined in the SMP; and
- Prepare and submit all reports or requests of information to the Principal Co-permittee in a timely fashion.

2.2 Management Activities

2.2.1 Management Committee

The NPDES Management Committee is the Principal forum for directing the Program's development and implementation. This Committee is attended by senior staff from all Co-permittee agencies and meets monthly to assure Program continuity. In addition, this committee periodically evaluates the need to create ad hoc committees or workgroups as required in order to accomplish the objectives of the NPDES Stormwater Program. Participation in the NPDES Management Committee is a specific requirement of the Permit. Co-permittee participation in the NPDES Management Committee is noted in **Figure 2-1**.

12 Regular and 7 Special Management meetings were held.

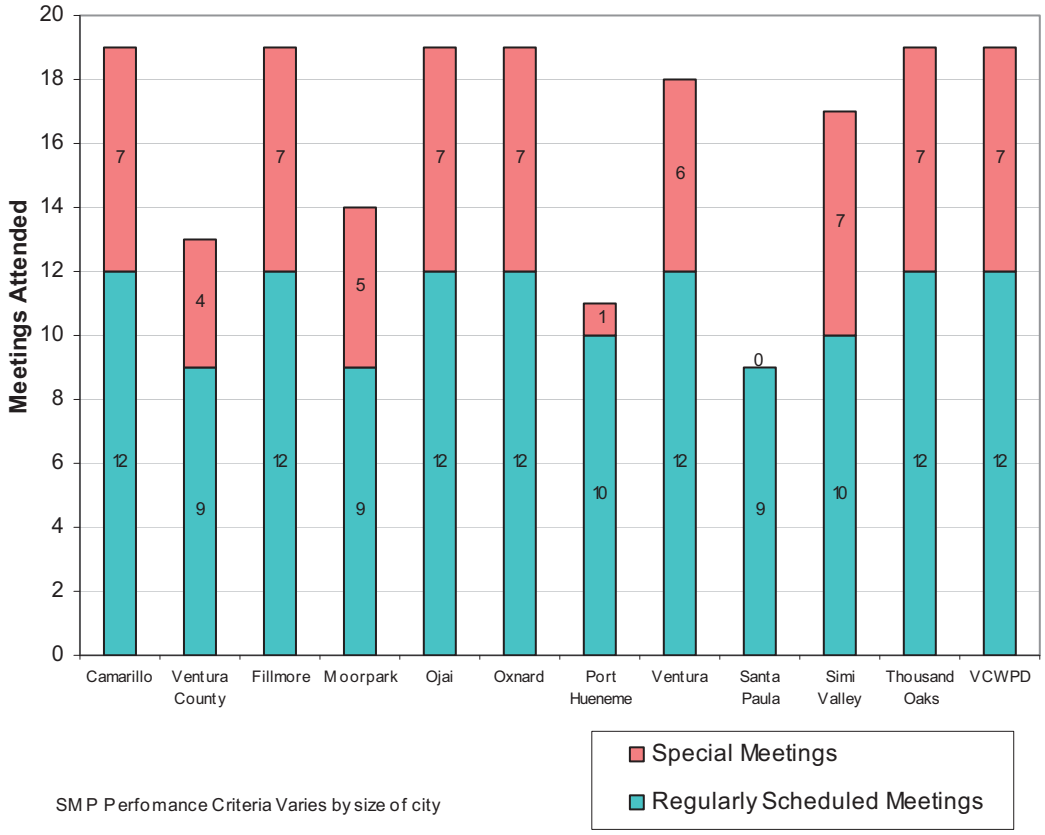


Figure 2-1 Co-Permittee Management Committee Meeting Attendance

2.2.2 Subcommittees

The Subcommittees provide a forum for discussion of particular program elements and are attended by the staff with the appropriate expertise from each Co-permittee. These meetings create a more uniform approach to program management countywide and allow the Co-permittees to learn from each other. The subcommittees are tasked principally with the following program material responsibilities

- **Residential/Public Outreach Subcommittee**
  To help provide regional consistency and oversight for the stormwater public education program efforts. Select specific Pollutants of Concern in which public education can potentially make a difference.

- **Business and Illicit Discharge Control Subcommittee**
  Oversee the development of the model industrial/commercial and illicit discharge/illegal connections programs. Create regional consistency to business inspections and reporting of discharges.

- **Planning and Land Development Subcommittee**
  To help provide regional tools for design, review and conditioning of new development and redevelopment projects, and promote regional consistency in their application.

- **Construction Subcommittee**
  To provide regional consistency to inspections, share solutions to common problems and the development of model new development and construction programs.

- **Public Infrastructure**
  The development of the model municipal activities program, corporate yard inspections, and integrated pesticide management, pesticide and fertilizer programs.

Co-permittee participation in Subcommittees is noted in **Figure 2-2**.

2.2.3 Other Regional Committees/Work Groups

Many of the Co-permittees additionally participate in various watershed management advisory groups. These groups include: the Ventura County Integrated Resources Water Management Plan (IRWMP), Ventura River Watershed Planning Committee, Santa Clara River Enhancement and Management Committee, Wetlands Recovery Project, Calleguas Creek Watershed Management Committee, Matilija Dam Ecosystem Restoration Study, Channel Islands Beach Park Action Plan for Improving Water Quality, Malibu Creek Watershed Management Committee, Steelhead Restoration and Recovery Plan, Beach Erosion Authority for Clean Oceans and Nourishment (BEACON), Southern California Coastal Water Research Project (SCCWRP) and the Ormond Beach Task Force. These watershed and regional groups focus their activities and discussions on specific concerns such as water quality, habitat restoration and flood control, as well as short, medium and long-term solutions.

25 Subcommittee meetings were convened.

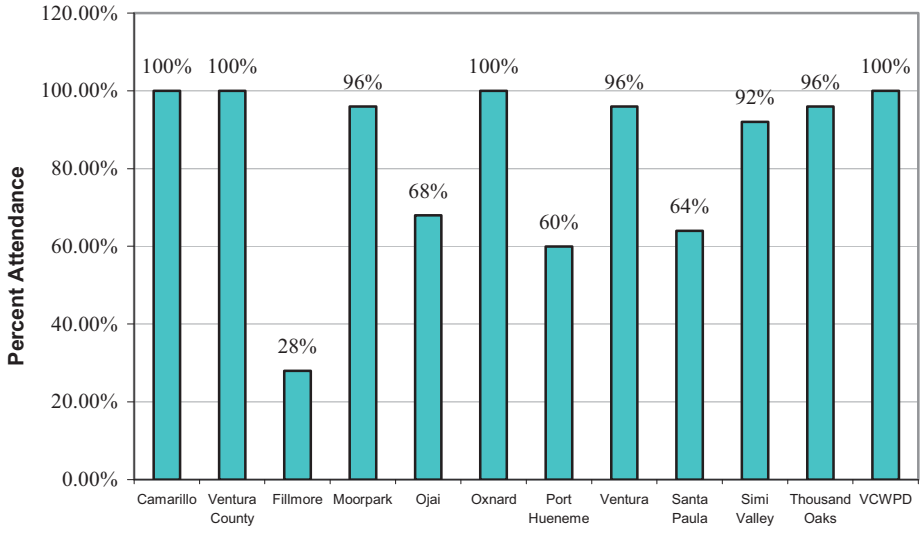


Figure 2-2 Co-Permittee Subcommittee Meeting Attendance

SMP Perfomance Criteria Varies by size of city

2.2.4 Management Framework – Program Implementation

In addition to the countywide and watershed management frameworks for program development, the Co-permittees at a jurisdiction level have formally identified which departments and staff have responsibility for implementation of each program elements within their jurisdictions.

2.3 Legal Authority

Although adequate legal authority existed for most potential pollutant discharges at the inception of the stormwater program in 1994, the Co-permittees determined that a Model Stormwater Quality Ordinance should be developed to provide a more uniform countywide approach and to provide a legal underpinning to the entire Ventura Countywide NPDES Stormwater Program.

Subsequently, all of the Co-permittees adopted largely similar versions of the model Stormwater Quality Ordinance. In addition, each Co-permittee has designated Authorized Inspector(s) responsible for enforcing the Ordinance. The Authorized Inspector(s) is the person designated to investigate compliance with, detect violations of and/or take actions pursuant to the Ordinance.
The detection, elimination and enforcement activities undertaken by the Co-permittees during 2008/09 are described further in **Section 8**. In addition to prohibiting un-permitted discharges, the Stormwater Quality Ordinance in conjunction with the SQUIMP also provides for requiring BMPs in new development and significant redevelopment. A Stormwater Quality Ordinance has been adopted in each Co-permittees' jurisdictions as indicated in **Table 2.1**

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Table 2-1

Ordinance Adoption Dates

Co-permittee	Adopted Date	Amendment Date
Camarillo	3/25/1998	
County of Ventura	7/22/1997	
Fillmore	12/8/1998	
Moorpark	12/3/1997	
Ojai	2/9/1999	
Oxnard	3/24/1998	
Port Hueneme	4/1/1998	2/1/2001
San Buenaventura	1/11/1999	
Santa Paula	11/16/1998	
Simi Valley	7/23/2001	4/22/2002
Thousand Oaks	9/14/1999	

2.4 Watershed Protection Stormwater Program Representation

The Principal Co-permittee represents the Co-permittees participating in the following organizations and associations:

2.4.1 California Association for Stormwater Agencies (CASQA)

The California Association of Stormwater Quality Agencies (previously California Storm Water Quality Task Force) serves as advisory body to the State Water Resources Control Board (SWRCB) on stormwater quality program issues. CASQA is primarily comprised of agencies, organizations, businesses and individuals responsible for and/or interested in the implementation of municipal stormwater management programs in California. Since its inception in 1989, CASQA has evolved into the leading organization in California dealing with stormwater quality issues.

2.4.2 ***Southern California Coastal Water Research Project (SCCWRP)***

The Southern California Coastal Water Research Project (SCCWRP) is a joint powers agency focusing on marine environmental research. SCCWRP's mission is to gather the necessary scientific information so that member agencies can effectively and cost-efficiently protect the Southern California marine environment. In addition, SCCWRP's mission is to ensure that the data it collects and synthesizes effectively reaches decision-makers, scientists and the public.

2.4.3 ***California Coalition for Clean Water (CCCW)***

The California Coalition for Clean Water (CCCW) is an alliance of local governments and public agencies, labor, agriculture, business, housing and development interests working together towards the development and implementation of water quality standards that protect water quality while balancing economic and social needs of local communities and the State. CCCW's mission is to assist the California Regional Water Quality Control Boards and SWRCB to adopt and implement sound water quality standards that reflect the intent and spirit of state and federal clean water laws.

2.4.4 ***National and Global Organizations***

As Principal co-permittee, the Watershed Protection District (District) participated jointly with SCCWRP and various other federal and international organizations such as the Society of Environmental Toxicology and Chemistry (SETAC). SETAC is a nonprofit, worldwide professional society comprised of individuals and institutions engaged in the study, analysis, and solution of environmental problems. SETAC's mission is to support the development of principles and practices for protection, enhancement and management of sustainable environmental quality and ecosystem integrity.

SETAC promotes the advancement and application of scientific research related to contaminants and other stressors in the environment, education in the environmental sciences, and the use of science in environmental policy and decision-making.

2.4.5 ***Southern California Agencies***

Beginning in 2003, and continuing through 2008 the District began participating in the Storm Water Advisory Team (SWAT) meetings. SWAT was created by stormwater-regulated agencies who believed that coordination amongst the regulated community would be beneficial to not only providing a unified voice to the Regional Board but would also encourage regional consistency in pollution prevention efforts. Meetings are held to discussions various issues such as TMDL development and progress permit negotiations, and regional monitoring opportunities.

2.4.6 ***Local Involvement***

Watershed Protection District staff participates in various watershed-specific local subcommittees and groups that are focused on water quality and TMDLs. For example, staff regularly attends Calleguas Creek water quality subcommittee meetings and is involved in developing appropriate methods for monitoring water quality. Similarly, in the Malibu Creek watershed, staff provides technical expertise for the water quality monitoring technical advisory committee, reference water quality study workgroup, and bacteria compliance monitoring workgroup.

2.5 Fiscal Analysis

This Section presents a summary of the costs incurred by the Co-permittees in developing, implementing and maintaining programs in order to comply with permit requirements and includes information on the funding sources used by the Co-permittees. The total cost to each Co-permittee is the sum of *shared* costs and *individual* costs.

2.5.1 Program Costs for Permit year 2008/09

In 2008/09 the projected cost of the activities undertaken by the Co-permittees implementing the stormwater program within their jurisdictions are estimated to be 31,910,727. This is a large increase over previous years' budgets of $15,365,736 in 2008/09, $16,739,303 in 2007/08, $19,158,359 in 2006/07, $15,429,018 in 2005/06, and $14,205,276 in 2004/05.

The Countywide budget for stormwater quality is $31,910,727

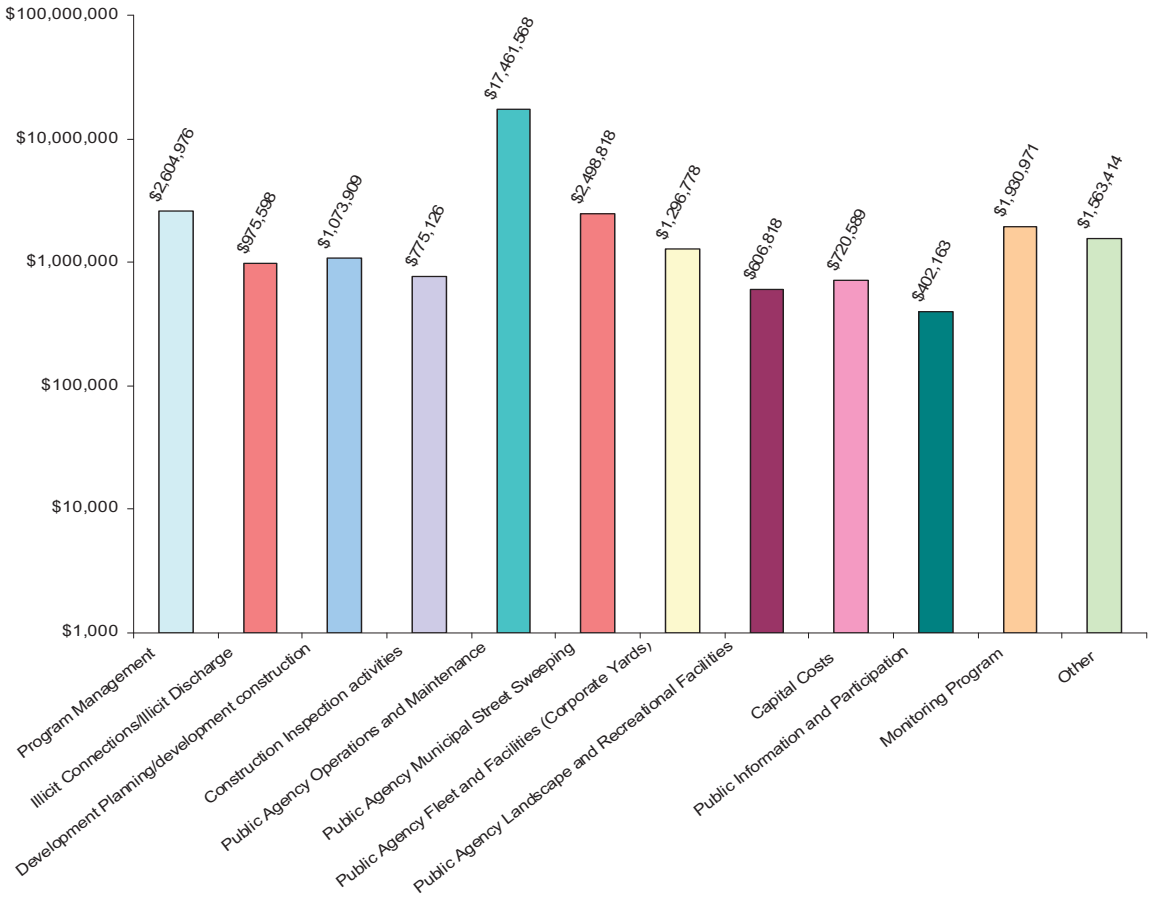


Figure 2-3 Countywide FY 2008-2009 Stormwater Program Budget

Table 2-2

Agency Annual Budget Update for Stormwater Management Program - Fiscal Year 2009-2010

	Item	*Co-Permittee*												
		Camarillo	County of Ventura	Fillmore	Moorpark	Ojai	Oxnard	Port Hueneme	Ventura	Santa Paula	Simi Valley	Thousand Oaks	VCWPD	Principal Co-Permittee
I.	Program Management	$323,566	$485,126	$35,205	$119,461	$105,000	$280,907	$45,000	$177,000	$37,020	$193,711	$165,944	$117,125	$519,911
II.	Illicit Connections/ Illicit Discharge	$50,201	$182,655	$29,495	$3,000	$0	$85,058	$5,000	$222,000	$84,713	$232,051	$68,528	$5,631	$7,266
III.	Development Planning	$75,126	$116,545	$53,893	$75,000	$7,000	$91,404	$5,000	$253,000	$11,187	$37,136	$185,610	$6,889	$156,119
IV.	Construction Inspection Activities	$68,167	$79,945		$75,000	$5,000	$180,894	$5,000	$40,000	$8,762	$95,843	$196,030	$17,345	$3,140
V.	Public Agency Activities													
V.a.	Operations and Maintenance	$258,317	$800,000	$92,865	$39,000	$4,000	$467,809	$15,000	$225,000	$159,187	$165,472	$232,848	$15,000,000	$2,070
V.b.	Municipal Street Sweeping	$255,000	$150,000		$111,850	$45,000	$525,000	$78,500	$200,000	$130,125	$313,060	$690,283	NA1	NA2
V.c.	Fleet and Public Agency Facilities (Corporate Yards)	$5,194	$3,000	$101,791	$1,000	$4,000	$33,581	$5,000	$0	$4,116	$1,067,759	$2,231	$69,106	$0
V.d.	Landscape and Recreational Facilities	$11,378	$1,500		$1,500	$200,000	$8,179	$354,700	$22,000	$2,165	$3,821	$1,575	NA1	$0
VI.	Capital Costs	$144,000	$0		$10,000	$6,000	$390,000	$10,000	$95,000	$0	$65,589	$0	0	$0
VII.	Public Information and Participation	$14,977	$6,000	$24,967	$10,680	$0	$17,294	$15,000	$40,000	$4,391	$21,691	$58,427	0	$188,736
VIII.	Monitoring Program	$149,625	$10,000	$15,000	$0	$0	$29,144		$331,000	$0	$6,502	$0	0	$1,389,700
IX.	Other (Business)	$42,132	$1,026,355		$67,757	$0	$185,998	$20,000	$0	$0	$96,101	$62,990	0	$62,081
	Totals	$1,397,683	$2,861,126	$353,216	$514,248	$376,000	$2,295,268	$558,200	$1,605,000	$441,666	$2,298,736	$1,664,466	$15,216,095	$2,329,023

Table 2.2 Agency Annual Budget Update for Stormwater Management Program - Fiscal Year 2008-2009

2.5.2 *Fiscal Resources*

Each Co-permittee prepares a stormwater budget annually and allocates resources to be applied to the stormwater program. **Table 2.2** presents the projected stormwater budget for each Co-permittee for Fiscal Year 2008/09 and **Figure 2-3** shows how the countywide budget is divided among the various programs. As expected, there is some variability between the stormwater program budgets reported by the Co-permittees. This variability is due in part to the accounting practices utilized by each Co-permittee and the allocation of activity costs amongst programs implemented by each Co-permittee.

In addition, the Co-permittees vary significantly in their jurisdictional area and population (**Table 2.3**), which may explain some differences in resources dedicated to various program areas. Yet, a review of the annual budgets produces some nominal findings. In general, Co-permittees with the largest populations tend to have budgets greater than the budgets reported by Co-permittees with the smallest populations. However, within the group of cities with the largest populations and within the group with the smallest populations, there is still variation in program budgets.

Table 2.3
Ventura County Statistics

Co-permittee	Population	Area (Sq. Mi.)
Camarillo	62,498	19.6
County of Ventura	46,328	10.7
Fillmore	15,128	2.7
Moorpark	36,200	19.2
Ojai	8,687	4.4
Oxnard	197,067	25.3
Port Hueneme	22,137	4.3
Ventura	106,744	21.7
Santa Paula	29,121	4.6
Simi Valley	121,288	39.4
Thousand Oaks	128,650	57.2

2.5.3 *Funding Sources*

Funding sources to implement the stormwater program, including pre-existing programs that meet permit objectives, include both general and specific funds, taxes, maintenance and user fees and grants. Volunteer groups like Surfrider Foundation help implement some stormwater program elements and thus no fiscal value was attributed to these contributions.

The funding sources used by the Co-permittees include: Watershed Protection District Benefit Assessment Program, General Fund, Utility Tax, Separate Tax, Gas Tax, Special District Fund, Others (Developer Fees, Business Inspection Fees, Sanitation Fee, Fleet Maintenance, Community Services District, Water Fund, Grants and Used Oil Recycling Grants.

3.0 Program Development

Public Education is an essential part of a municipal stormwater program because changing public behavior can create a real reduction in pollutants. When a community has a clear understanding of where the pollution comes from, how it can affect them and what they can do to stop it, they will be more likely to support the program, change their own practices and help educate others.

The Co-permittees are building upon the many successes of the current program. Early in the program, the Co-permittees identified key elements crucial to establishing a successful outreach campaign. These elements include:

- Watershed Awareness
- Public Awareness Surveys
- Identification of general and specific goals of the program
- Identification of target audiences and key messages for those audiences
- Development of program strategies and plan overview
- Pollution prevention program using a unified "brand name"
- Development of a watershed based outreach program
- Identification of opportunities to reach out to regulatory agencies
- Development of a model public education/public participation strategy for localization at the Co-permittee level
- Development and implementation of a school-aged children education outreach program
- Development and implementation of food facilities outreach program materials
- Development and implementation of automotive facilities outreach program materials
- Development and implementation of industrial facilities outreach program materials

3.1 Countywide Outreach Efforts

The **Community for a Clean Watershed** program was established in 2005 by the Ventura Countywide Stormwater Quality Management Program. Through the development of educational public outreach media campaigns, brochures and the Clean Watershed website, the Community for a Clean Watershed program has successfully raised awareness among Ventura County residents on the issues impacting the health of Ventura County's watersheds.

3.2.1 Background

The **Community for a Clean Watershed** program was established in 2005 by the Program as a way to consistently brand our stormwater pollution message. Designed with the help of focus groups, the name was chosen to instill a sense of community and ownership.

Through the development of educational public outreach campaigns, brochures and the Clean Watershed website, the **Community for a Clean Watershed** program has successfully raised awareness among Ventura County residents on the issues impacting the health of Ventura County's watersheds.

The co-permittees' first step towards creating an effective public outreach campaign was to gain a better understanding of public perception of stormwater pollution, storm drains and watershed protection. The research data, collected through a series of English and Spanish focus groups,

revealed a clear direction to take in order to obtain the behavioral changes desired from the community including:

- Clearly define the *watershed* and begin to bring it into the mainstream
- Differentiate the message from 'don't litter' and 'water pollution' ads
- Make an emotional, visual connection
- Appeal to the 'local pride' of Ventura County residents
- Provide enough information to empower residents to 'make a difference'
- Provide a place for residents to get informed and to act, i.e. a dedicated website

While it's been five years since this project started, the objectives of the Community for a Clean Watershed program continue to be to:

- Create and build awareness
- Educate residents
- Change negative behavior
- Develop a consistent message throughout all cities and areas in Ventura County
- Attempt a year-round effort to increase top-of-mind awareness of the watershed

Public Outreach Permit Year 08/09

New outreach objectives included in Permit Year 08/09 included:

- Extend outreach to more targeted audiences, including horse owners
- Prepare for new permit which will require outreach to school aged children.

Progress has been made toward the goals of educating the public and creating awareness of the watershed. Through a coordinated effort, the co-permittees are attempting to continue their long-term, multi-media countywide municipal NPDES public education outreach activities to increase the overall effectiveness of the program. In 2008-09, efforts were extended to additional target audiences in a variety of media.

Since 2005, the Countywide Program has utilized the marketing services of theAgency. A full service advertising and public relations agency located in Ventura County, theAgency continues to develop materials and implement Community for a Clean Watershed campaigns and related research. The 2008-09 year's efforts included the following key initiatives:

Target: Residents

- Coastal Cleanup Day, September 2008
  Pollutant of Concern: Trash
  - Print
  - Public Access Cable

- December 2008 Public Outreach
  Pollutants of Concern: Trash/Bacteria
  - Radio
  - Newspaper
  - Online banners
  - Outdoor bulletin
  - Transit Shelters

- May 2009 Public Outreach
  Pollutant of Concern: Pesticides

- Cable Television
- Radio
- Online Banners
- Transit Shelters

Target: Auto and Food Service Businesses

- Auto Services
  Pollutants of concern: trash, automotive fluids, including grease, chemicals, solvents, detergents
  - BMP Posters
- Food Service
  Pollutants of concern: illicit disposal of trash, cleaning products, FOG (fats, oils, grease), other solvents
  - BMP Posters

Target: Horse Owners

Pollutant of Concern: Bacteria

- Educational Brochures
- Direct Mail, May 2009

Spanish Newspaper Ad

December 2008:
In December, an existing radio spot with a broad watershed message and mention of several pollutants of concern provided an umbrella platform from which to launch new elements tackling two specific pollutants of concern. Newspaper ads utilized a familiar Watershed image of a dog, with the call to action “Please Pick up my Poop,” while new outdoor signage suggested, “The Watershed Should Only Shed Water…..not Trash” showing a Styrofoam cup that ended up on a beach.

English Transit Shelter

Spanish Transit Shelter

Outdoor Billboard

Images from flash Web Banner

Radio Interviews/Publicity: December 2008
As part of the negotiated value-add, radio Interviews were conducted on both radio stations on the December media buy. Each radio interview was at least five minutes, reviewing the concept of a Watershed as well as offering suggestions for how to keep it clean.

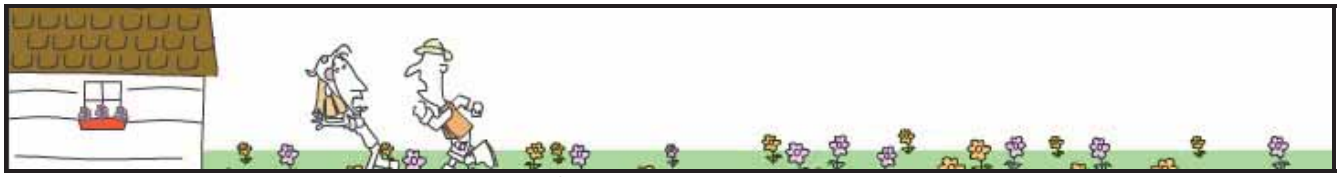
In addition, on December 7, 2008, a press release ran in the local newspaper's "Eye on the Environment column, proclaiming "Follow these steps to cut pollutants flowing to the ocean." The article enumerated several pollutants, giving advice on how to keep each type of contaminant out of local watersheds.

May 2009:
Coinciding with the spring planting season, the Community for a Clean Watershed ran a four-week pesticide campaign utilizing television and radio campaign elements from the previous year's creative arsenal. The animated "More, Better" television commercial graphically demonstrated how using too much pesticide runs into the storm drains, eventually making it into the Watershed, adversely affecting plants and animals. The radio spot was a humorous adaptation of the television ad, featuring the two animated characters as they defend their house against garden pests and inadvertently poison the watershed. An animated web banner corresponded with both broadcast media while the transit shelters took a more direct approach showing a snail and telling residents "Don't kill an ocean just to keep pests out of your garden."

Frames from pesticide TV commercial

English Transit Shelter

Spanish Transit Shelter



Frame from web banner

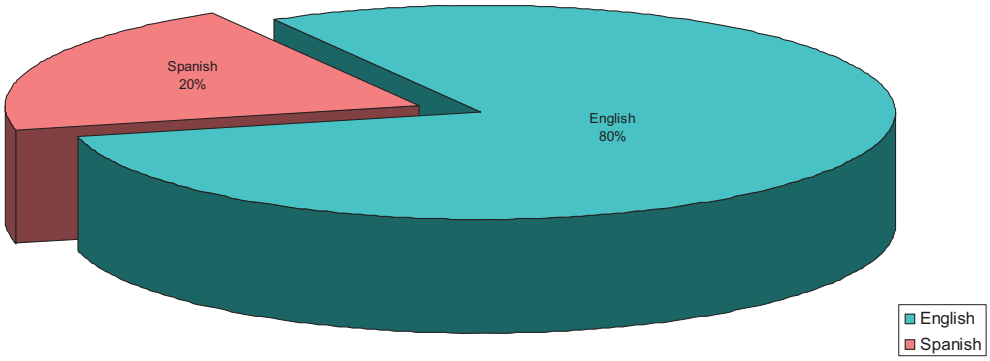
Media Outreach Strategy
As in the past, each media plan was negotiated with the goal to maximize target reach and frequency on a limited budget. In addition, attention was paid to geographical distribution throughout Ventura County as well as adequate coverage in the Latino market. theAgency was able to consistently obtain low rates and significant bonus elements, including bonus radio commercials, newspaper ads and outdoor billboards. Bonus impressions nearly doubled paid impressions.

For the three campaigns in the 2008 – 2009 year, the Community for a Clean Watershed media plan achieved a total of 5,342,005 gross impressions broken out as follows:

Campaign	Gross Impressions
Coastal Cleanup Day	1,459,048
December Trash/Bacteria	2,761,613
May Pesticide	1,121,344
Website: cleanwatershed.org	3,724

Bilingual Public Outreach
To reach the significant Hispanic community in Ventura County, all elements of the campaign were created in Spanish. This included the newspaper, transit shelter and radio ads, each of which ran in Spanish media

20% of the Countywide Outreach Effords were in Spanish



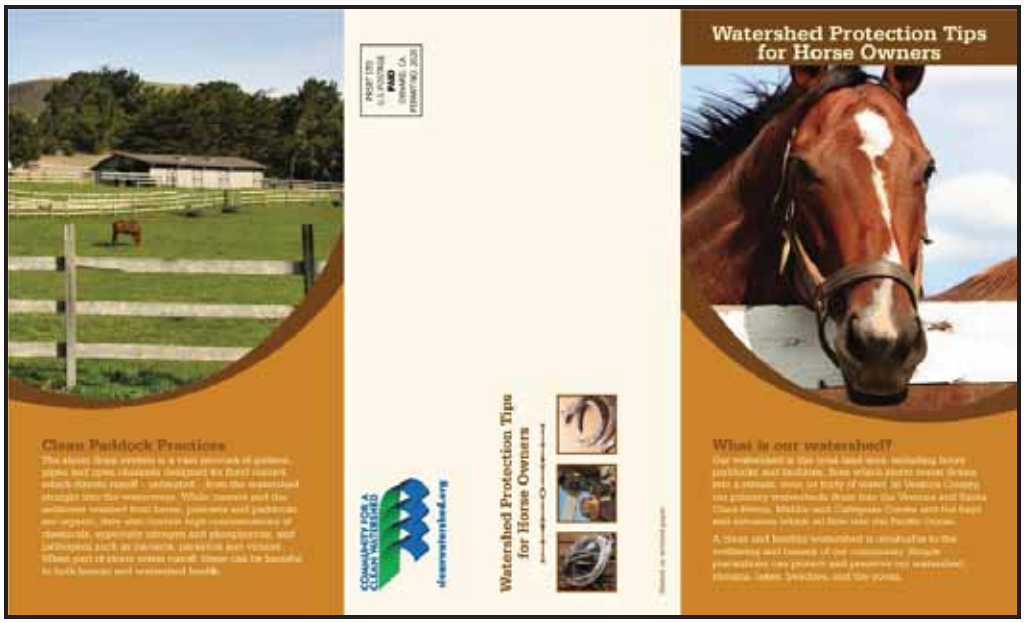
Spanish Media Outreach Using a media mix of Spanish newspaper, radio and transit shelters, Spanish language advertising accounted for 20% of total media impressions: 832,126.

Community for a Clean Watershed

In its third year, the cleanwatershed.org website continues to reinforce the various public outreach messages as well as make available a network of resources to help the web viewer make informed decisions. The website is updated on a regular basis to add relevant campaign materials as well as educational materials. 2,101 unique visitors made 3,724 visits and read an average of 2.24 pages. Web visits peaked in May, coinciding with the public outreach campaign.

Horse Owners Best Management Practices (BMP) Direct Mailer

In May, the Watershed continued its best practices campaign with outreach to Ventura County horse owners, equestrians and horse property owners. This mailer, which was delivered twice to more than 6,000 relevant households and businesses, reminded this population of the key actions they can and should take to promote healthier, happier horses as well as to protect the watershed.



Outside of tri-fold mailer

Inside of tri-fold mailer

Eye on the Environment

The Ventura County Star, a local daily newspaper serving all of Ventura County with a Sunday readership of over 240,000 people has generously offered space for a weekly 750-word column to the Ventura County Integrated Waste Management Division. The column is titled Eye on the Environment and runs every Sunday. Focused on all aspects of protecting the environment the column helps promote awareness of stormwater pollution directly and indirectly. Some topics don't discuss stormwater directly but the message is just as helpful to reducing stormwater pollution. For example several columns last year provided information on the hazards balloons and plastics bags can cause to the environment, the benefits of conserving water, or how to properly dispose of household hazardous materials. All clearly issues with a stormwater component. Four columns over the Permit year were written by District staff and directly addressed stormwater pollution pollutants of concern and what residents can do to prevent them from entering the environment.

Eye on the Environment: Police your own actions, halt negligent 'envirocide'

VenturaCountyStar

Eye on the Environment: Police your own actions, halt negligent 'envirocide'

By Arne Anselm
Guest writer
Sunday, February 22, 2009

The story you are about to read is true. The names have been changed to protect the innocent.

It's 10 a.m. Sunday, Feb. 22, 2009. The crime: Our watersheds are suffering from too much pollution. The evidence: unhealthy levels of pesticides, fertilizers, bacteria and litter. Possible suspects include any flow to a creek or storm drain that is not clean stormwater, aka Illicit Dischargers, and the illegal dumping of trash, aka Midnight Dumpers. The punishment: can be required to pay all cleanup costs and in some areas, expensive fines as well.

Your help is needed in apprehending these suspects. Ventura County and all its cities have ordinances making such activities illegal, and you if witness someone abusing the gutter, you should report it. Inspectors will investigate and enforce if necessary. The gutter is not for the disposal of soapy water or any other waste.

These scofflaws, however, aren't the only sources of pollutants to our watersheds. Just as the Midnight Dumper with a pickup full of trash harms the environment, so can the daily activities of people everywhere. All these pollutants add up to a big problem. We might all be guilty of negligent "envirocide."

Here are five of the "least wanted" pollutants and what you can do to prevent their escape into the environment:

Harboring a fugitive: In a can, it's called trash, but on the ground, it's litter. Putting wrappers from a fast-food meal in a pickup truck bed seems like the right thing to do. But at 50 mph, it becomes litter as it escapes onto the road (aka Fugitive Trash). Also, wind or hungry sea gulls can make a mess of a trash can or Dumpster that doesn't have a tight lid on it.

Maximum security: You could say pesticides and weedkillers were born to kill, and they, along with other landscape chemicals, are serious watershed pollutants. These should always be secured out of the elements, away from wind and rain. Use only the amounts recommended on the label, and try using a smaller amount or less-toxic alternatives (a 2-inch layer of mulch could keep weeds from breaking into your garden). Do not overwater after applying chemicals, or apply pesticides, weedkillers or fertilizers before a rain, or they might make their break for the environment.

Getaway car: Leaking automotive fluids will gang up on driveways and roads. This toxic grime will be washed off in one big slug during the first rains of the season, straight to the environment. Inspect your car for leaks regularly and get them fixed. Spent oil and other automotive fluids must be disposed of properly. Certified used-oil collection centers are available at some auto parts stores or repair shops, or use your city's household hazardous waste collection events.

Take that, you dirty copper: Dust from metallic brake pads, outside decorative copper and other metal displays is not usually thought of as water pollutants, but to aquatic life, it can be a killer. Some smaller cars can use nonmetallic brake pads. Ask your mechanic if your car qualifies. If decorative copper or other unpainted metals are outside your home, make sure any water runoff is contained in the landscaping instead of making a break for the gutter or street.

K-9 unit: Pet waste is a source of bacteria that can make people sick. Dirty diapers and discarded food are also known accomplices in this offense. Pick up after your dog and dispose of the waste properly in trash cans. The same is true for baby diapers and food waste.

There is no defense for harming the environment, but it is beyond a reasonable doubt that someone could contribute no pollution at all. With just the facts, a little self-policing and judicial action, we can make a big difference and avoid negligent envirocide.

— Arne Anselm is a water quality manager with the Ventura County Watershed Protection District. Representatives of government or nonprofit agencies who want to submit articles on environmental topics for this column should contact David Goldstein at 658-4312 or david.goldstein@ventura.org.

On the Net:

http://www.cleanwatershed.org

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Youth Survey

In anticipation for the upcoming permit which includes a component for K-12 outreach, the Community for a Clean Watershed wanted to establish a baseline of understanding before targeted outreach began. A web survey, implemented by Applied Research West, was used as the method for data collection, surveying a total of 330 participants between the ages of 5 and 18 with 30 participants from each city in Ventura County and attention paid to matching the ethnic composition of the area.

Key findings, which will help direct the messaging platform as well as media selection, include:

Awareness of Watershed and Storm-water

- Kids 13–18 have a greater awareness of the terms 'watershed' and 'storm water' with Kids 5–9 significantly lower.
- All age groups (79%) agree that the watershed includes land, rivers, lakes, creeks and beaches. However, 33-35% of Kids 5-9 are less certain it includes their house and yard.
- There is a high awareness that pollutants in their yards could end up miles away, although Kids 16–18 are less like to agree that it could happen.

Conservation Behavior

- Recycling of paper, plastic and cans are commonly practiced although Kids 5–9 are somewhat less likely.
- All age groups show a strong response to turning off water while brushing their teeth. A 10-minute shower is more challenging with an average of 67% complying.
- Most kids, 57%, will ask others to pick up litter or pick it up themselves.

- Litter on the ground is largely ignored by Kids 16-18 whereas half of 5–15 year-olds will always pick it up.

Attitudes and Water Issue Understanding

- Young kids 5-9 and older kids 16-18 are less sure that sewer water is always cleaned and treated.
- 89% of all age groups agree that anything dropped in the gutter or storm drain might end up in the ocean.
- Kids 8-12 are more likely to believe it is okay to use the gutter to throw away trash.
- While almost 40% agreed that it was someone else's job to keep the environment clean, 88% agreed it is their family's job to do so.
- 87% understand that people cannot survive without water. Only half believe the world can run out of water.

Polluting Impact of Various Items

- Motor oil was perceived as the most polluting with garden pesticides and trash/litter next.
- Fertilizer and household cleaners are considered moderate polluters.
- Pet and Yard Waste were rated the lowest 'high level' of concern.

Summary of Effectiveness

This was the fourth year of the Community for a Clean Watershed public outreach efforts; and was a year of transition as the co-permittees anticipated the new permit requirements. Working within a reduced budget for outreach, the group was able to maintain awareness with Ventura County residents, extending the original message of "The Watershed Should Only Shed Water" to The Watershed Should Only Shed Water….not (trash/pesticides/bacteria)." Specifically, the following was achieved:

- Add to the arsenal of creative elements that cover the various pollutants of concern. These materials are available for collective or individual city use throughout Ventura County.
- Provide consistent messaging throughout the year to residents.
- Persuade the local media to extend the reach of the campaign through bonus placements, thus extending the repetition of the watershed message.
- Provide BMP materials to auto service dealers, food service and horse owners.
- Determine current understanding of watershed terms, conservation, water issues, and key pollutant concerns of children in grades K-12, to be used as a baseline for future outreach efforts to this population.

3.2.5 Public Reporting

Each Co-permittee has identified staff serving as the contact person(s) for public reporting of clogged catch basin inlets and illicit discharges/dumping. Designated staff is provided with relevant stormwater quality information, including program activities and preventative stormwater pollution control information. Contact information is updated as necessary and published in the government pages of the local phone book and other appropriate locations. In addition, this information is available on the Program's website at www.vcstormwater.org.

3.2.6 Curb Inlet Stenciling

As required by the Permit, Co-permittees have completed labeling or marking the curb inlets to their entire storm drain system. During the reporting period, some Co-permittees maintained their inlet signs by reapplying stencils/markers as they wore out and applying stencils/markers to new inlets as they were installed. **Figure 3-1** depicts the progress the Co-permittees have made in their efforts to install and maintain their curb markers.

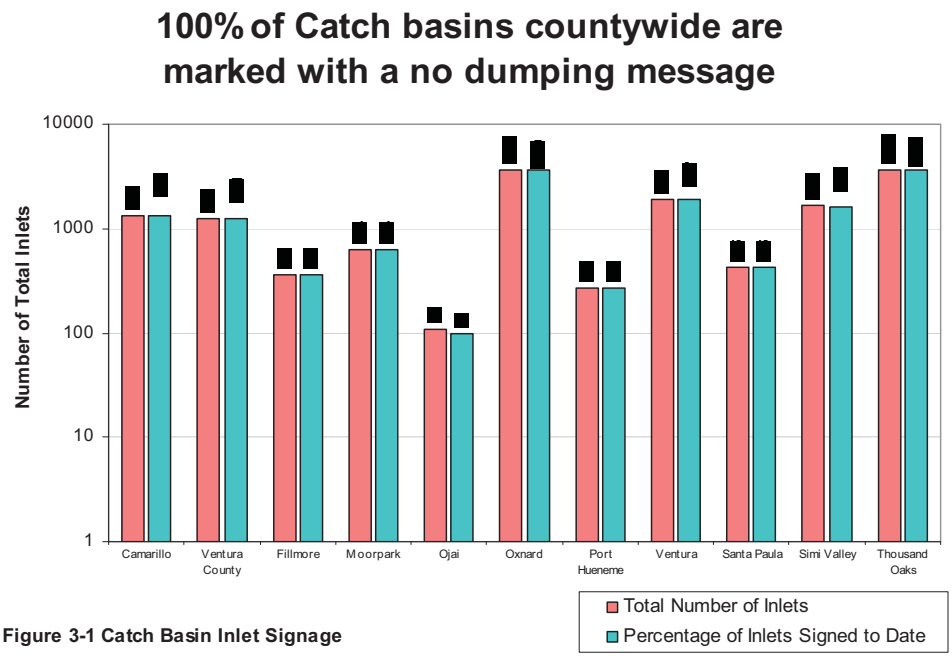


Figure 3-1 Catch Basin Inlet Signage

Table 3-2
Public Reporting Phone Numbers

	General Information	Reporting Illicit Discharges
Ventura County Watershed Protection District	805/650-4064	805/650-4064
City of Camarillo	805/388-5338	805/388-5338
County of Ventura	805/650-4064	805/650-4064
City of Fillmore	805/524-1500x109	805/524-3701
City of Moorpark	805/517-6257	805/517-6257
City of Ojai	805/658-6611	805/640-2560
City of Oxnard	805/488-3517	805/271-2220
City of Port Hueneme	805/986-6556	805/986-6507
City of Ventura	805/652-4582	805/667-6510
City of Santa Paula	805/933-4212	805/933-4212
City of Simi Valley	805/583-6462	805/583-6400

City of Thousand Oaks	805/449-2386	805/449-2400

The percentage of inlets signed to date meets the performance criteria established in the SMP for all Co-permittees. Signs at curb inlets have varying useful lives due to the materials from which they are constructed (e.g., paint, thermoplastic), their position (e.g., on top of curb, on face of curb), and wear factors (e.g., traffic, street sweeping, sunlight). As a result, the Co-permittees have different programs to maintain curb inlet signage within their respective jurisdictions. Some Co-permittees replace a portion of their signs each year whereas others re-sign all inlets every few years. Regardless of the specific inlet signage practice, all Co-permittees understand the importance of signage to the education component of their program and are committed to installation and maintenance of signage that meets both the educational goal of the program as well as the 90% performance criteria set forth in the SMP.

3.2.7 Access Points to Designated Creeks & Other Water Bodies

In addition to the Storm Drain Inlet Stenciling Program, the Co-permittees are required to designate appropriate access points to the creeks and channels within their jurisdiction for the placement of signs with prohibitive language to discourage illegal dumping. Each Co-permittee is responsible for designating the appropriate access points to creeks and channels within their jurisdiction, which requires some field verification and mapping. This program element also required in some cases, the cooperation between the City and special districts outside the City's jurisdiction.

Figure 3-2 depicts the progress the Co-permittees have made in their efforts to post their signs at appropriate access points to creeks and channels. A review of **Figure 3-2** shows that all the Co-permittees met the performance criteria that 90% of the designated public access points be posted with signs regarding the prohibition of illegal dumping.

95% of all public access points to creeks and other waters have been posted with a no dumping message

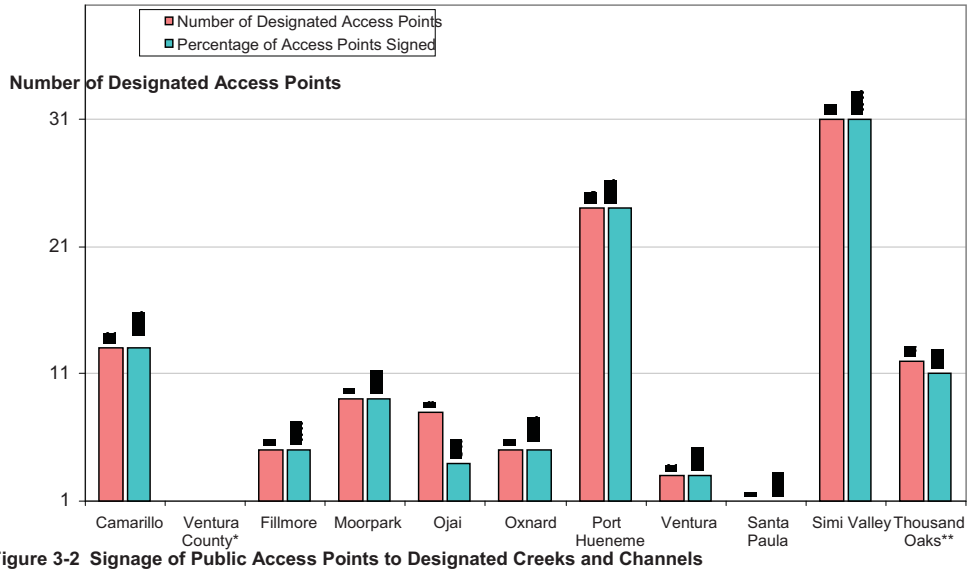


Figure 3-2 Signage of Public Access Points to Designated Creeks and Channels

* No updated information on this task for this year

** The designated public access areas to creeks within the City are under the jurisdiction of the Conejo Recreation and Parks District.

3.2.8 Local Community Outreach Efforts

What is Stormwater Pollution Prevention?

Stormwater and Urban Runoff Pollution

Stormwater and urban runoff result from rain and other water sources that do not soak into the ground. The run-off flows from rooftops, over paved areas, impervious bare soil and sloped lawns, collecting and transporting pollutants in its path into the local storm drain system. Storm drain pipes transport the runoff and its pollutant load into creeks where it travels—untreated—into the ocean. Some of these harmful pollutants include:

* Pesticides and Fertilizers
* Automotive fluids (oil, grease, gasoline, antifreeze)
* Dirt, sand, silt and construction spoils
* Pet waste
* Grass clippings, leaves, and other yard waste
* Metals
* Household chemicals such as paint & solvents
* Litter such as plastic bags, bottles, fast-food wrappers and cigarette butts

Preventing Stormwater and Urban Runoff Pollution

Since stormwater pollution is worsened by everyday activities and a suburban environment, we are all responsible for minimizing its harmful effects. Keep areas around homes and businesses clean and properly dispose of trash in refuse or recycling containers. Sweep sidewalks and driveways instead of hosing them down, and never wash debris into the storm drain. Clean up leaks, drips and other spills—especially from automotive fluids immediately and without using water, if possible. Never pour used motor oil or other chemicals into the gutter or storm drain.

Dispose of grass, tree and garden cuttings in the yard waste barrel; never blow or wash debris into the gutter, street or storm drain. Don't over water. Much of the water that runs into gutters comes from excessive irrigation. If using pesticides, apply strictly per manufacturer's instructions and never apply before sprinkling or predicted rain.

Take pride and action—simple precautions can protect and preserve our waterbeds, streams, and beaches.

Pool Maintenance

It's that time of the year again when swimming pools are being prepared for summertime fun! Pool owners are urged to be aware of proper pool maintenance procedures and the environmental damage that may result from improperly discharged pool water.

Properly maintained pools should require draining no more than once every ten years. Prior to draining a pool, check the chlorine concentration. If the chlorine does not exceed the 0.1 part per million (ppm) level, it is safe to drain the water into the street, gutter or storm drain system.

Chlorine concentrations that exceed 0.1 ppm must be reduced before the water is safe to drain to the street. Dechlorinate the water using one of the following methods:

* Do not add additional chlorine for several days then retest water to determine if it is safe to discharge. Repeat as necessary to achieve a safe chlorine level.
* Add chlorine reducers available from pool supply stores.

Regardless of the method chosen, always discontinue pool use when no chlorine is present. The dechlorinated pool water must not pick up pollutants or cause a public nuisance while draining. City of Camarillo water customers should notify the Water Division at 388-5373 before draining a swimming pool.

Never drain acid washing or other waste water generated by pool cleaning or dispose of pool filter media into the street, gutter or storm drain system. If no harmful chemicals are present, diatomaceous earth filtered waste should be bagged and placed in the green trash container.

For information regarding urban runoff pollution, call the City's Stormwater Coordinator at 383-5659.

"The watershed should only shed water"

"The People Are The City"

Each of the Co-permittees organized community-oriented outreach events, training and other activities on stormwater quality within their jurisdiction. The Co-permittees emphasized the importance of using environmentally safe practices at home and work to prevent stormwater pollution. Outreach efforts included community newsletters, small group learning activities and other media to deliver a stormwater message that educates and informs the general public.

One such effort is demonstrated by the City of Camarillo. The city regularly publishes *City Scene*, a newsletter for City of Camarillo residents, providing local community and neighborhood focused information. In a recent edition, readers were provided city specific information how to prepare for the rainy season through good housekeeping and proper slope maintenance. It communicated the message that not only can drainage failures damage property, but the sediment and various pollutants that erode from the slopes or that come out of private drains end up in the storm drain system and ultimately into our creeks and ocean without being treated. Reminding people that pollutants impair water bodies and can be harmful to aquatic life. The City of Thousand Oaks jointly sponsored a semi-annual publication and distribution of a solid waste newsletter. This newsletter was designed to educate readers in recycling and proper waste disposal methods. Distribution was estimated to be more than 33,000.

The City of Thousand Oaks worked with other local agencies, business and groups to promote awareness and education about stormwater pollution. Including:

Camarillo Government Channel

Time Warner Cable Channel 10

Verizon FiOS Channel 29

Steve Carrigan flanked by CityScene TV hosts John Fraser and Lindy Moore.

When live meetings or various types of programming are not being aired, the Camarillo Government Channel airs free cable advertisements about community organizations and events 24-hours a day. For Time Warner customers this is channel 10; and channel 29 for Verizon FiOS.

Live meetings are also broadcast on the Government Channel, including those of the Camarillo City Council, Planning Commission, Pleasant Valley School District Board, and other nonprofit organizations. The local talk show CityScene TV (pictured above) is also aired on the Government Channel, as are rebroadcast meetings of the County Board of Supervisors, and the Oxnard Union High School District Board.

Nonprofit community organizations, schools, and other groups are invited to submit advertisements for the Government Channel. Public service announcements (PSAs) can also be aired. For information, please call John Fraser at (805) 388-5349.

Water Wise Gardening Website

The City of Camarillo and other cities in the County are building an exciting and practical website to help homeowners design, maintain, and augment their gardens into beautiful water wise masterpieces. The most intriguing feature of the website is the ability to look through sample gardens and use links to determine which plants compose these gardens. You will have the capability of building your own private plant list on the website and print it out to take to the local nursery. Furthermore, the website will include a plant database of more than a thousand available plants that you can search and sort through to find the right plant for the right place. The website will be available in late May 2009. For additional information, please call (805) 388-5338.

Keep Camarillo Beautiful - Properly Dispose of Cigarette Butts

The City of Camarillo would like to inform its residents of the increasing problem of littered cigarette butts. According to the California Coastal Commission, 5,406,890 cigarette butts have been found at the California Coastal Cleanup Day annual event since 1985. The cigarette filters take eighteen months to twelve years to biodegrade. Also, the used filters may have small pieces of tobacco in them as well as tar and other chemicals, which are damaging to our environment. Eighty percent of cigarette butts end up in the water system and within an hour of having contact, chemicals like arsenic, lead, and cadmium are released into our waterways. These chemicals can cause our marine life to become ill or die. Please take this into consideration when disposing of your cigarette butts and put them where they belong, in the waste receptacles that are meant for them!

Thank you for helping to keep our watershed clean! For more information on pollution prevention, please log on to the new countywide website at www.cleanwatershed.org or call the City of Camarillo Streets Division at (805) 383-5659.

According to the California Coastal Commission, 5,406,890 cigarette butts have been found via the California Coastal Cleanup Day since 1985.

"Las Personas Son La Ciudad"

- Conejo Open Space Conservation Agency, COSCA, Trail Education Days—On April 30, 2009 about 25 fifth-grade students were given an informational tour through the Wildwood park natural area. During the hike, the children were taught about topics in ecology including urban stormwater impacts and the benefits of recycling.

- Amgen Earth Day and Energy Conservation Fair—On April 22, 2009, Amgen Corporation hosted this event to raise awareness about excessive energy use and surface water quality issues. About 2,500 Amgen employees attended the event. The City of Thousand Oaks gave participants recycled products and answered questions about informational poster displays. Participants were also given brochures on recycling and stormwater topics.

- Baxter Bioscience Earth Day—On June 1, 2009, the City of Thousand Oaks's staff presented a Power Point presentation focusing on residential activities that cause surface water pollution and how to reduce this contamination. Despite advertisement through internal memo from the company's Health & Safety Division, only ten people attended.

- Whole Foods Market—City of Thousand Oaks representatives operated an educational outreach booth on September 20, 2008. The theme was "Going Green." The estimated 300 participants learned about topics such as water conservation, recycling, and storm water quality by spinning a wheel and answering questions.

- Public Works Week—May 21,22, and 23, 2009—About 35 Conejo Valley schools brought more than 1,200 children and 150 adults to see examples of the activities and equipment that are used to by the City of Thousand Oaks to maintain its infrastructure. For stormwater quality management, a table-sized model depicting a watershed was sprinkled with simulated pollutants such as cinnamon (sediment) and food colorings (fertilizer and pesticide) in its residential section. Children participated by simulating rain with spray bottles and saw these suggestive pollutants contaminate the creeks and lake. A simulated curb drain receiving re-circulated water and a section of storm drain pipe were there for reference.

- Sports Pro Camp and Boy Scouts- staff gave presentations on recycling and proper disposal of waste materials to prevent surface water quality impacts. These events were held on July 1, 2008 and November 6, 2008, respectively. Combined attendance was 50 children.

Figure 3-3 indicates the number of educational contacts made by the Co-permittees at local community outreach events/activities during this reporting period.

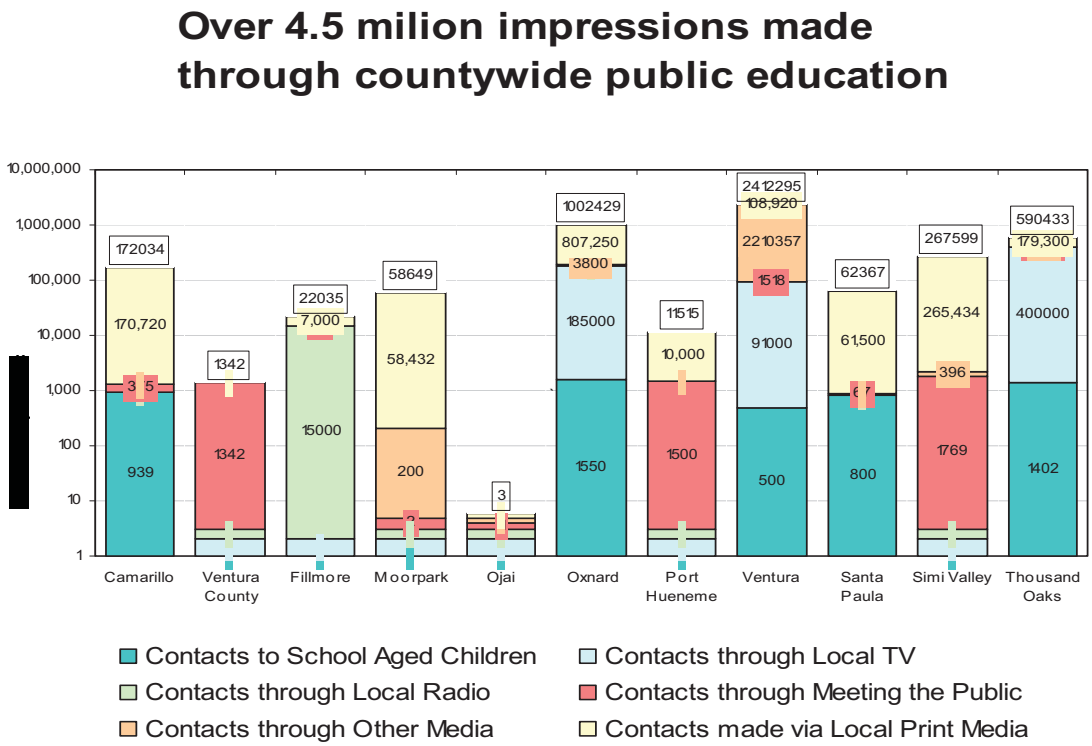


Figure 3-3 Local Community Outreach Efforts

The City of Oxnard provides residents with a quarterly newsletter called *City Works*, which includes articles on Storm Water Pollution Prevention and provides guidance to both the public and private sectors as to how best to reduce storm water pollution. Articles have featured Coastal Clean up Day, Water Conservation, Recycling Household Hazardous Waste, Trapping Trash Before It Reaches the Beach, and Only Rain Should Go Down the Storm Drain. The City of Oxnard will continue to use the quarterly newsletter (*City Works*) to provide the public with the latest stormwater pollution prevention methods.

3.3 Ongoing Program Accomplishments

3.3.3 Community Cleanups

California Coastal Cleanup Day is a premier volunteer event focused on the cleanup of beaches and creeks throughout the country. On this day, more than 50,000 volunteers turn out to over 700 cleanup sites statewide to conduct what has been hailed by the Guinness Book of World Records as "the largest garbage collection." Since the program started in 1985, over 552,000 Californians have removed more than 8.5 million pounds of debris from our state's shorelines and coast. When combined with the International Coastal Cleanup organized by the Ocean Conservancy and taking place on the same day, California Coastal Cleanup Day is one of the largest volunteer events of the year.

Coastal Cleanup Day is also the highlight of the California Coastal Commission's year round "Adopt-a-Beach" program and takes place every year on the third Saturday of September, the end of the summer beach season and right near the start of the school year. Coastal Cleanup Day is a great way for families, students, service groups and neighbors to join together and take care of our fragile water environments Together they show community support for our shared natural resources, learn about the impacts of marine debris and how we can prevent them.

Beginning in 1996, the Co-permittees have participated in this extremely successful statewide event. This annual event has been an excellent opportunity for volunteers to help clean and beautify local beaches and inland waterways. Over the past ten years, the Co-permittees have worked hard to encourage more volunteer participation in addition to targeting additional beach and inland areas for cleanup. This volunteer program continues to be a huge success, not only in cleaning local sensitive environments but also in creating a heightened awareness on proper trash disposal and its benefit to stormwater quality. This permit year, a record high of 2,772 volunteers removed over 13,900 pounds of trash and recyclables from close to 50 miles of inland and coastal shorelines in Ventura County. While the number of volunteers was high the amount of trash wasn't, indicating that there is less trash getting out into the environment.

Community Cleanup Day—The City of Thousand Oaks sponsored a collection event of waste materials on May 16, 2009. At the event, about 1794 residents brought 236 tons of trash and green waste; 25,579 pounds of miscellaneous electronic components; 25,882 pounds of video monitors; 9.2 tons of paper from document shredding; and four semi-trailer loads of assorted computer components that were donated to the Goodwill for re-use.

Freeway Ramp and Interchange Collection Program (Adopt-A-Highway)—From July 1, 2007 to June 30, 2008, about 14,625 pounds of trash and debris were removed from 13 freeway on-ramps and exits and one freeway interchange in the City of Thousand Oaks

3.3.2 Pet Waste Program

Pollution Prevention and Your Pets

The City of Camarillo would like to remind pet owners to please pick up after their pets. Pet waste contains bacteria, viruses and parasites that can threaten the health of people and wildlife. If the waste is not picked up, rain and irrigation runoff water can carry it into the streets and gutters, down the storm drain, and directly out to our creeks and the ocean. Please remember that anything entering our storm drain system is not treated to remove pollutants such as bacteria before emptying into the creeks and ocean. Not only does pet waste create problems in our environment, but section 7.32.010 of the Camarillo municipal code stipulates that pet waste be disposed of properly in a trash receptacle, and the deposit of pet waste on public property (including sidewalks, parks, and streets) maybe punishable by fine.

DOG WASTE
TRANSMITS DISEASE
CONTAMINATES DRINKING WATER
LEASH-CURB AND CLEAN UP
AFTER YOUR DOG
IT'S THE LAW!
$25.00 TO $200.00 FINE

Please clean up after your dog, it's the law!

Tips for Bagging Pet Waste

* Reuse plastic newspaper bags, bread bags, sandwich bags or grocery bags.
* Take advantage of the free pet waste bags provided at all city parks by the Pleasant Valley Recreation & Parks District and the City of Camarillo.
* When walking your pet, bring the bags with you to retrieve the pet waste, tie the bag closed and dispose of it in the trash.

Thank you for helping to keep our watershed clean! For more information on pollution prevention, please visit our new countywide web site at www.cleanwatershed.org or call the City of Camarillo at (805) 383-5659.

Interested in Joining the City Watch Program?

City Watch is an exciting program brought to you by the Camarillo Police Department. This program was designed to utilize email as an avenue to disseminate important information to the community regarding current crimes and crime trends. The goal of the program is to increase public awareness about the existing crime trends so that residents can be better prepared to identify suspicious criminal activity and immediately report to the police by calling 911.

This program was designed as a means to receive feedback on particular crimes, and not designed to ask routine questions, or make general complaints regarding traffic problems, neighborhood disputes, etc. Since the email account is not monitored 24-hours a day, residents are encouraged to reply to the emails only if they have questions about the information that was disseminated.

Anyone interested in joining the program can send an email request to camcity.watch@ventura.org. If you have questions about the program, or need additional information, please call the Crime Prevention Officer, Robert Maclean at (805) 388-5130.

SHERIFF
VENTURA COUNTY
THE CITY OF CAMARILLO CALIFORNIA
LAS PERSONAS SON LA CIUDAD

"Las Personas Son La Ciudad"

The Pet Waste Program began in 1999 by the Co-permittees to educate pet owners on bacterial contamination to our ocean and streams from pet waste. The program began by installing dispensers for pet waste pickup bags at beaches, parks and trail heads. This program has grown to giving out over 2 million pet waste bags a year at a cost of about $150,000. There are now close to 400 pet waste bag dispensers throughout the county encouraging pet owners to pick up after their pets. This program has been a huge success with the demand for more dispensers and pet waste bags growing annually.

The City of Ventura also replaced the plastic pet waste bags with biodegradable bags. The City made this change to reduce plastic litter. Once plastic enters the rivers and ocean, it poses a significant threat to marine animals. Additionally, plastic does not biodegrade and any plastic that becomes litter will remain in our environment indefinitely. The new biodegradable pet waste bags, made by BioBag, will

completely degrade over time.

3.3.3 TidePool Cruiser

The City of Camarillo sponsors the Tide Pool Cruiser to perform educational visits to eight local schools and at their local Coastal Cleanup Day event. This mobile unit shows an up-close view of the inside of a storm drain and dramatically demonstrates how anything that enters it will drain straight to the environment. The environment is represented by an interactive marine touch tank with live organisms; and our dependence on the ocean is shown through a "general store" that makes the connection between what is placed in the storm drain and its impact on marine life.

This program is designed to teach children (and by extension their parents) about the hazards of non-point source stormwater pollution. In an innovative, hands-on and exciting manner participants learn of the connection between the introduction of pollutants through the storm drain system and their impact on the marine environment.

Presentations to Young People

The Watershed Protection District, Camarillo and Thousand Oaks also provided the hands on watershed educational tool the EnviroScape® to local schools. The EviroScape® is a portable table-top model that provides unique, interactive learning experiences, the EnviroScape® makes the connection between what we do on earth and environmental quality. Stormwater pollution and runoff are visually apparent when rain falling over the landscape top carries soil (cocoa), chemicals (colored drink mixes) and oil (cocoa and water mixture) through a watershed to a body of water. Stormwater runoff and storm drain function are also addressed.

Best management practices demonstrated include felt buffer strips as vegetation, clay to create berms and other methods to show conservation and water pollution prevention measures at work.

SECTION 3.0 PROGRAMS FOR RESIDENTS

The model shows nonpoint source pollution and the steps everyone can take to help prevent environmental contamination.

3.3.4 Solid Waste Collection/Recycling

The Co-permittees have solid waste collection programs for public, residential, commercial and industrial areas. The Co-permittees recognize the public needs education and encouragement to properly dispose of their trash in order to reduce the chance storm drains will be used as waste receptacles. The Co-permittees promote these events through a variety of methods including community newsletters, radio and television public service announcements, brochures and utility bill inserts. Many Co-permittees have combined recycling, litter control and hazardous materials disposal messages.

The City of Thousand Oaks' sponsored eleven household hazardous waste collection days over the 2008-2009 fiscal year. On average, each month 359 residents brought in an about 917 pounds of waste materials including household chemicals such as fertilizers, cleaning chemicals, paints, insecticides, electronics, used motor oil, and unused pharmaceuticals to each collection event. Proper disposal lof these materials ensures that they won't end up in the environment.

3.3.5 Earth Day and Arbor Day

Most Co-Permittees celebrated Earth Day by hosting festivals with educational presentations and environmentally conscience vendors. The City of Thousand Oaks sponsored an Arbor Earth Day on April 25, 2009. Representatives from the City's Resource Division offered attendees a chance to spin a wheel and answer questions about water conservation, solid waste control and storm water impacts. Correct answers were rewarded with a gift. Freebies and informational brochures on these topics were available to all. More than 5,000 people attended this event.

3.3.6 Mobile Satellite City Hall Event

In 2009, the City of Oxnard hosted their Helen Putnam award-winning Mobile Satellite City Hall events in centralized city locations in an ongoing effort to educate a greater number of local residents in stormwater pollution prevention methods, and in the importance of taking ownership of their local environment. These events provide Oxnard residents with the opportunity to voice their water quality concerns to the city's department/division appointed representatives. This innovative approach of providing educational outreach to the general public has been extremely successful in promoting a positive environmental awareness, sound stormwater pollution prevention practices, and illicit discharge identification/ abatement throughout the city's targeted demographic areas.

SECTION 4.0 PROGRAMS FOR BUSINESSES

The daily activities of many businesses create a potential for pollutants to enter a storm drain system. The Co-permittees have developed programs to address this source of pollutants through inspections of targeted businesses providing educational outreach and enforcement if needed. These efforts include providing information on the potential for illicit discharges and illegal connections from businesses, the selection and use of proper BMPs, and the potential for enforcement action and fines if environmental rules are ignored.

The Co-permittees use the Business and Illicit Discharge/Illegal Connection Subcommittee meeting to coordinate and implement a comprehensive program to control pollutants in stormwater discharges to municipal systems from targeted commercial facilities. The Subcommittee is comprised of representatives of the Co-permittee cities and other municipal staff from various departments (Environmental Health, Environmental Services and Wastewater Services). Each Co-permittee has implemented an Industrial/Commercial Business Program, which includes the following components to meet the goals and objectives of the program:

- Tracking Critical Sources
- Inspecting Critical Sources
- Ensuring Compliance of Critical Sources

4.1 Program Implementation

The Business Program provides a framework and a process for each Co-permittee to develop its own commercial/industrial program consistent with Permit and SMP requirements. Key program components include:

- Pollution Prevention
- Source Identification and Facility Inventory
- Prioritization for Inspection
- Implementation of Best Management Practices
- Site Education/Inspections
- Enforcement
- Non-compliant Industrial Site Identification and Regional Board Notification Procedures
- Program Reporting

4.1.1 Business Community Site Education/Inspection Program

The goal of the site education/inspection program is to confirm that stormwater Best Management Practices (BMPs) are effectively implemented in compliance with state law, county and municipal ordinances. During site visits, the Co-permittees:

- Consulted with a representative of the facility to explain applicable stormwater regulations;
- Distributed and discussed applicable BMP fact sheets and educational materials; and
- Conducted a site walk-through to inspect for evidence of illicit discharges and illegal connections, appropriate stormwater BMPs, and stormwater quality management education programs for employees.

In addition, the Co-permittees maintain a database of inspected automotive and food service facilities that includes the following information for each facility:

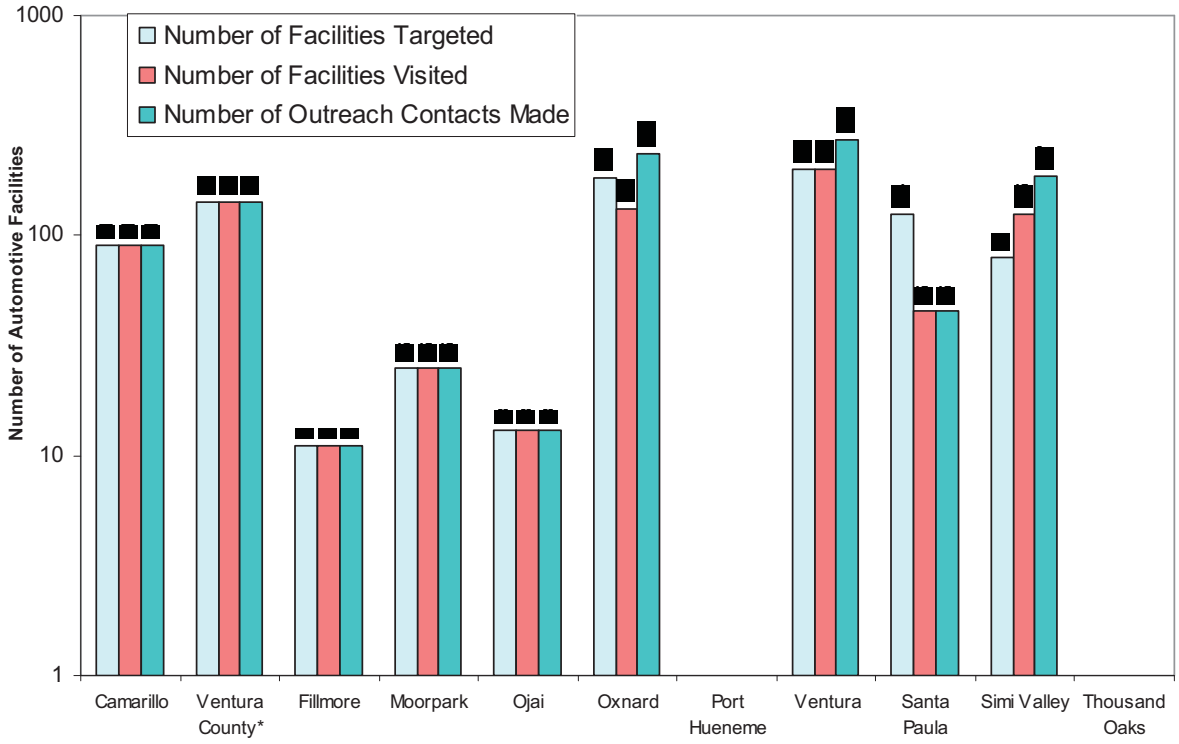
- Name of Facility
- Site Address

- Applicable SIC Code(s)
- NPDES Permit Coverage
- SWPPP Availability
- Facility Contact

A print out of the Co-permittees' database is attached in Appendix 1. The Co-permittees annually update the database with their activities for the current reporting period and provide a copy as part of this Annual Report.

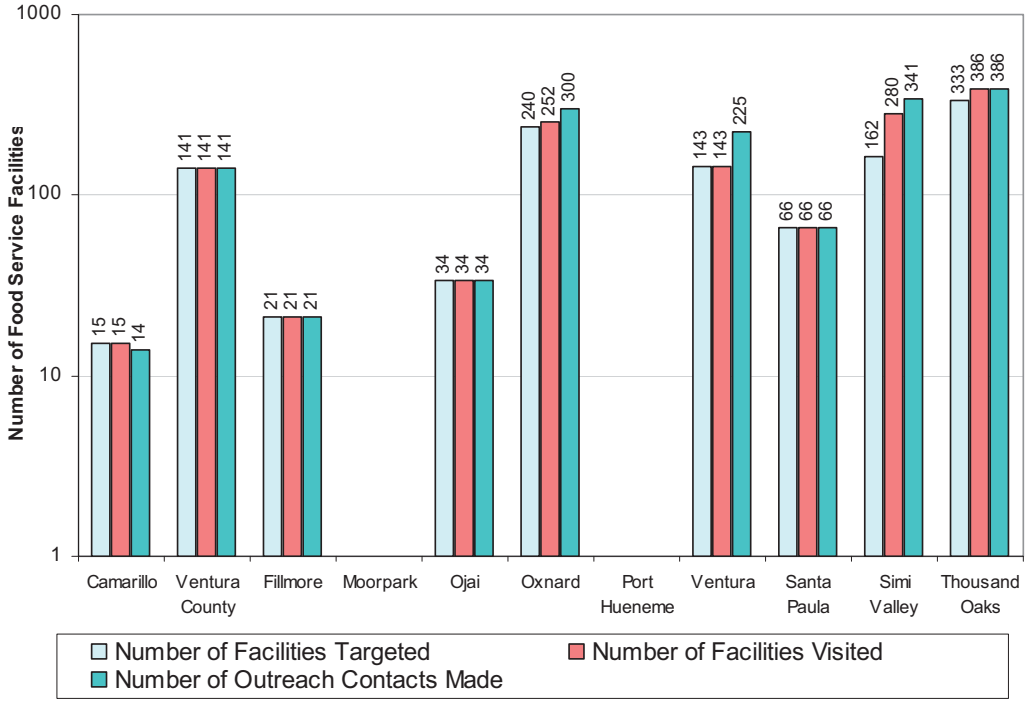
Figure 4-1 shows the total number of targeted automotive service facilities and the total number visited within each Co-permittee's jurisdiction. **Figure 4-2** shows the total number of food service facilities targeted and the total number visited within each Co-permittee's jurisdiction. In some cases the number of facilities visited exceeded the number of targeted for inspection. This situation may result from changes in facility ownership, businesses that move requiring site visits to a facilities new location as well as the one vacated. In many cases the Co-permittees were exceeding their targets in order to assure compliance with the permit requirement to inspect all these facilities once every two years.

Over 600 automotive service facilities were inspected countywide.*



* Data reflects the number of facilities visited in this reporting period only; which is the first year of a two-year reporting period.

Over 100% of targeted restaurants were inspected, 1100 total countywide.



The vast majority of site visits were unannounced providing the inspectors with an honest look at daily activities of the facility. During these site visits, Co-permittee inspection staff would meet with the business owner/manager to review the objectives of the inspection. After performing a walk-through of the facility, inspection results were discussed with the business owner/manager. In the event a Co-permittee determined a facility's stormwater BMPs were insufficient, the Co-permittee provided their recommendations to the facility owner/manager. Source control BMPs were recommended as a first step in BMP implementation before requiring the facility to implement costly structural BMPs. In addition, inspection staff informed facilities' owners/managers that BMP implementation does not guarantee compliance nor relieve them from additional regulations.

Site Inspection of a Commercial Facility

Whenever evidence of an illicit discharge was found, facilities were scheduled for follow-up visits within six months of the inspection. If continued stormwater violations were found, another visit was scheduled and/or enforcement actions initiated. Enforcement actions may include any of the following: Warning Notice, Notice of Violation(s), Administrative Civil Liability actions and monetary fines. These actions are reported in Section 8 - Programs for Illicit Discharges.

4.1.2 New Educational Materials

To facilitate educating business owners and their employees on proper stormwater BMPs the program developed and distributed bmp posters. The posters targeted automotive shops and restaurants and highlighted the most common sources of pollution from each industry. With narrative text describing the problem and solutions to stormwater pollution, the message of what not to do was graphically demonstrated through a serious of drawings of a cartoonish oaf doing everything wrong. Printed on both sides with English on one and Spanish on the other the posters became useful tools during inspections. The business community was receptive to the posters as well because it made their job of training staff and communicating proper best management practices easier.

4.1.2 Targeted Business Outreach Program based on Pollutants of Concern

Individually, the Co-permittees have concentrated their efforts on businesses with the greatest potential to contribute known Pollutants of Concern (ammonia, bacteria, etc.). Businesses that have been targeted for education and outreach include agriculture-related facilities, commercial equestrian stable facilities, car washes, and mobile businesses such as vehicle detailers and concrete pumpers.

- In every jurisdiction a business licence must be obtained before a business begins to operate. This provides an oportunity for Permittees to educate the business on proper BMPs and allows them to easily track new businesses for future inspections.

- The Cities of Camarillo and Thousand Oaks both educate and inspect mobile businesses identified in the field as time permits during their normal inspection duties.

- The City of Simi Valley concentrated their efforts this year on requiring Stormwater Pollution Prevention Plans (SWPCPs) from their major industrial, food, and auto services facilities (160 SWPCPs were received and approved this year). They also perform geographically concentrated pretreatment inspections and issue permits to restaurants to reduce the POCs associated with sanitary sewer overflows (SSOs.)

- The City of Ventura educates and inspects mobile businesses as part of their program, concentrating efforts to make sure that mobile businesses do not discharge to storm drains. They also have established a hotline for illicit discharge reporting that has enabled easy reporting and improved response. Through this they have experienced a drop in reported illicit discharges from mobile businesses this year. Also, as part of their pretreatment inspections they require pumping records for grease traps and interceptors from each restaurant inspected, and hand out educational materials on problems with improperly maintained grease trap/interceptor and sanitary sewer overflows. In addition, Ventura is using educational materials to target the residential community in regards to discharging fats, oils, or grease from their kitchens to the sanitary sewer.

- The cities of Moorpark and Ventura have begun invoicing business for the required inspections. The inspection fees run from $40 to $137 an inspection and vary by city and the type of business. The City of Ventura has been able to recoup approximately $100,000 that would have otherwise come from the general fund.

4.1.3 General Industrial Permit Facility Site Visit Program

The Permit requires each Co-permittee to identify industrial/commercial facilities potentially subject to the General Industrial Permit and target these facilities for education and outreach. Targeted facilities include wastewater treatment plants, landfills, large transportation yards and airports that may be publicly-owned by Co-permittees. However, this does not include public facilities such as municipal maintenance yards that may contain industrial types of activity. Co-permittee-owned facilities are not subject to the Industrial/Commercial Business Program (with the exception of the City of Thousand Oaks' Municipal Service Center). Requirements for these public facilities are discussed in the Section 7 - Program for Public Agency Activities. Inspection and enforcement of the General Industrial Permit is accomplished by the permitting agency, either the SWRCB or the RWQCB.

Co-permittees use a variety of methods to create their lists of facilities subject to this program element. Some of the resources used to facilitate identifying facilities included:

- State Water Resources Control Board (SWRCB) database of facilities covered by the General Industrial Permit;
- Hazardous materials inventories maintained by fire or environmental health departments;
- List of facilities subject to local wastewater utility's industrial pretreatment programs;
- City business license records;
- Commercially available business listings (e.g., the Dun & Bradstreet database);
- Telephone book business listings;
- Non-filers database; and
- Letters/Use surveys/Mailer with response requested/checklist, etc.

Once the list of facilities was compiled, the Co-permittees implemented an education outreach effort that provided an introduction of stormwater pollution prevention to those business owners/operators.

The Co-permittees strongly believe most business representatives are conscientious and want to do the "right thing" after they are made aware of what they need to do and how easy compliance can be achieved with simple changes. An informational site visit, in which an agency representative walks the site with the facility owner/operator, provides useful information about stormwater requirements and BMPs. These efforts have proven to be an effective approach for education and outreach.

In addition to the Co-permittees' efforts, the RWQCB has performed a number of industrial site inspections in Ventura County. This has greatly increased the number of facilities educated about stormwater regulations and requirements. The RWQCB has also indicated an interest in coordinating with VCWPD to host an training workshop on the General Industrial Permit and its requirements. The Co-permittees look forward to this opportunity to work with RWQCB staff.

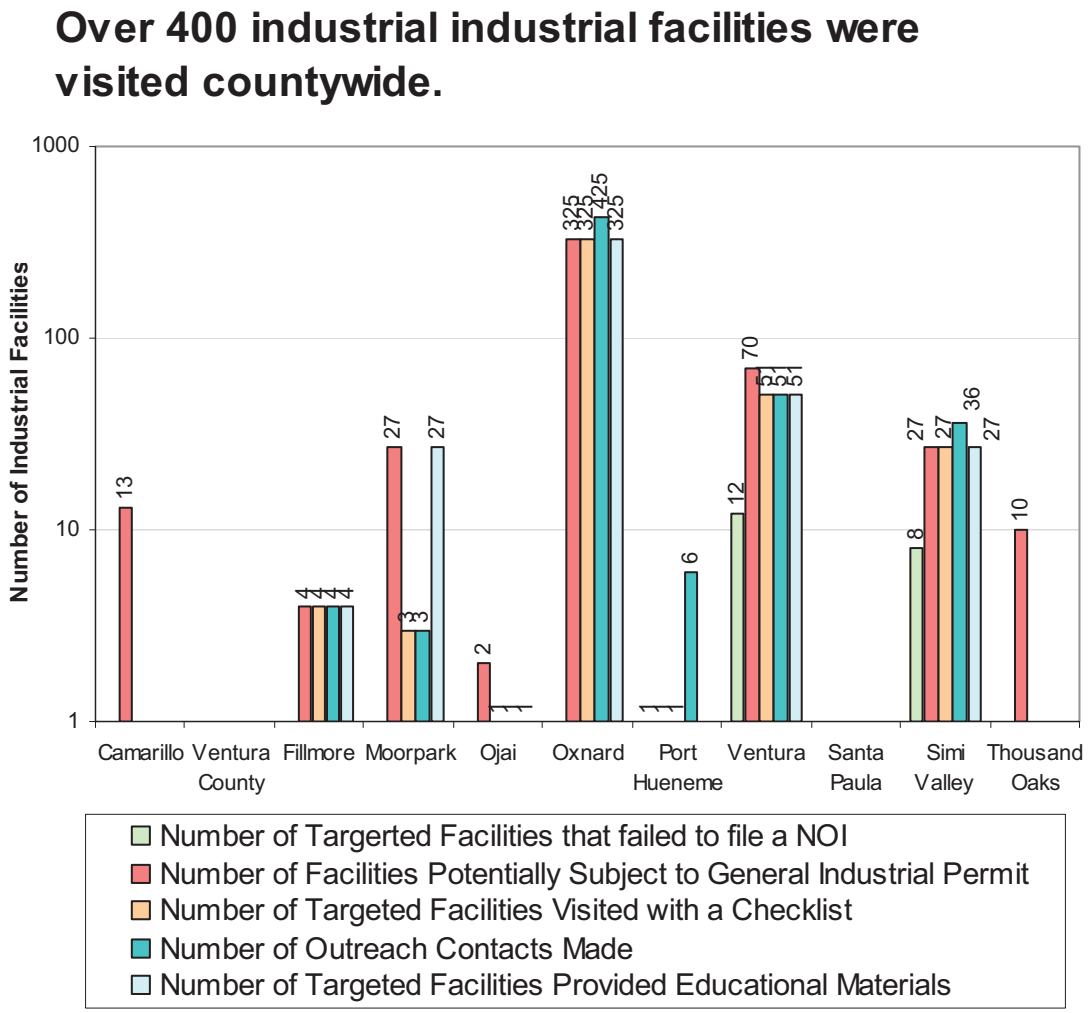


Figure 4-3 Targeted Business facilities subject to General Industrial Permitting

Due to the efforts of the Co-permittees during the last reporting period, many of the facilities targeted through this program have applied for permit coverage and have developed and implemented Storm Water Pollution Prevention Plans (SWPPPs).

Figure 4-3 shows the total number of facilities targeted for an outreach contact and how many were provided educational materials within each Co-permittee's jurisdiction. Note that the data reflect the

number of facilities contacted in this reporting period only, the first year of a two-year performance criterion.

4.1.4 Stormwater Quality Staff Training

Each Co-permittee identified inspection staff and other personnel for training based on the type of stormwater quality management and pollution issues that they might encounter during the performance of their regular inspections or daily activities. Targeted staff may include those who perform inspection activities as part of the HAZMAT, and wastewater pretreatment programs as well as staff who may respond to questions from the public or industrial/commercial businesses.

Staff was trained in a manner that provided adequate knowledge for effective business inspections, enforcement, and answering questions from the public or industrial/commercial operators. Training included a variety of forums, ranging from informal "tailgate" meetings, to formal classroom training, and self-guided training methods. When appropriate, staff training included information about the prevention, detection and investigation of illicit discharges and illegal connections (ID/IC). See **Section 8** for more information regarding ID/IC training.

During this reporting period, the Co-permittees trained 58 inspection staff in stormwater pollution prevention. **Figure 4-4** depicts the number of staff trained in the program area for each Co-permittee. All eleven Co-permittees exceeded the performance criterion established in the SMP and by training more than the required 90% of targeted employees. Some cities such as Santa Paula uses the County Environmental Health Department for their inspections and therefore did not target any of their employees.

52 staff members were trained on business inspections.

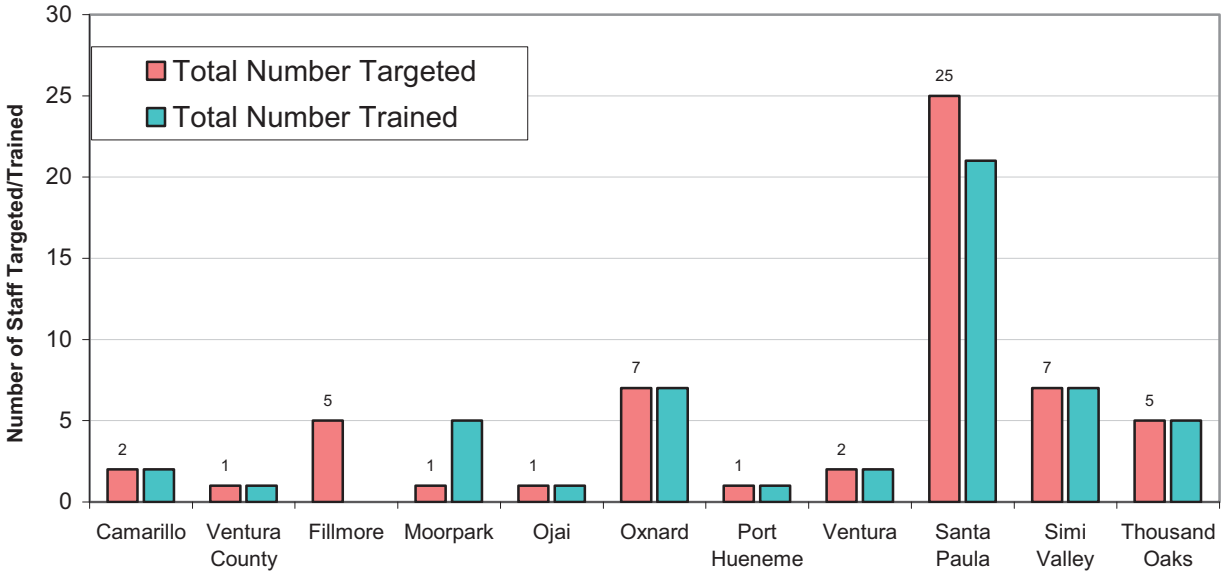


Figure 4-4 Business Inspection Staff Trained

The Co-permittees continued to emphasize consistency among inspection programs, both in terms of stormwater requirements and inspection procedures countywide. The Co-permittees realize the importance of providing a "level playing field" for the business community and of requiring compliance

in a similar and clear manner. In order to facilitate countywide consistency, the Co-permittees met regularly to coordinate efforts and devise strategies for the inspection program at the Business & Illicit Discharge/Illegal Connection Subcommittee. As a part of this effort the Co-permittees encouraged the participation of the County of Ventura Environmental Health Department (EHD) in these discussions and to provide comments and guidance in the development of educational materials.

EHD continues to play an important role in the Co-permittees' efforts to inspect and assure compliance with stormwater regulations in the business community. EHD conducts stormwater inspections of automotive service facilities on the behalf of several Co-permittees, and also performs inspections for the County unincorporated program for food service facilities. Implementation of these program elements required the Co-permittees to spend significant time and resources on communication, coordination and comprehensive training, both for Co-permittee staff as well as EHD inspection staff.

Although the Co-permittees need the flexibility to develop inspection programs that are appropriate for local conditions, the Co-permittees have worked hard to incorporate similar baseline elements in their individual programs.

The Co-permittees will continue to work on coordination and providing the business community of Ventura County a fair, but effective, inspection program.

4.1.5 Educational Brochure for Industrial Facilities

Early on, during the 2001-02 reporting period, the Business & Illicit Discharge/Illegal Connection Subcommittee formed a small work group to develop an educational brochure for the General Industrial Permit Facility Site Visit Program. The work group spent considerable time and effort collecting information on the state's permit and closely examined what other municipalities have done to educate industrial facilities.

The work group consolidated this information and developed a tri-fold brochure that still has valuable use today. It includes the following specific requirements of the General Industrial Permit:

- Facilities subject to the General Industrial Permit must file a Notice of Intent (NOI) with the SWRCB; and
- A Storm Water Pollution Prevention Plan (SWPPP) must be developed and available on site.

4.1.6 Watershed Protection Tips for Business

The Co-permittees revamped a brochure in early 2008 aimed at businesses to provided information on prohibited illicit discharges. Printed in both English and Spanish they detailed preventative methods for controlling illicit discharges, what to do in the event of an illicit discharge and penalties that can be assessed for non-compliance. These brochures were created as part of the *Community for a Clean Watershed* campaign and are distributed during site visits.

Table 4.1 Permit Required Activities
Industrial/Commercial Business Program

Required Activity	Performance Criteria
Site Education/Inspection	Each Co-permittee will conduct site education/inspections of 90% of automotive, food service and other targeted businesses in their jurisdiction every two years.
	Businesses will be scheduled for a follow-up visit whenever evidence of an illicit discharge is found, within six months of the education site inspection.
Targeted Businesses/POCs	Co-permittees will target additional businesses based on Pollutants of Concern (POCs) as appropriate.
General Industrial Permit Facility Visits	Co-permittees will distribute educational materials to 90% of facilities identified as potentially subject to the General Industrial Permit and perform site visits as locally determined necessary to complete a checklist every two years.
	The checklist will include the SIC Code of the industrial user; indicate whether an identified site has obtained coverage under the State General Industrial Permit, and if a SWPPP is available on site.
Stormwater Quality Staff Training	Co-permittees will train 90% of targeted employees by January 27, 2001 and annually thereafter.

SECTION 5.0 PROGRAM FOR PLANNING & LAND DEVELOPMENT

5.1 Program Description

The Co-permittees have developed and implemented a Program for Planning and Land Development to address stormwater quality in the planning and design of development and redevelopment projects. This program, outlined in the Stormwater Quality Management Plan (SMP), describes the minimum standards the Co-permittees are to follow to implement their own development planning programs in compliance with the Permit. The term "development project" as used in this Program encompasses those projects subject to a planning and permitting review/process by a Co-permittee. A development project includes any construction, rehabilitation, redevelopment or reconstruction of any public and private residential project, industrial, commercial, retail and other non-residential projects, including qualifying public agency projects.

Predevelopment Meeting

To meet the goals and objectives of the Program, the Co-permittees attend Planning and Land Development Subcommittee meetings to coordinate and implement a comprehensive and consistent program to mitigate impacts on water quality from development projects to the maximum extent practicable (MEP). However, the Co-permittees may modify their programs to address particular issues, concerns or constraints unique to a particular watershed such as local geology or known water quality impairments.

5.2 Program Implementation

5.2.1 Project Review and Conditioning

Development and redevelopment projects have the potential to discharge pollutants through stormwater runoff. Recognizing this potential and addressing it throughout the development process can reduce these impacts. The Co-permittees approach stormwater concerns early in the project development process when the options for pollution control are greatest and the cost to incorporate these controls into new development and redevelopment projects is least.

In planning and reviewing a development project, the Co-permittees consider three key questions with respect to stormwater quality control: 1. what kind of water quality controls are needed?; 2. where should controls be implemented?; 3. what level of control is appropriate? During the planning and review process, the Co-permittees identify potential stormwater quality problems, communicate design objectives, and evaluate the plan for the most appropriate alternatives and design.

5.2.2 Stormwater Quality Urban Impact Mitigation Plan (SQUIMP)

The Permit requires the implementation of the Stormwater Quality Urban Impact Mitigation Plan (SQUIMP) for new development projects that fall into one or more of the following categories:

- Single-family hillside residences;
- 100,000 square foot commercial development;
- Automotive repair shops;
- Retail gasoline outlets;

- Restaurants;
- Home subdivisions with 10 or more housing units;
- Locations within, or directly adjacent to or discharging to an identified Environmentally Sensitive Area (ESA); and
- Parking lots of 5,000 square feet or more with 25 or more parking spaces and potentially exposed to stormwater runoff.

In addition, redevelopment projects of one of the SQUIMP categories that result in the creation, addition or replacement of 5,000 square feet or more of impervious surfaces, not a part of routine maintenance, are subject to SQUIMP requirements. If a redevelopment project creates or adds 50% or more impervious surface area to the existing impervious surfaces, then stormwater runoff from the entire area (existing and redeveloped) must be conditioned for stormwater quality mitigation. Otherwise, only the affected area of the redevelopment project requires mitigation.

The SQUIMP lists the minimum required BMPs that must be implemented for new development and redevelopment projects subject to the SQUIMP. The minimum requirements include the following BMPs:

- Control peak stormwater runoff discharge rates
- Conserve natural areas
- Minimize stormwater pollutants of concern
- Protect slopes and channels
- Provide storm drain stenciling and signage
- Properly design outdoor material storage areas
- Properly design trash storage areas
- Provide proof of ongoing BMP maintenance
- Meet design standards for structural or treatment control BMPs
- Comply with specific provisions applicable to individual priority project categories, which include the following: 100,000 square foot commercial development; restaurants; retail gasoline outlets; automotive repair shops; and parking lots.

*5.2.3 **BMP Selection and Design Criteria***

The Co-permittees require project proponents to follow the countywide Technical Guidance Manual for Stormwater Quality Control Measures. This manual addresses the SQUIMP requirements of the NPDES permit, specifying design storm volumes and flows to be treated. Also, it identifies Pollutants of Concern from certain types of projects and provides various site, source and treatment control BMPs applicable to Ventura County and the SQUIMP project.

The Co-permittees consider site-specific conditions of development projects when determining which BMPs are most appropriate for a site. Prior to approving BMPs, the staff conditioning the project evaluates post-construction activities and potential sources of stormwater pollutants. The project proponent is required to consider BMPs that would address the potential pollutants reasonably expected to be present at the site once occupied. BMPs to protect stormwater during the construction phase are not a part of this conditioning process and are addressed through the grading permit process through the Construction Program.

SECTION 5.0 PROGRAM FOR PLANNING & LAND DEVELOPMENT

In order to achieve appropriate stormwater quality controls, the Co-permittees use the following common criteria in screening and selecting, or rejecting BMPs during the planning stage with a priority given to non-proprietary designed BMPs:

- Project characteristics;
- Site factors (e.g., slope, high water table, soils, etc.);
- Pollutant removal capability;
- Short term and long term costs;
- Responsibility for maintenance;
- Contributing watershed area; and
- Environmental impact and enhancement.

The BMP selection criteria listed above is applied by the Co-permittees in accordance with the overall objective of the Planning and Land Development Program, i.e., to reduce pollutants in discharges to the MEP. Some BMPs will clearly be more appropriate and effective in some site-specific situations than others, and BMP selections reflect this variability.

Low Impact Development Grass Swale at an Industrial Site in Oxnard

5.2.4 SQUIMP Implementation

Figure 5-1 indicates the number of SQUIMP category projects that were reviewed and conditioned to meet stormwater and SQUIMP requirements by each Co-permittee. 100% of all development and redevelopment subject to SQUIMP requirements were appropriately conditioned. These results exceed the performance criterion of 90% established in the SMP.

Besides the projects subject to SQUIMP requirements, the Co-permittees reviewed and conditioned 77 additional development projects for stormwater quality. These projects included structural improvement projects that did not qualify as one of the SQUIMP categories, but the Co-Permittees saw a need to protect stormwater quality through the design of the projects. **Figure 5-2** illustrates the total number of projects reviewed by each Co-permittee and how many were conditioned for stormwater quality as SQUIMP or non-SQUIMP.

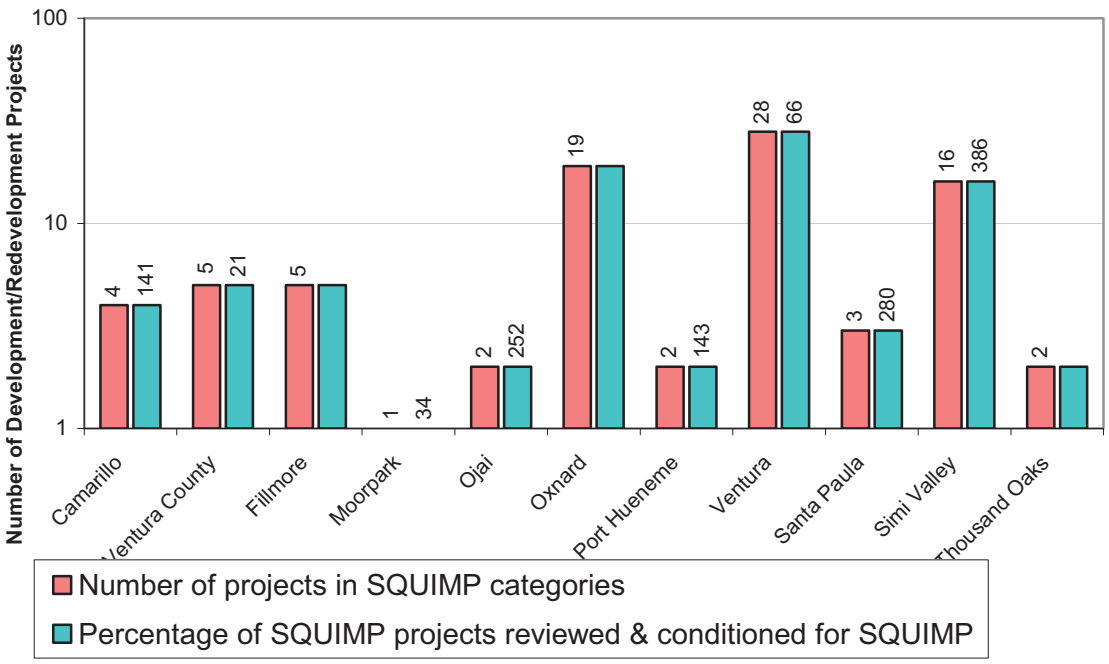
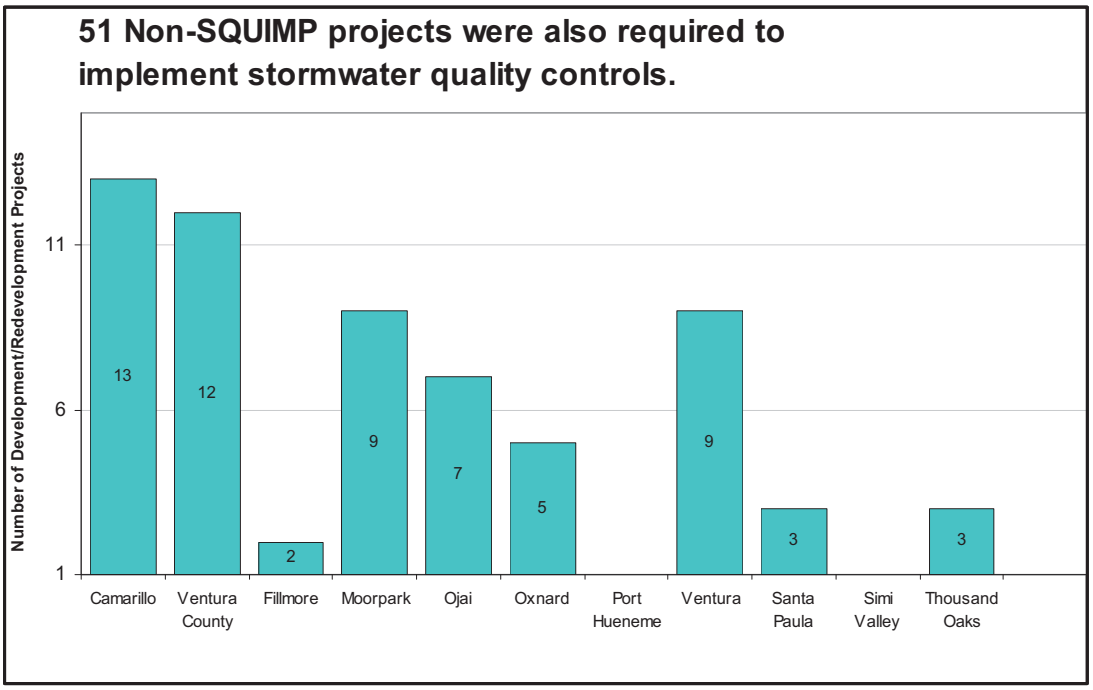


Figure 5-1 Percentage of SQUIMP projects conditioned for stormwater quality



Although not a permit requirement under the order 00-108, some permittees have begun programs to ensure that permanent BMPs are adequately maintained. This requires cataloging and tracking the BMPs that have been required and an understanding of the proper maintenance necessary. Methods used range from letters and educational visits to property owners and/or management explaining the purpose of the BMPs and the specific maintenance requirements to visual inspections to ensure that proper maintenance is being performed. In many instances, Permittees have found improperly maintained BMPs and followed through with enforcement action to correct the deficiencies.

5.2.5 Environmental Review

The California Environmental Quality Act (CEQA) sets forth requirements for the processing and environmental review of many projects. The Co-permittees use the CEQA processing and review as an excellent opportunity to address stormwater quality issues related to proposed projects early in the planning stages. The National Environmental Quality Act (NEPA) comes into play less often than CEQA, but may be included on projects involving Federal funding. Like CEQA, NEPA processing and review provides opportunities to address stormwater quality issues related to proposed projects early in the planning stages.

Each Co-permittee has reviewed their internal planning procedures for preparing and reviewing CEQA (and NEPA when applicable) documents and has linked stormwater quality mitigation conditions to legal discretionary project approvals. In addition, when appropriate, the Co-permittees consider stormwater quality issues when processing environmental checklists, initial studies and environmental impact reports.

5.2.6 General Plan Revisions

The Co-permittees' General Plans provide the foundation and the framework for land use planning and development. Therefore, the General Plan is a useful tool to promote the policies for protection of stormwater quality. The Co-permittees have included watershed and stormwater management considerations in the appropriate elements of their General Plans whenever these elements are significantly rewritten. **Table 5.1** indicates the scheduled date of a significant rewrite to the Co-permittees' General Plan. Note that some Co-permittees have already modified their General Plan to include stormwater requirements and thus no date is provided.

Co-permittee	Date of General Plan	Scheduled date for significant rewrite of General Plan
Camarillo	10/2003	Plan already updated to include stormwater
County of Ventura	10/1997	
Fillmore	4/2003	Plan already updated to include stormwater
Moorpark	1/1984	N/A
Ojai	5/1997	Plan already updated to include stormwater
Oxnard	1/1990	2009
Port Hueneme	8/1997	2015
Ventura	8/2005	Plan already updated to include stormwater
Santa Paula	1/1998	2009
Simi Valley	10/1988	12/1/2009
Thousand Oaks	7/1996	2019 - Plan already updated to include stormwater

Table 5.1 Co-permittees' General Plan

5.2.7 Community Outreach Development

During the reporting period, the Co-permittees made 3292 contacts to development community representatives through customer service (counter assistance, phone conservations, discussions, etc.), professional society presentations, community group presentations, workshops/seminars, and educational outreach materials. These numbers are reflected in **Figure 5-3** which indicates the percentage of outreach methods used, and **Figure 5-4** show the number of contacts made by each Co-permittee.

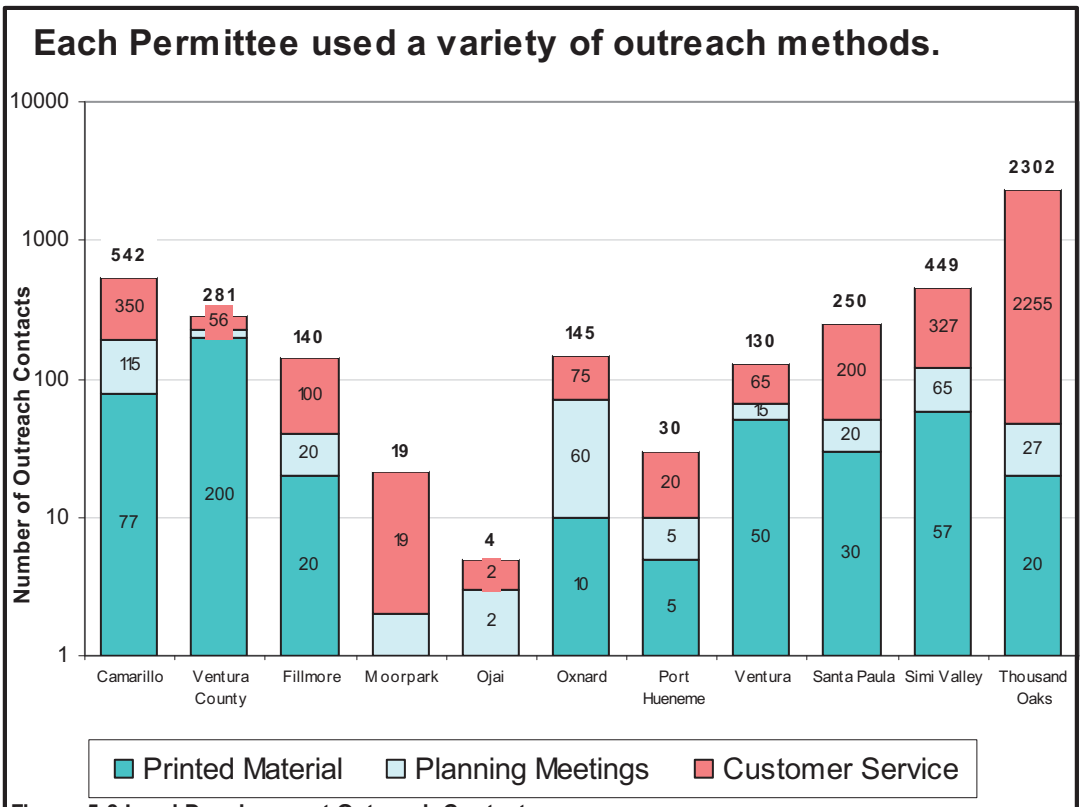


Figure 5-3 Land Development Outreach Contacts

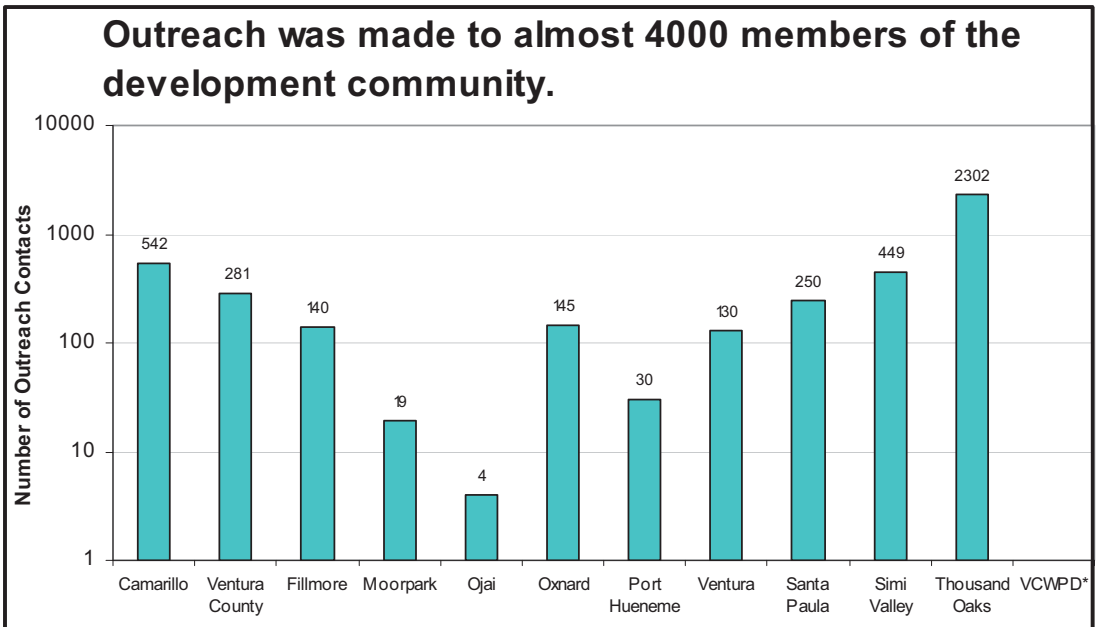


Figure 5-4 Land Development Outreach Contacts

Countywide Development Outreach Contacts = 4292

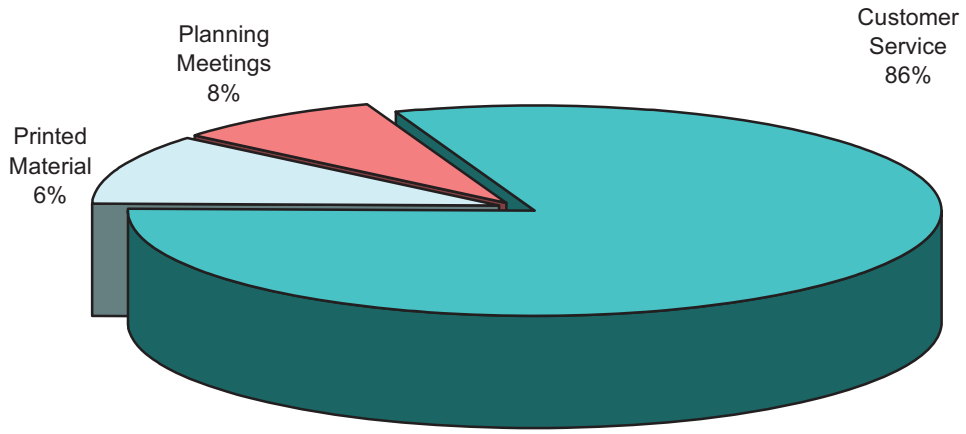


Figure 5-5 Land Development Outreach Activities Used Countywide

5.2.8 Stormwater Quality Staff Training

The Co-permittees identified employees for training regarding the requirements of the Planning and Land Development Program and SQUIMP requirements. Targeted employees include staff involved with planning, review, conditioning, permitting of development projects and administration of departments that conduct these activities.

Training methods varied amongst the Co-permittees and ranged from informal meetings to formal classroom training or self-guided training. During the reporting period, the Co-permittees trained over 75 development staff in stormwater management, plan review and SQUIMP requirements. **Figure 5-6** depicts the number of staff trained in the program area for each Co-permittee. The majority of the Co-permittees exceeded the performance criterion established in the SMP and trained more than the required 90% of targeted employees.

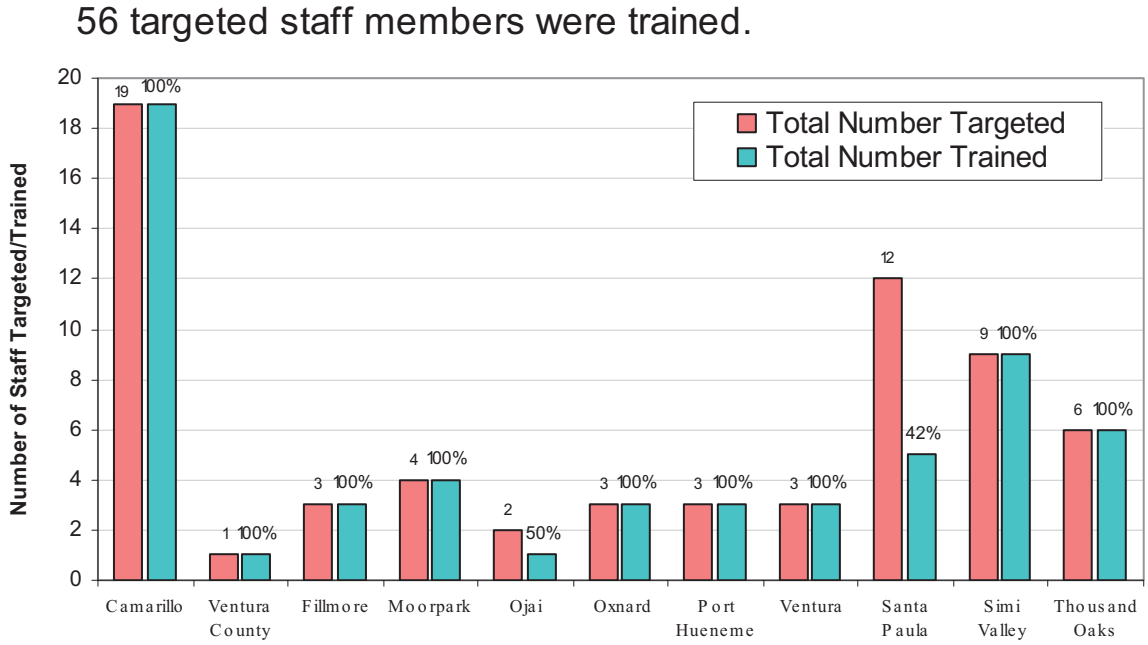


Figure 5-6 Land Development Staff Trained

SECTION 6.0 PROGRAM FOR CONSTRUCTION SITES

6.1 Program Implementation

Reducing pollutants from construction activities has been a focus of the Co-permittees' compliance program since the permit's inception. The Co-permittees regulate construction activities and also have responsibility for the construction and renovation of municipal facilities and infrastructure. Major components of the Co-permittee's Construction Program include:

- Inspect sites required to submit SWPPPs for stormwater quality requirements a minimum of once during the wet season;
- Develop and implement a checklist for inspecting stormwater quality control measures at construction sites;
- Require proof of filing a Notice of Intent (NOI) for coverage under the State General Construction Permit prior to issuing a grading permit for all projects requiring coverage.

Additionally, the Construction Program provides construction site owners, developers, contractors and other responsible parties information on the requirements and guidelines for pollution prevention/BMP methods. To ensure construction sites are implementing the SWPPPs properly, each jurisdiction conducts inspections during the rainy season to verify the appropriateness and implementation of BMPs, taking enforcement action as necessary. Furthermore, training and outreach is done regularly to make certain implementation occurs consistently throughout Ventura County.

The Co-permittees attend Construction Subcommittee meetings to coordinate and implement a comprehensive program to mitigate impacts on water quality from construction sites to the maximum extent practicable (MEP). In order to facilitate effective inspections and to document compliance with this requirement the Construction Subcommittee developed a Stormwater Quality Checklist for Co-permittee use. The checklist and the meetings create countywide consistency in the programs, however, the Co-permittees may modify their programs to address particular issues, concerns or constraints that are unique to a particular watershed or to an individual municipality. The Subcommittee is comprised of representatives of the Co-permittees cities and other municipal staff from various departments (Engineering Services, Planning and Land Development and Inspection Services).

6.1.1 SWPCP/SWPPP Preparation, Certification and Implementation

Prior to receiving a grading permit, the Co-permittees require a Storm Water Pollution Prevention Plan (SWPPP) be submitted for projects greater than one acre. Additionally, as is mandatory for all construction related activity disturbing one or more acres, Co-permittees require proof of filing an NOI for projects subject to the General Construction Permit. The SWPPP remains in effect until the construction site is stabilized and all construction activity is completed. The SWPPP includes identification of potential pollutant sources and the design, placement and maintenance of BMPs to effectively prevent the entry of pollutants from the construction site to the storm drain system. In addition, the Co-permittees require construction projects to include the following requirements:

- Erosion from slopes and channels will be eliminated by implementing BMPs, including but not limited to, limiting grading during the wet season, inspecting graded areas during rain events, planting and maintaining vegetation on slopes and covering erosion susceptible slopes.
- Sediments generated on the project site shall be retained using structural drainage controls
- No construction-related materials, wastes, spills or residues shall be discharged from the project site to streets, drainage facilities or adjacent properties by wind or runoff;
- Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site;

The Co-permittees have also incorporated SWPCP provisions in their own construction projects resulting in soil disturbance of one acre or more, located in hillside areas, or directly discharging to an

ESA. The Co-permittees include provisions delineating contractor responsibilities for SWPCP preparation, implementation and for performance of the work and ancillary activities in accordance with the SWPCP approved by the Co-permittee for the project. In some jurisdictions, SWPCPs were required and submitted for nearly all projects including those not exceeding Permit thresholds. This conservative approach underlines the importance the Co-permittees place on ensuring implementation of stormwater controls at construction sites.

Figure 6-1 indicates the number of construction projects required to submit a SWPCP/SWPPP and the number of projects that submitted a SWPCP/SWPPP. This figure reflects the number of grading permits issued during this reporting period and does not necessarily reflect the number of active construction projects. The Co-permittees have consistently required projects to submit SWPCPs (and SWPPPs when required) with most Co-permittees exceeding the 90% performance criteria established in the SMP. This figure also details the number of inspections conducted at construction sites with a SWPCP during the wet season. The number of active projects requiring inspection does not always match the number of grading permits granted. A project may be operating under a grading permit granted the previous year, or the grading permits may have been granted after the wet season so there was no opportunity for a wet season inspection. Most of the Co-permittees met or exceeded the 90% performance criterion established in the SMP. Most Co-permittees inspect more construction sites than were required to submit a SWPCP, and inspect them more frequently for stormwater compliance than the permit requires.

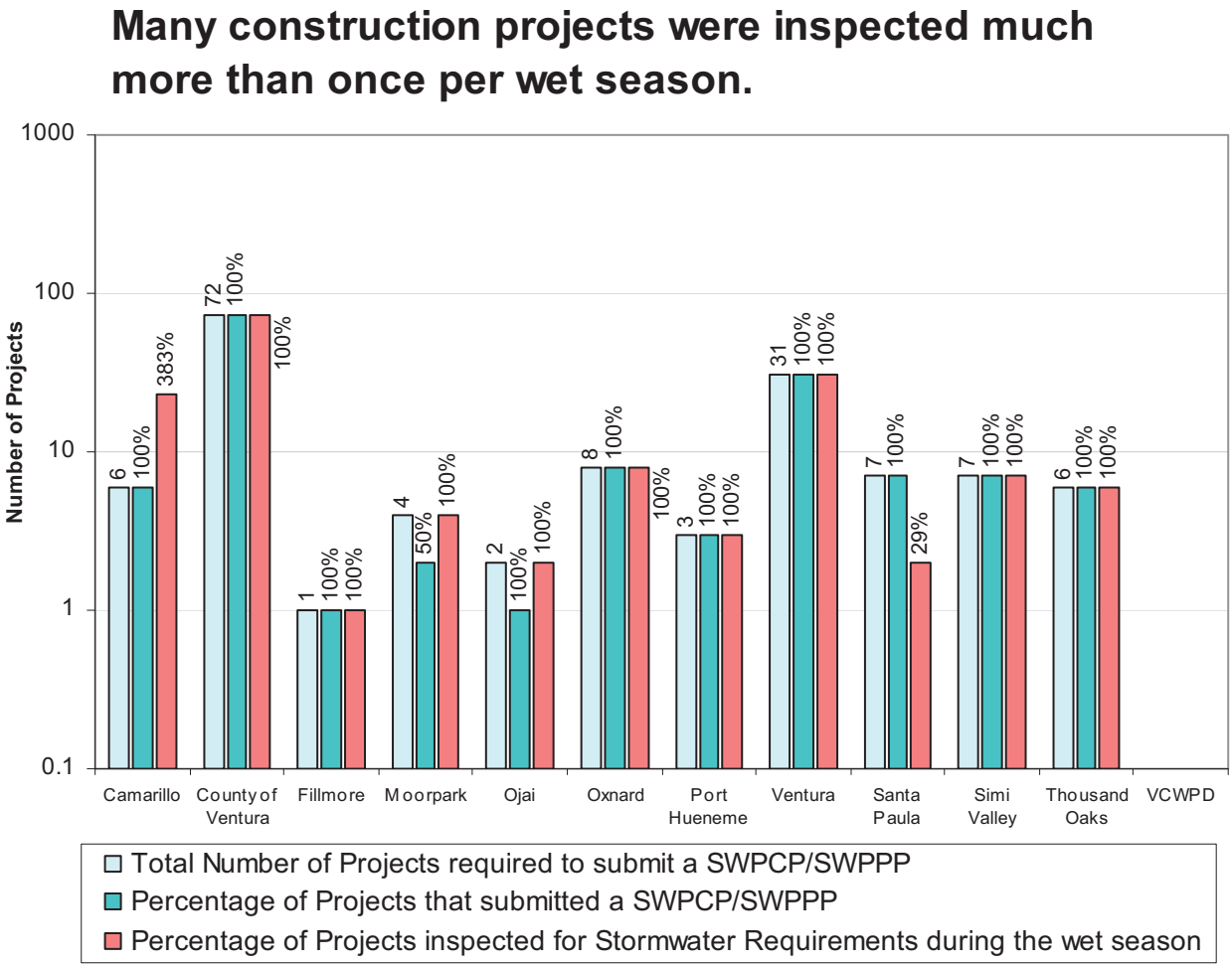


Figure 6-1 Construction Projects Required to Submit a SWPCP

6.1.2 General Construction Permit

As mentioned above, the Co-permittees require all construction projects subject to the General Stormwater Permit for Construction Activities to submit proof of filing a Notice of Intent (NOI) prior to issuing a grading permit. Proof of filing a NOI may include a copy of the completed NOI form and a copy of the check sent to the State Water Resources Control Board (SWRCB) or a copy of the letter from the SWRCB with the Waste Discharge Identification Number (WDID) for the project.

In addition, the Co-permittees files NOIs with the SWRCB and pay the appropriate fees whenever Co-permittee construction projects qualify for coverage under the General Construction Permit. The NOIs and appropriate fees are filed prior to the commencement of any construction activity covered by the General Construction Permit. A copy of the NOI is kept with the project files and in the SWPPP for the project.

Projects subject to the requirements of the General Construction Permit currently include those involving clearing, grading, or excavation resulting in soil disturbances of at least one acre. Co-permittee emergency work and routine Co-permittee maintenance projects do not require preparation of a SWPCP/SWPPP, but are instead performed in accordance with the Program for Public Agency Activities.

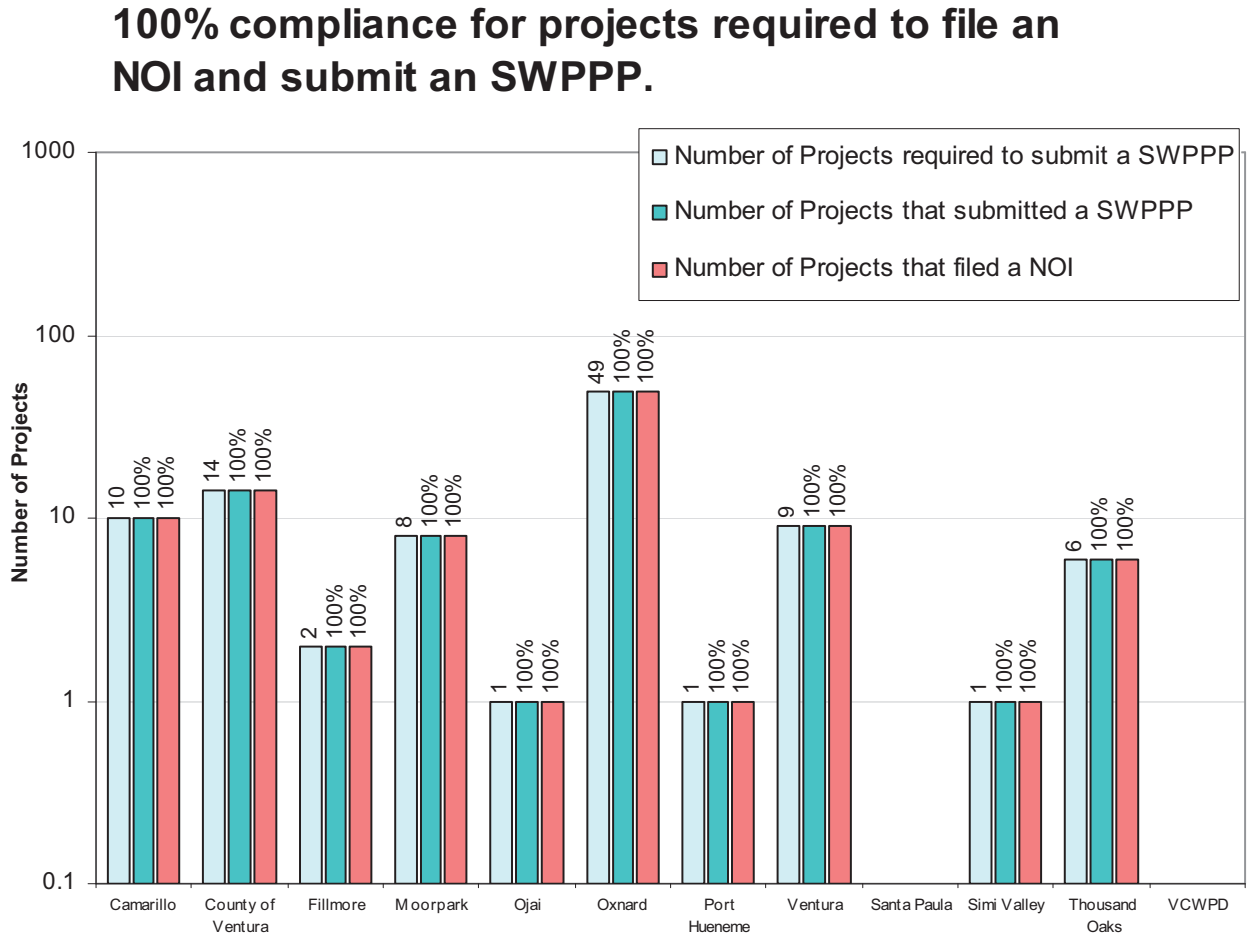


Figure 6-2 Construction Projects Required to Submit a SWPPP

* No projects that required an NOI this permit year.

Figure 6-2 presents the number of construction projects that required coverage under the General Stormwater Permit for Construction Activities and prepared a SWPPP. All co-permittees exceeded the 90% performance criterion for verifying the filing of a NOI established in the SMP.

6.1.3 Construction Site Inspection Program

The Co-permittees inspect all construction sites with SWPPPs a minimum of once during the wet season to determine if the SWPPP is adequately implemented. During this site inspection, a checklist is completed to document inspection results. If it is determined the SWPPP is not adequately implemented, or when there is evidence of a reasonable potential for sediment, construction materials, wastes, or non-stormwater runoff to be discharged from the project site, the Co-permittees will conduct a follow-up inspection within two weeks. But most often it is much sooner.

When a construction site fails to comply with the SWPCP/SWPPP, a Co-permittee implements the appropriate notification and enforcement procedures. There are five general levels of notification and enforcement for most stormwater related problems for construction projects. These are: Verbal Notification, Job Memorandum, Notice of Violation, Administrative Compliance Order, Stop Work Order. Sites that are permitted under the construction activities general permit are also referred to the RWQCB if they fail to achieve compliance in two weeks. The decision to use any level of compliance control is based upon the severity of the violation(s). Severe violation may result in all construction activities being stopped at the job site and not allowed to proceed until compliance is achieved.

Figure 6-3 indicates the number and types of enforcement actions taken by the Co-permittees countywide. A single construction project can be issued multiple violations, ranging from written notices to RWQCB referrals. There were 294 total enforcement actions countywide this year, overall that is significantly less than in previous years, but the use of notices of violation has increased as percentage of enforcement actions from 7% to 40%.

268 Enforcement Actions at Construction Site Were Taken This Year.

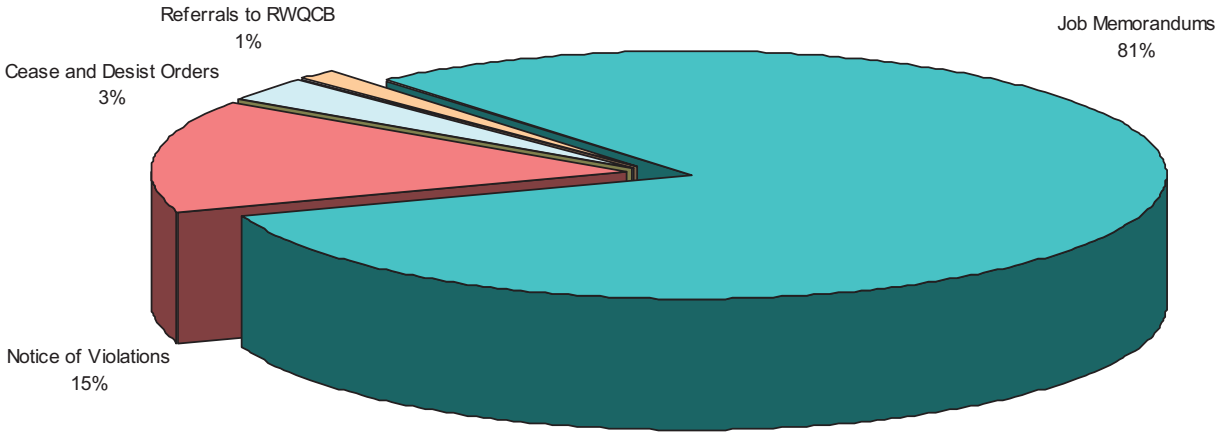


Figure 6.3 Enforcement Actions

Total Number of Outreach Contacts = 3978

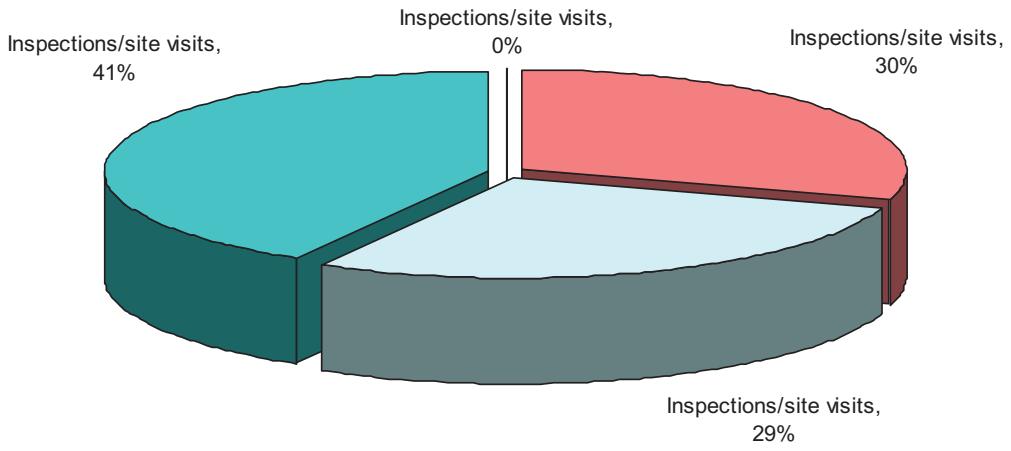


Figure 6-4 Construction Outreach Methods Used Countywide

6.1.5 Stormwater Quality Staff Training

The Co-permittees targeted employees involved with construction engineering and inspection for training regarding the requirements of the Program for Construction Sites. Training methods varied amongst the Co-permittees and ranged from informal meetings, to formal classroom training or self-guided training. The Co-permittees also trained staff on the prevention, detection and investigation of illicit discharges and illegal connections (ID/IC) associated with construction activities. See **Chapter 8** for more information regarding ID/IC training.

During this reporting period, the Co-permittees trained 66 construction inspection staff in stormwater management, construction inspections, SWPCPs, SWPPPs, illicit discharge response, and non-stormwater discharges. **Figure 6-5** depicts the number of staff trained in the program areas for each Co-permittee. All of the Co-permittees exceeded the performance criterion established in the SMP and trained more than the required 90% of the targeted employees.

100% of targeted employees received training on construction BMPs.

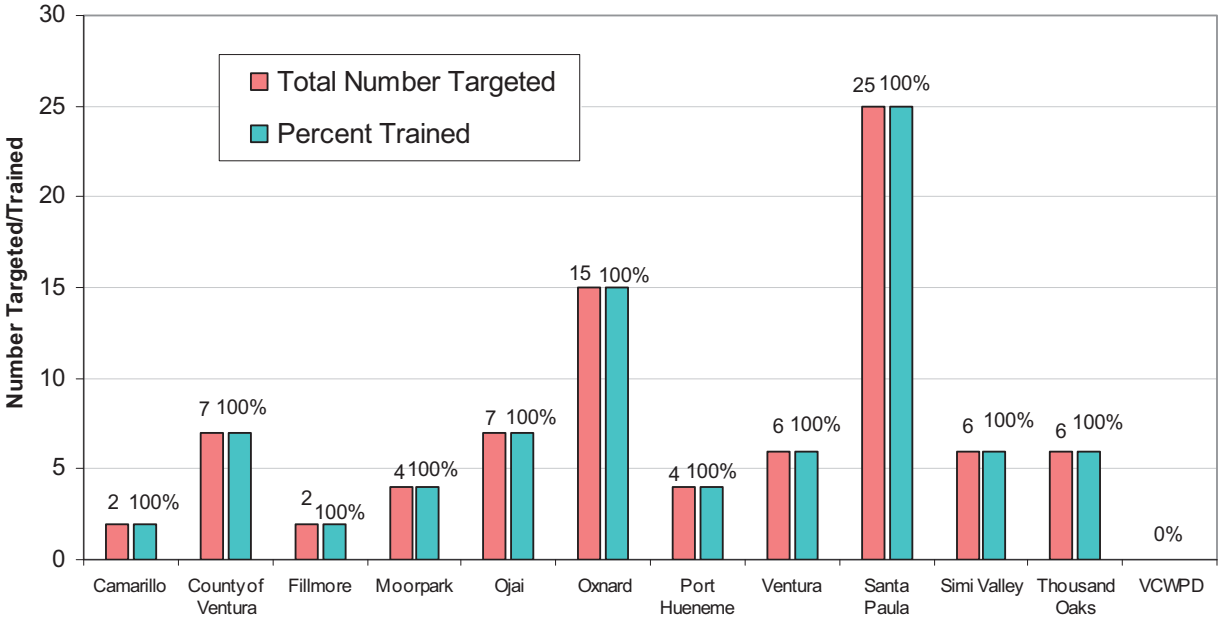


Figure 6-5 Construction Inspection Staff Trained

Table 6.1 Permit Required Activities Construction Site Program	
Required Activity	**Performance Criteria**
SWPCP Preparation, Certification & Implementation	Co-permittees will require 90% of construction projects meet the permit requirements, and submit a SWPCP prior to issuing a grading permit. For construction projects that prepare a SWPCP under this program, require implementation of the SWPCP during the entire course of construction.
Incorporating Best Management Practices (BMPs)	For construction sites requiring a SWPCP, Co-permittees will require the inclusion of the statement specified in the Permit from the project architect, or engineer of record, or authorized qualified designee and the certification specified in the Permit from the landowner. For Co-permittee construction projects requiring a SWPCP, Co-permittees will include the statement specified in the Permit from the project architect, or engineer of record, or authorized qualified designee and the Co-permittees certification specified in the Permit from an elected official, ranking management official or the manager of the construction activity.
Notice of Intent Requirement	For construction projects subject to the General Construction Permit, Co-permittees will require proof a NOI has been filed prior to issuance of a grading permit for 90% of all such projects.
Construction Site Inspection Program	Develop and implement a checklist for inspecting stormwater quality control measures at construction sites by January 27, 2001. For construction projects that required a SWPCP, inspect sites a minimum of once during the wet season for stormwater quality requirements and complete a stormwater quality control site inspection checklist. For sites having not adequately implemented the SWPCP or where there is evidence of or a reasonable potential for sediment, construction materials or wastes, or non-stormwater runoff to be discharged from the project site, a written notice (Job Memorandum, Notice of Violation, Administrative Compliance Order, Cease and Desist Order) shall be prepared and delivered to the owner or person responsible for implementing the SWPCP. For sites having not adequately implemented the SWPCP, conduct a follow-up inspection within two weeks to ensure compliance and complete a stormwater quality control site inspection checklist. For sites having not achieved compliance after the follow-up inspection and are covered by the General Construction Permit, Co-permittees will notify the RWQCB.
Construction Community Outreach	During meetings and inspections with developers, contractors, construction workers and others involved in construction projects and activities, discuss stormwater quality controls as appropriate. Notify developers of their responsibility for all discharges from the project site, including discharges from streets and storm drains, until final acceptance of the project by the Co-permittee. Notify developers of their responsibility includes discharges resulting from activities at owner occupied facilities. Co-permittees will develop a “New Owner” brochure and upon request provide these to developers, Home Owner Associations (HOAs), and residents to assist them with their efforts to prevent discharges from owner occupied portions of the project site.
Stormwater Quality Staff Training	Co-permittees will train 90% of targeted employees by January 27, 2001 and annually thereafter.

SECTION 7.0 PROGRAM FOR PUBLIC AGENCY ACTIVITIES

7.1 Introduction

The Co-permittees own and operate public facilities, and build and maintain much of the infrastructure of the urban and suburban environment throughout their jurisdictions. Public agencies have a dual role in preventing pollution in the operation and maintenance of these facilities. Some programs help remove pollutants before they reach receiving waters, e.g. street sweeping, and others are source control ensuring all the activities performed do not contribute to stormwater pollution to the maximum extent practicable.

Programs the Co-permittees have that remove pollutants are:

- Drainage facilities inspection and maintenance
  - Catch basin inlets
  - Open channels
  - Detention basins
- Roadway Operation and Maintenance
- Emergency Spill Response
- Solid waste and hazardous waste collection

All the other field activities have a potential to contribute to stormwater pollution if they are not performed appropriately. With the adoption of the second term permit, the Co-permittees were required to formally evaluate and revise the municipal activities program to prevent stormwater pollution to the MEP. This evaluation was accomplished through the development and implementation of the Model Municipal Activities Program outlined in the SMP. This program covered all aspects of public agency activities from Corporate Yard SWPCP, infrastructure maintenance and staff training. The objective of this model program is to provide the Co-permittees with:

- A program framework for reducing to the maximum extent practicable the adverse impacts that municipal activities may have on water quality;
- An iterative process by which they can effectively monitor and respond to problems as they are discovered; and
- Methodologies to meet permit requirements.

7.2 Pollutant Removal Programs

All Co-permittees routinely conduct preventive maintenance activities widely recognized as effective BMPs for pollutant control. These activities include solid waste collection/recycling, drainage facility maintenance, catch basin stenciling and emergency spill response. These efforts work at both removing pollutants from the storm drain system and prevent them from entering it in the first place.

7.2.1 Drainage Facility Maintenance

As required by the Permit, Co-permittees inspect catch basins and other drainage facilities that are a part of their system. These inspections are scheduled and completed at least once each year before the wet season (Permit-defined wet season begins October 1). Inspections include the visual observation of each catch basin, and open channels to determine if the facility has accumulated trash, sediment or debris requiring removal. All debris removed from the system is disposed of properly and therefore represents pollutants that would have likely been washed downstream to a receiving water.

Co-permittees also routinely inspect and clean their drainage facilities during the year on an as-needed basis. “Routine cleaning” for these facilities, means the removal of accumulations of trash, sediment and debris likely be washed downstream with the next runoff event or cause a loss of

hydraulic capacity and result in potential flooding. For catch basins, "as-needed cleaning" occurs whenever trash, sediment or debris accumulation is found to be at least 40% of capacity.
Figure 7-1 depicts the number of catch basins/inlets inspected and/or cleaned by Co-permittees this reporting period in relation to the total number of facilities. Most of the Co-permittees achieved the 90% performance criteria established in the SMP. The major type of material removed by the Co-permittees is depicted in **Figure 7-2** and the source of this material is depicted in **Figure 7-3**.

99% of catch basins were inspected and cleaned, if necessa before the wet season.

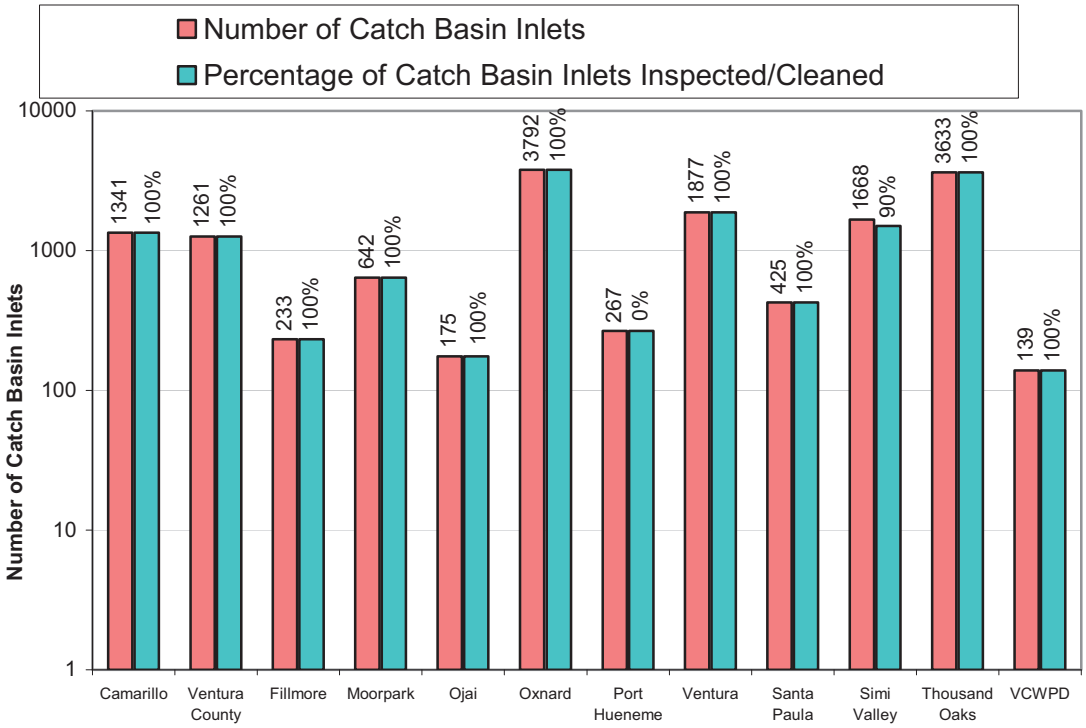


Figure 7-1 Drainage Facilities Cleaned - Catch Basins/Inlets

When performing cleaning activities, Co-permittees implement appropriate BMPs to prevent sediments and debris from being washed downstream. By removing this amount of material from the catch basin inlets, open channels and detention basins the Co-permittees make a significant contribution in preventing the passage of these materials in downstream receiving waters. During the reporting period, the Co-permittees tallied the collection of over 780 tons of solid debris from drainage facility maintenance activities.

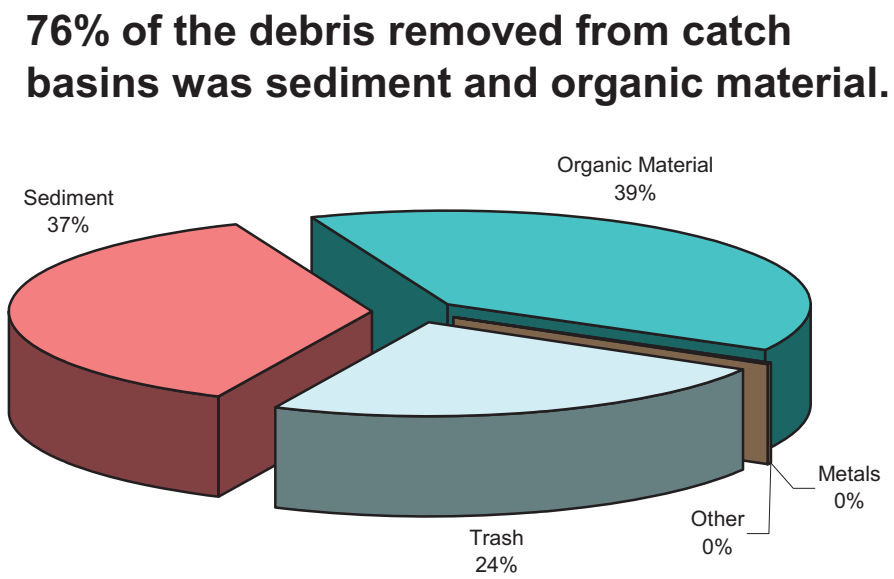


Figure 7-2 Countywide Catch Basin Debris by Material

Because the design of detention and retention basins includes the accommodation of multi-year accumulations of debris and sediment, “routine cleaning” of these facilities, means the removal of barriers from the inlet/outlet of the facility to restore the operational design and efficiency of the facility. The debris/sediment is cleaned whenever the basin has filled to target levels established in the facility design or subsequently adopted operation and maintenance protocols for the facility. In addition, debris basins designed to capture debris in flows upstream of urban areas are not considered to be detention or retention basins for this report as there are no MS4s draining to them. Debris basins are inspected and maintained in accordance with applicable local policies and procedures appropriate for these facilities. Removal of accumulated debris and sediment is carried out either manually or by mechanical methods and in some cases such as large detention basins require special permits from the Department of Fish and Game and the Regional Water Quality Control Board.

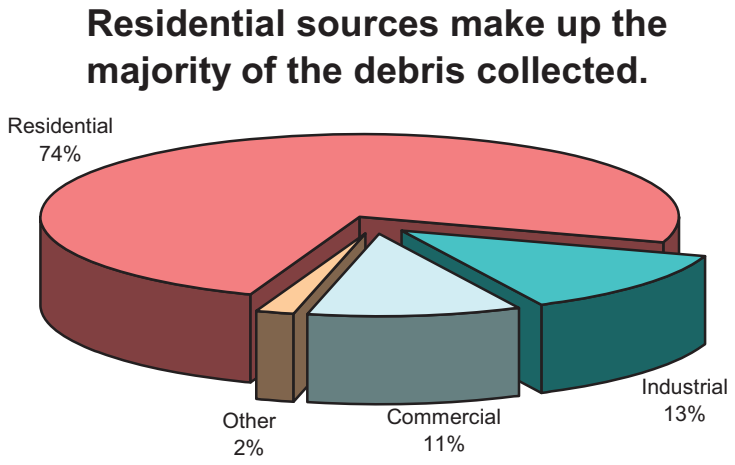


Figure 7-3 Countywide Catch Basin Debris by Source

Over 16,000 Tons of Debris Were Removed from Channels and Ditche Countywide

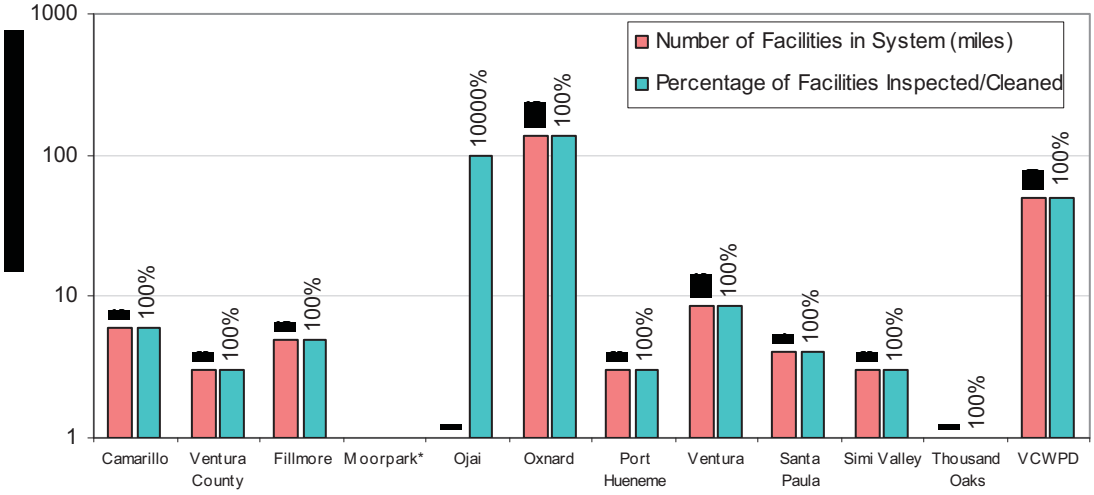


Figure 7-4 Drainage Facilities Cleaned - Channels/Ditches

* Note that all channels and/or ditches within the City of Moorpark's jurisdiction are maintained by VCWPD.

This reporting period the Co-permittees removed 3500 tons of debris from their detention/retention basins. Year to year variation in debris removal is due to the differing multi-year cleaning and maintenance schedules for each Co-permittee.

In addition to the debris removed from catch basin inlets, Co-permittees removed approximately 16,000 tons of debris from their channels/ditches. Variations in the amount of debris removed are to be expected from year to year as storm patterns, population and plant coverage differs from year to year. **Figure 7-4** depicts the number of channels/ditches inspected and/or cleaned by Co-permittees this reporting period in relation to the total number of facilities. All of the Co-permittees achieved the 90% performance criteria established in the SMP. **Figure 7-5** depicts the number of facilities inspected and/or cleaned by Co-permittees this reporting year in relation to the total number of facilities. All of the Co-permittees achieved the 90% performance criteria established in the SMP.

Over 26000 Tons of Debris was Removed from Detention Basins

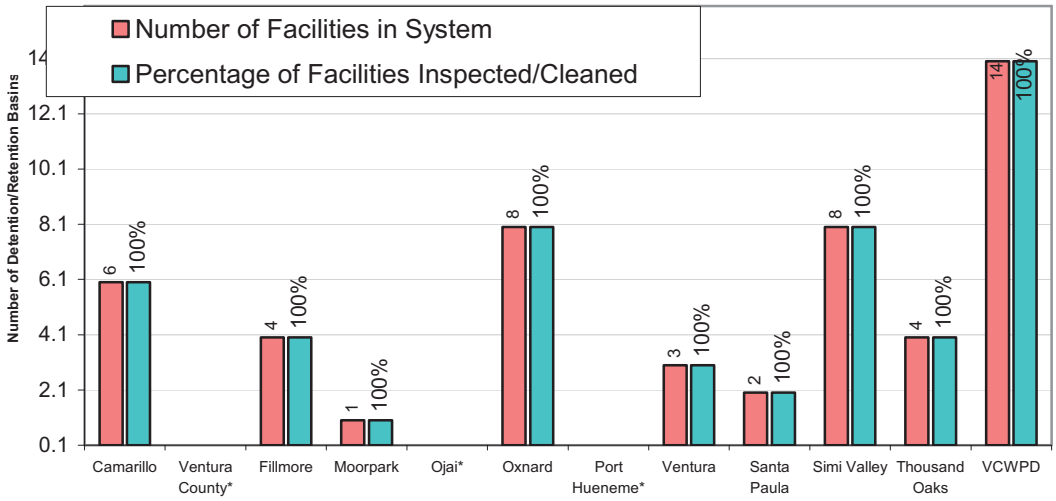


Figure 7-5 Drainage Facilities Cleaned - Detention/Retention Basins

7.2.2 Roadway Operation and Maintenance

Co-permittees have identified curbed streets within their jurisdiction and have implemented a sweeping program for these streets. At a minimum the streets are swept by the Co-permittees in accordance with the following classifications:

- High traffic downtown areas: sweep at least four times per month
- Moderate traffic collector streets and residential areas: sweep at least six times per year
- Other continuously bermed public streets: sweep at least one time per year prior to wet season

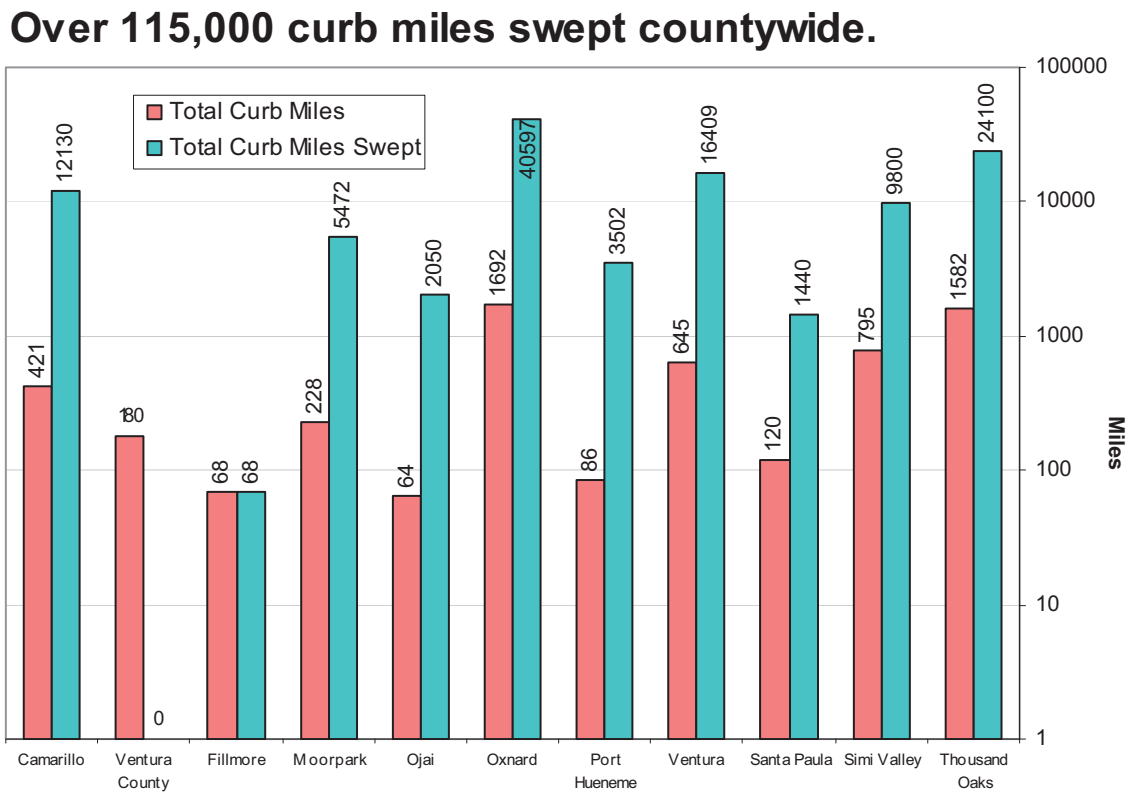


Figure 7-6 Street Cleaning Effort
* Note: Total miles swept included sections swept more than once

Figure 7-6 indicates the street cleaning effort in total miles cleaned. Co-permittees have made excellent progress in their street cleaning efforts, with most Co-permittees exceeding the performance criteria established in the SMP.

For the purpose of streets "prior to the wet season" means sweeping the street at least once during the three-month period immediately prior to the wet season (July, August, September). "Continuously bermed" means a street in the permitted area where a berm exists on both sides of the street without breaks.

To increase the efficiency of the street sweeping, Co-permittees have made an effort to encourage voluntary relocation of street-parked vehicles on scheduled sweeping days. This has been achieved by placing temporary "no stopping" and "no parking" signs, posting permanent street sweeping signs and/or distributing street sweeping schedules to residents and businesses. Many of the Permittees have coordinated street sweeping to follow the routine trash collection days in order to remove any litter left in the streets by the trash removal service.

7.2.3 Emergency Spill Response

All Co-permittees have the authority to control releases to the storm drain system through their individual Water Quality Ordinances and each Co-permittee has designated appropriate staff for enforcing their ordinance. Unfortunately, even with the ordinances in place there are occasions where a spill or release will need to be cleaned up. Cleanup can be as simple as dispatching a crew to pick up dumped trash, or a street sweeper or vacuum truck to clean an area or catch basin and storm drain after a known spill. It could also become a major multi-agency operation if hazardous or unknown materials are involved.

Emergency responses to water pollution incidents are routinely undertaken by Co-permittee designated staff, and other municipal departments and emergency responders may become involved if the material is a suspected hazard. Although each Co-permittee is responsible for responding to complaints and incidents within their jurisdiction, very often neighboring Co-permittees will coordinate their efforts with either very large events and/or spills that cross jurisdictional boundaries. The Co-permittees focus on responding quickly and efficiently to emergency spills with priority on mitigating the spills that have a potential to adversely impact the environment.

7.2.4 Solid Waste Collection/Recycling

The Co-permittees each have solid waste collection programs for public, residential, commercial and industrial areas. Special programs for bulky items and hazardous waste provide the public with legal and economical disposal options and therefore help prevent the illicit disposals that can lead to pollution. The Co-permittees conduct public education outreach on these programs through a variety of methods including community newsletters, radio and television public service announcements, brochures and utility bill inserts. (For more information on solid waste collection/recycling programs see **Section 3**).

The City of Ventura's Figueroa storm drain diversion with educational signage.

7.2.5 Dry Weather Diversions

The City of Ventura, with the support of environmental and regulatory partners, obtained Clean Beaches Initiative funding from the State Water Resources Control Board to improve beach water quality at Surfers Point through the design and construction of two dry weather runoff diversions. Dry weather runoff from the City of Ventura's Figueroa Street and California Street storm drain systems continue to be successfully diverted into the sanitary sewer system, for treatment at the City's wastewater treatment plant, rather than flow directly into the ocean untreated. These diversions have operated year round since 2006, being turned on and off by rain gauges and computers.

7.3 Municipal Activities Program Implementation

A significant portion of the Co-permittees' activities includes the operation and maintenance of municipal infrastructure. These activities have the potential to impact stormwater quality and as such the Co-permittees have implemented a Program for Public Agency Activities. This program addresses the implementation of BMPs to control pollutant discharges to the maximum extent practicable (MEP).

In order to address the Co-permittees' potential impacts on stormwater, the following activities have been targeted:

- Activities at Co-permittee Corporation Yards
- Drainage System Operation and Maintenance Activities
- Roadway Operation and Maintenance Activities
- Pesticide, Herbicide and Fertilizer Application and Use
- Municipal Staff Training

7.3.1 Corporation Yards

The Co-permittees utilize corporation yards to support operation and maintenance activities within their jurisdiction. Corporation yards are operated and maintained by the Co-permittees for the following activities or facilities:

- Vehicle and equipment
  - Storage and parking
  - Maintenance
  - Fueling
  - Washing and cleaning
- Sign painting activities
- Bulk material storage areas
- Employee support facilities, such as offices, locker rooms and meeting rooms

Table 7.1 Co-permittee Corporation Yards

Co-permittee	Corporation Yard Name	Location	SWPCP Developed & Implemented	SWPCP available on site
Camarillo	Camarillo Corporate Yard	283 South Glenn Drive	Yes	Yes
County of Ventura	El Rio Corporate Yard	682 El Rio Drive	Yes	Yes
	Moorpark Yard	7150 Walnut Cyn. Road	Yes	Yes
	Saticoy Public Works Corporate Yard	11251-A Riverbank Drive Saticoy, CA	Yes	Yes
Fillmore	Fillmore Public Works Yard	711 Sespe Avenue	Yes	Yes
Moorpark	Public Works/Parks Yard	675 Moorpark Avenue	Yes	Yes
Ojai	Ojai Corporate Yard	Signal Street	Yes	Yes
Oxnard	Oxnard Corporate Yard	1060 Pacific Avenue	Yes	Yes
	Regional Recycling Center	111 S. Del Norte Blvd.	Yes	Yes
	Oxnard Water Treatment Yard	251 S. Hayes Avenue	Yes	Yes
Port Hueneme	Municipal Service Center	700B E. Port Hueneme Road	Yes	Yes
	Service Yard Annex	746 Industrial Avenue	Yes	Yes
Ventura	SanJon Corporate Yard	336 SanJon Road	Yes	Yes
Santa Paula	Corporation Street Yard	903 Corporation Street	Yes	Yes
	Palm Avenue Yard	180 South Palm Avenue	Yes	Yes
Simi Valley	Simi Public Service Center	500 W. Los Angeles Avenue	Yes	Yes
Thousand Oaks	Municipal Service Center	1993 Rancho Conejo Blvd.	Yes	Yes
VCWPD	El Rio Corporate Yard	682 El Rio Drive	Yes	Yes
	Moorpark Yard	7150 Walnut Cyn. Road	Yes	Yes
	Saticoy Public Works Corporate Yard	11251-B Riverbank Drive Saticoy, CA	Yes	Yes

7.3.2 Storm Water Pollution Control Plan Development

Construction of Wash Rack Area

The Permit required the Co-permittees to develop and implement a SWPCP at designated corporation yards by July 27, 2002. As the Principal Co-permittee, VCWPD developed a SWPCP template to be used as a guide by the Co-permittees in the development of their plans for each of the designated corporate yard facilities.

As shown in **Table 7.1 Co-permittee Corporation Yards**, all of the Co-permittees have modified and implemented the model SWPCP to suit their specific site's activities at their corporate yards.

The Co-permittees keep a copy of the SWPCP at the facility site and review it annually to see that information is current and accurate. BMPs that have been implemented are assessed to determine if they are working as planned, and any required changes are noted in the SWPCP.

As specified in the permit and reflected in the SWPCPs all hazardous and toxic waste storage areas are prohibited from discharging untreated stormwater runoff to the storm drain system. Fueling areas, vehicle maintenance and repair areas and temporary street maintenance material and waste areas are also prohibited from discharging untreated stormwater. All vehicle and equipment wash areas are to be self-contained and covered, or equipped with a clarifier and properly connected to the sanitary sewer. These specific site BMP requirements and associated deadlines were discussed and reviewed frequently by the Co-permittees during Public Infrastructure Subcommittee meetings. All of the Co-permittees have met the performance criteria established in the SMP, and have implemented appropriate BMPs to their hazardous and toxic waste storage areas, fueling areas, vehicle maintenance and repair areas, street maintenance material and waste areas.

Once implemented, the SWPCP requires annual inspections of the corporate yards to evaluate the implementation and effectiveness of the SWPCP. In order to facilitate this process, the Public Infrastructure Subcommittee began discussions on what components of the SWPCP should be evaluated and how best to conduct inspections. As a product of these discussions, the Subcommittee developed a model inspection form Co-permittees could implement at their yards. The Co-permittees plan to continue to address SWPCP implementation and annual inspections at the Public Infrastructure Subcommittee and utilize the lessons learned for improvement and inclusion in future inspection activities.

7.3.3 Field Maintenance Activities

Street maintenance activities and underground utility work have the potential to discharge pollutants to the storm drain system if appropriate protective measures are not implemented. Therefore, Co-permittees require roadway maintenance staff, roadway maintenance contractors and others to implement BMPs to control discharge of pollutants to the storm drain system as a result of roadway and utility maintenance activities. At a minimum, Co-permittees have included the following BMPs:

- Prohibit saw-cutting during a storm event of 0.25 inches or greater;
- Prohibit the discharge of untreated runoff from temporary or permanent street maintenance material and waste storage areas from entering the storm drain system.

Some Co-permittees contract for their street maintenance work and most issue street cut or similar permits for private work done in their streets. Co-permittees have addressed work under these contracts or permits by including contract provisions and/or permit conditions requiring street maintenance or repair work comply with the minimum requirements shown above and other BMPs required for protection of water quality. In the event of an emergency and roadway maintenance work must be conducted immediately in order to protect lives or property, Co-permittees make every effort to work in a manner protective of water quality, but public safety is a priority.

7.3.4 Pesticide, Herbicide and Fertilizer Application and Use

The Permit required the Co-permittees to develop and adopt a standardized protocol for the routine and non-routine application of pesticides, herbicides (including pre-emergents) and fertilizers by July 27, 2001. The standardized protocol includes the following minimum requirements to control the discharge of pollutants to stormwater due to pesticide, herbicide and fertilizer application:

- Prohibit the application of pesticides, herbicides and fertilizers during rain events;
- Prohibit the application of pesticide, herbicides and fertilizers within one day of a rain event forecasted to be greater than 0.25 inches except for application of pre-emergents;

- Prohibit the application of pesticides, herbicides and fertilizers after a rain event where water is leaching or running from the application area; and
- Prohibit the application of pesticides, herbicides and fertilizers when water is running off-site from the application site.

In addition, Co-permittees require all staff applying pesticides to be either certified by the California Department of Food and Agriculture, or under the direct on-site supervision of a certified pesticide applicator, as defined in the standardized protocol. Co-permittees have also restricted the purchase and use of pesticides and herbicides to certified staff.

Co-permittees that contract out for pesticide applications have included contract provisions requiring the contract applicator meet all requirements of this program, including compliance with the standardized protocol, the prohibitions and requirements for certification and supervision of pesticide applicators.

7.3.5 Pilot Trash Excluder Programs

The City of Ventura started installing trash excluders in known problem areas near the end of the permit term last year. This permit term it has completed its first yearly cycle, with positive results. The five vertical excluders, all located inside of the catch basins and within high trash areas, retained large amounts of trash and added no additional costs to the annual catch basin cleaning. One excluder became fully clogged by grass clippings and caused flooding during a rain event. The source of the one-time, sudden accumulation of grass clippings was investigated, but is not known.

A trash excluder in the City of Ventura.

7.3.6 Stormwater Quality Staff Training

Each Co-permittee targets staff based on the type of stormwater quality and pollution issues they typically encounter during the performance of their regular maintenance activities. Targeted staff included those who perform activities in the following areas: stormwater maintenance, drainage and flood control systems, streets and roads, parks and public landscaping and corporation yards.

Training methods vary amongst Co-permittees and range from informal meetings, to formal classroom training or self-guided training. The Co-permittees also train staff on the prevention, detection and investigation of illicit discharges and illegal connections (ID/IC). (See **Section 8** for more information regarding ID/IC training).

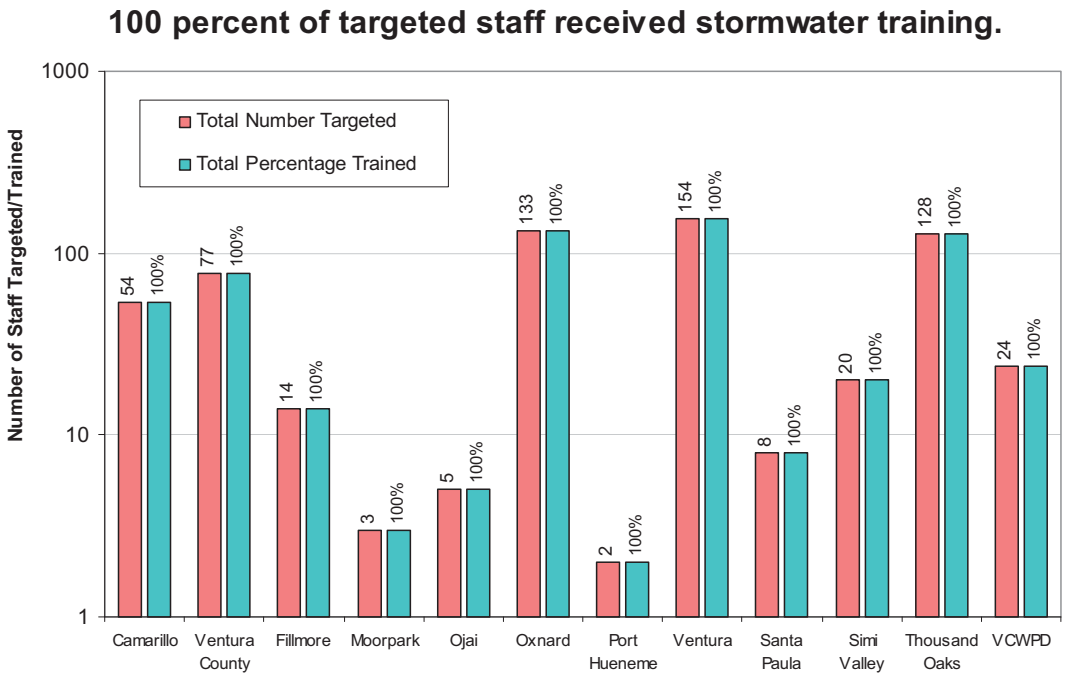


Figure 7-7 Public Agency Staff Trained

During the reporting period, the Co-permittees trained 619 municipal staff in stormwater management, SWPCPs, illicit discharge, response and non-stormwater discharges, this is almost a hundred more employees than last reporting year. **Figure 7-7** depicts the number of staff trained in the program area for each Co-permittee.

8.1 Program Description

Example of an Illegal Connection

Illicit discharges and illegal connections can be concentrated sources of contamination to municipal storm drain systems. An illicit discharge is any intentional or unintentional discharge to a municipal storm drain that is either not composed entirely of stormwater, prohibited in our NPDES permit (Part 1,A,2,b), or not covered by a NPDES Permit. To reduce this source of pollution the Permittees have developed and implemented programs for the identification and elimination of illicit discharges and illegal connections to the municipal separate stormwater sewer system (MS4). Key components of these programs are public reporting, incidence response and enforcement actions. Some areas even have a cooperative effort with Police and Sheriffs to catch perpetrators by installing hidden security cameras in areas of frequent illegal dumping.

An illegal connection to the storm drain system is an undocumented and/or un-permitted physical connection from a facility to the storm drain system. An illicit discharge refers to the disposal of non-stormwater materials such as paint or waste oil into the storm drain or the discharge of waste streams containing pollutants to the storm drain system. Categories of non-stormwater discharges not prohibited (exempted or conditionally exempted) under the Permit (and detailed in the SMP) are listed in **Table 8.1**.

Table 8.1 Conditionally Exempt Non-Storm Water Discharges

Non-stormwater Discharges
Water line Flushing
Discharges from potable water sources
Foundation drains
Air conditioning condensate
Water from crawl space pumps
Reclaimed and potable irrigation water
De-chlorinated swimming pool discharges
Individual residential car washing
Sidewalk washing
Discharges or flows from emergency fire fighting activities

The term “illicit discharges” used in this program includes several categories as follows:

- Incidental spills or disposal of wastes or non-stormwater. These may be intentional, unintentional or accidental and would typically enter the storm drain system directly through drain inlets, catch basins;
- Discharges of sanitary sewage due to overflows or leaks; usually incidental but may be continuous;
- Discharges of prohibited non-stormwater other than through an illegal connection. These typically occur as surface runoff from outside the public right-of-way (e.g., area washdown from an industrial site).

SECTION 8.0 PROGRAM FOR ILLICIT DISCHARGES/CONNECTIONS

To meet the goals and objectives of this program, the Co-permittees have developed a comprehensive illicit discharge/illegal connection program, which includes the following components:

- Public Reporting
- Incidence Response
- Inspections
- Enforcement
- Illicit Discharges/Illegal Connections Staff Training

8.1.1 Public Reporting

Many illicit discharges are identified through public reporting of the situation. The goal of this component, in tandem with the Public Outreach component, is to educate the public and facilitate public reporting of illicit discharges and illegal connections. The baseline objectives are:

- Implement a program to receive calls from the public regarding potential illicit discharges and illegal connections, communicate and coordinate a timely response, perform all necessary follow up to the complaint, and maintain documentation.

- Provide educational material on non-stormwater discharges and why they are harmful to streams, and oceans and how to report them;

- Target the land development/construction community with educational material and provide workshops on stormwater quality regulations and illicit discharge prevention response; and

- Target the industrial/commercial community with educational material and provide workshops on stormwater quality regulations and illicit discharge prevention and response.
-

Illicit discharges have continually decreased for the last five years.

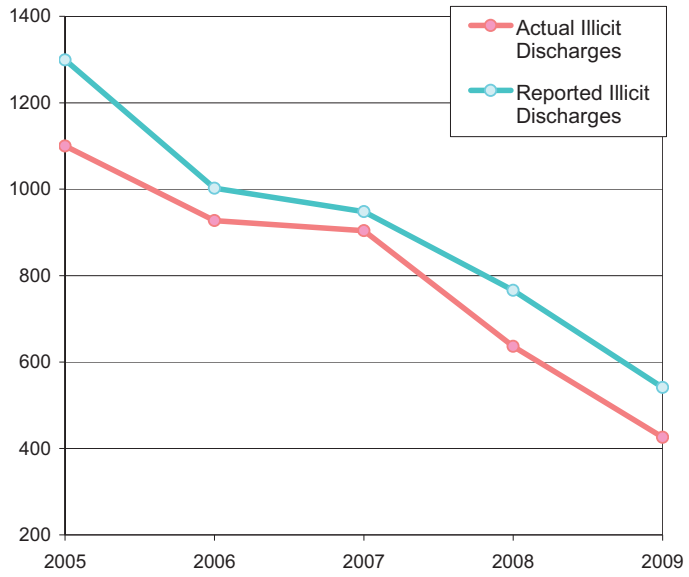


Figure 8-1 Illicit Discharge/Dumping Response

8.1.2 Incidence Response

Timely responses to reports of illicit discharges are necessary to have the opportunity to determine the source, identify the responsible party and initiate any cleanup to reduce pollutants from such discharge to the MEP. The baseline objectives include:

- Initiate response within 24 hours of receiving a report of discharge from the public, other agencies or observed by a Co-permittee field staff during the course of their normal daily activities;
- Investigate to determine the nature and source of discharge and eliminate through voluntary termination or enforcement action (when possible); and
- Educate identified responsible parties and initiate enforcement actions as necessary.

While the goal is to respond within 24 hours, most reports of illicit discharge are responded to within a few hours. Some Co-permittees have prioritized problem areas (where geographical and/or activity-related) for inspection, cleanup and enforcement using the methods defined in the program.

8.1.3 Inspections

The discovery of potential or likely illicit discharges through business inspections will reduce the number of overall illicit discharges. Inspections of infrastructure can also detect and eliminate illegal connections to the MS4 and reduce pollutants discharged through such connections to the MEP. The baseline objectives include:

- Inspect the storm drain system to identify illegal connections during scheduled infrastructure maintenance by personnel;

- Connections to the storm drain system that are suspected or observed to be a source of an illicit discharge will be investigated to determine the origin and nature of the discharge;

- Use business inspections to identify and resolve potential illicit discharges and illegal connections; and

- Educate the business community on the environmental and legal consequences of illicit discharges.

8.1.4 Enforcement and Education

Every time a responsible party is identified for an illicit discharge there is an opportunity for education and enforcement. Enforcement activity begins at the appropriate level as determined by the Co-permittees' authorized representative. For incidents more severe or threatening at the outset, enforcement starts at an increased level. Often times a verbal warning and requiring cleanup of the discharge is effective, if necessary the Co-permittee will charge the responsible party for cleanup services provided . Education of targeted audiences occurs through inspections of illicit discharges, businesses and construction activities. The importance of eliminating or mitigating non-stormwater discharges to local streams and channels is emphasized.

The capacity to issue civil citations has been added to the City of Oxnard's enforcement plan to ensure that repeat violators of local, state, and federal stormwater quality regulations are assessed a fine for their illicit (illegal) activities. The integration of this enforcement action allows the municipality to assess a $100.00 fee for those individuals or entities that receive a notice of violation (NOV) and thereafter again engage in the same illicit discharge activity. An additional $100.00 fine is assessed, per day, per violation, if a repeat violation is committed within a thirty (30) day period. If, after thirty (30) days, the same party is once again engaging in similar illicit activities then a $200.00 citation is given. A $500.00 fine is issued to third time participants of an illicit discharge committed sixty (60) days after the initial citation. Since current City policy allows the Mayor to delegate the authority to issue civil citations to designated employees, no changes to the City's stormwater ordinance were necessary. The only prerequisite imposed on these employees was that they receive training on civil citation writing from the City of Oxnard Code Enforcement Unit. Simply having the ability to issue a civil citation has proven to be enough of a deterrent to discourage/eliminate future occurrences of the same type of illicit activities from the local residents and the construction/building communities.

8.2 Program Implementation

8.2.1 Source Control

The Co-permittees have a number of programs facilitating the detection of sources of illicit discharges. These programs include business and industrial facility site visits, drainage facility inspection, water quality monitoring and the wide distribution of public education materials that provide phone numbers and web addresses to encourage the reporting of spills.

Staff performing routine maintenance activities within the municipal storm drain system and other Co-permittee field personnel are trained to report suspected problems and/or discharges to the system. In addition to inspections, the Co-permittees receive notifications from a variety of sources such as the public and regional and/or local agencies.

Example of Illegal Dumping

For the first few years as the program evolved and the public became aware of what was not allowed down storm drains reports of illicit discharges increased, however for the last five years reports illicit discharges have decreased. Since the public is more aware of illicit discharges this decrease likely represents a change in behavior and fewer pollutants reaching the storm drains through illicit discharges.

This reporting year, the Co-permittees continued to:

- Investigate the cause, determine the nature and estimate the amount of discharge for each reported illicit discharge/dumping incidents;
- Determine when possible the type of materials and source type for each reported illicit discharge/dumping incidents;
- Determine when possible the probable cause for the illicit discharge/dumping
- Conduct enforcement or educational activities to prevent similar discharges from reoccurring;
- Verify that reported illicit discharge/dumping incidents were terminated and/or cleaned;
- Refer illicit discharge/dumping or illegal connections to other agencies when appropriate;
- Identify and eliminate illegal connections; and
- Provide educational materials and contact numbers for reporting illicit discharge/dumping when conducting stormwater inspections.

Figure 8-2 and **Figure 8-3** show the results of the Co-permittees' efforts. All of the illicit discharges reported were resolved countywide (meaning they were cleaned up; referred to another agency; and/or educational material was distributed). The number of incidents investigated and addressed by the Co-permittees reporting discharges exceeds the 90% performance criteria established in the SMP. Note: These figures represent incidents Co-permittees responded to as part of the Stormwater Management Program. Incidents addressed by EHD Hazardous Waste Program or local CUPA may not be included in these figures.

100% of reports of illicit discharges were investigated and 100% of actual illicit discharges were resolved.

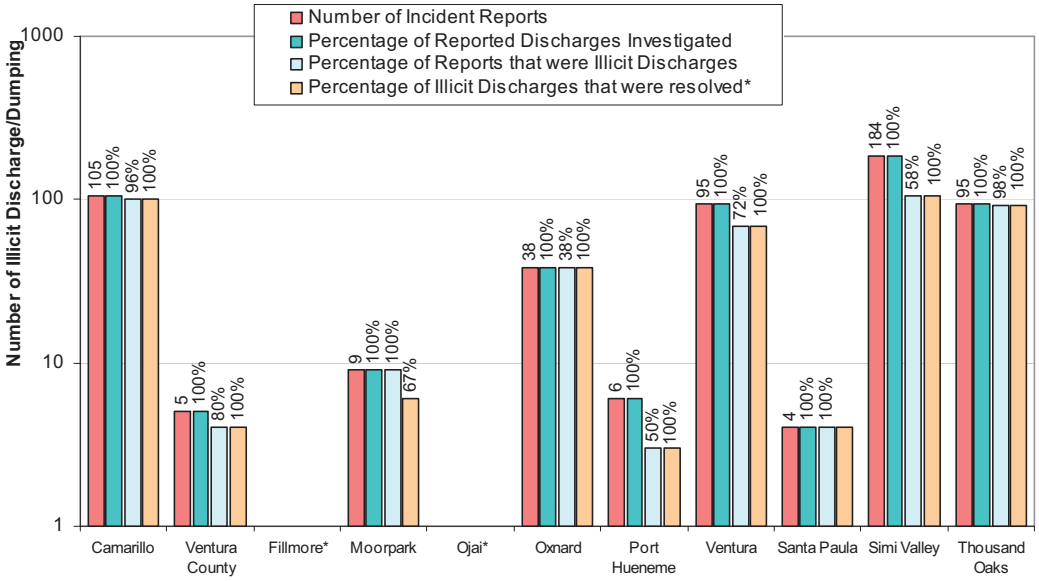


Figure 8-2 Illicit Discharge/Dumping Response

* No illicit Discharges reported this year.

Figure 8-3 indicates the number of illegal connections identified and eliminated. Each Co-permittee detects and eliminates illegal connections within its municipal storm drain system. Any illegal connection identified by the Co-permittees during routine inspections or reported by a third party is investigated. Appropriate actions are then taken to approve undocumented connections by permit procedure and/or pursue removal of those connections determined to be illicit connections and therefore not permissible.

If the discharge from an identified connection is determined to consist only of stormwater or exempted non-stormwater, the connection will be allowed to remain and will no longer be considered an illegal connection. Co-permittees may elect to issue a permit for the connection or allow the connection to remain if information on the connection is documented; or the discharge will be permitted through a separate NPDES permit; or the connection will be terminated through voluntary action or enforcement proceedings.

100% of illegal connections were eliminated.

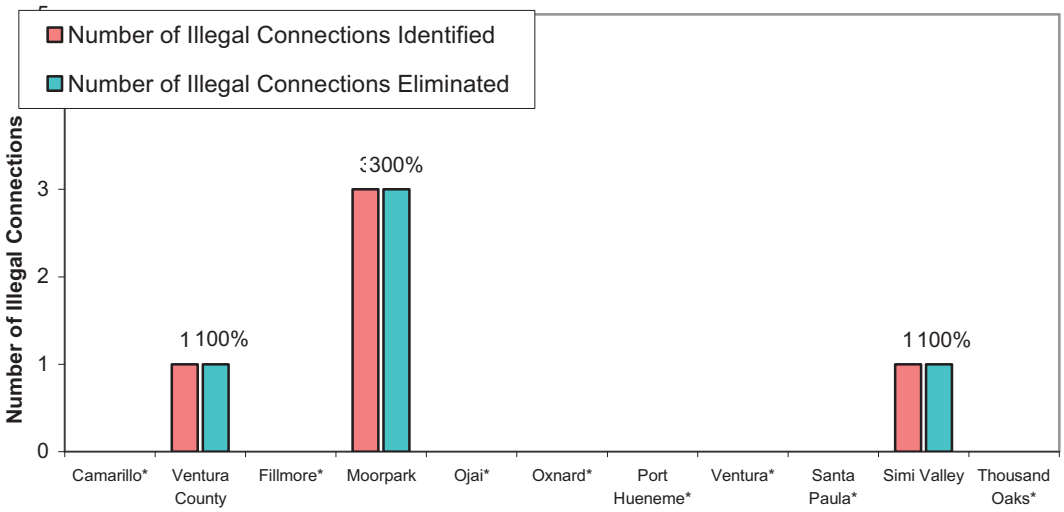


Figure 8-3 Illegal Connection Response

* No illegal connections reported this permit year.

If evidence of an illegal discharge is detected in an MS4 and the source is not apparent, a source investigation may be conducted to determine if the discharge is being conveyed through an illegal connection. Depending on the type of illicit connection detected, the Co-permittees may eliminate the connection by means of appropriate legal procedures. Follow-up compliance is conducted to ensure any required abatement activities have been successfully and adequately implemented.

Owners of existing drains without appropriate permits (including encroachment permits) are notified to comply. For those drains where the owner is unresponsive or cannot be identified, each Co-permittee is responsible for deciding whether to formally accept the connection as part of their public drainage system or cap it off.

8.2.2 Source Determination

As part of their field investigation of reported illicit discharges/dumping incidents, the Co-permittees attempt to determine the material's source. This investigation begins at the surface drainage system in the vicinity of suspected illicit discharges. This may include accessible areas in the public right-of-way adjacent to residences and businesses, catch basins, open channels near known points of discharge, and upstream manholes. If the source and responsible party can be determined, Co-permittees take one or all of the following actions when appropriate:

- Voluntary cleanup/termination;
- Initiate enforcement procedures;
- Take steps to prevent similar discharges from reoccurring.

When the source cannot be determined, the appropriate department or contractor will be notified to contain and clean up the material. Because these situations and materials can vary, procedures vary as well. In general, the following are steps that are taken by Co-permittees to determine sources:

- Verify location of the spill/discharge;
- Containment and cleanup;
- Investigate the cause (look for origin);
- Determine the nature and estimate the amount of illicit discharge/dumped material;
- When appropriate, refer documented non-stormwater discharges/dumping or illegal connections to the proper agency for investigation; and
- If appropriate, notify the RWQCB and/other proper agencies.

The majority of illicit discharges are from residential and commercial/industrial sources.

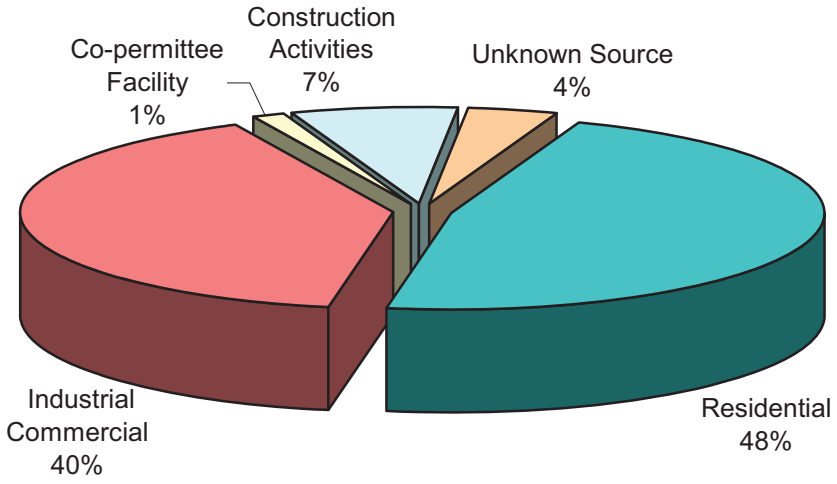


Figure 8-4 Source of Material Discharged during Illicit Discharge Events Countywide

During an illicit discharge investigation the source of the discharge is determined. Residential and industrial sources continue to be the dominate sources of illicit discharges. Since these two sources account for 88% of all illicit discharges, the Co-permittees plan to continue targeting business facilities and residents for comprehensive educational outreach. In addition, Co-permittees continue to cross-train targeted staff on how to identify and report illicit discharges. **Figure 8-4** presents a breakdown of illicit discharges by source.

Figure 8-5 indicates the likely cause for illicit discharges countywide. The vast majority of incidents resulted from cleaning activities, which the Co-permittees define as *any activity intended to wash, tidy up or make clean*. In order to reduce the number of illicit discharges and to prevent similar incidents from reoccurring, the Co-permittees have taken a variety of actions. Some Co-permittees provide additional training to field staff (such as Building Inspectors, Engineering Inspectors, maintenance personnel) to look for “potential” discharges. When “potential” discharges are found, Co-permittees provide educational material to the appropriate resident, business owner, etc. In addition, other Co-permittees distribute educational material with all encroachment and building permits. Other Co-permittees publish articles in local magazines regarding pool maintenance, vehicle maintenance and

homeowner projects. Some Co-permittees also distribute letters, brochures and informational door hangers directly to homeowners during residential street sweeps in known problem areas.

Cleaning activities are still a major source of illicit discharges.

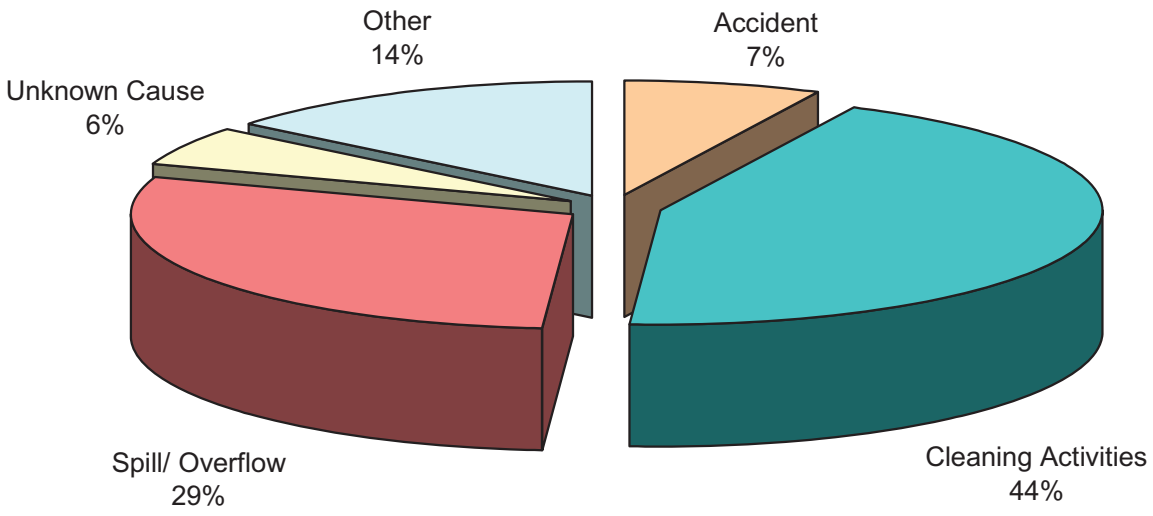


Figure 8-5 Probable Cause of Illicit Discharges Countywide

It is projected that over time there will be a shift in the cause of illicit discharges as the public becomes more educated and encouraged to change their behavior. The number of Illicit discharges due to cleaning activities should drop, and that has been observed. Also, the number due to spills and overflows should lower as better practices are employed to prevent them. Ideally, the majority of discharges will be due to accidents because they are least likely to be changed by the program's efforts. **Figure 8-6** shows how the cause of illicit discharges has changed over the last five years.

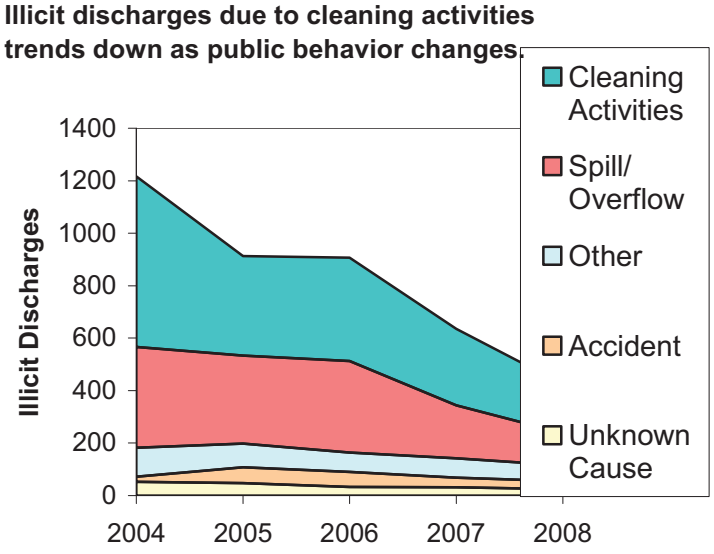


Figure 8-6 Cause of illicit discharges over past five

Figure 8-7 shows the type of material discharged. Wastewater continues to be the most often type of material discharged. For definitions of categories for material type see **Table 8.2**.

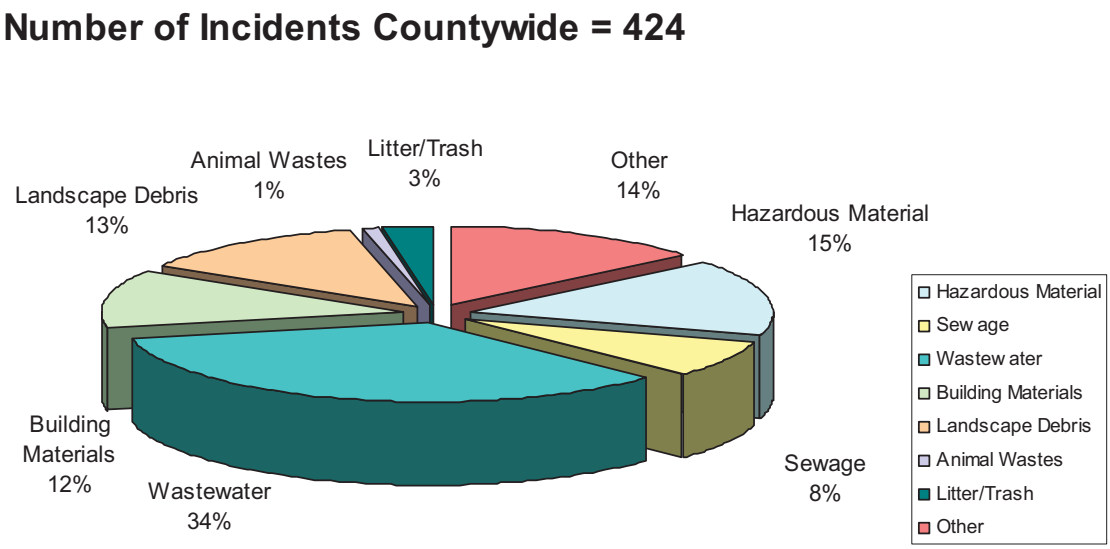


Figure 8-7 Type of Material Discharged during Illicit Dishcarge Events Countywide

Table 8.2 details the categories used by the Co-permittees to describe the material type of an illicit discharge. The definitions of these various categories are solely for facilitating the Co-permittees with their characterization of material type for annual report consistency. The Co-permittees are aware these definitions are by no means all-inclusive nor necessarily how another agency or person would define these categories. The Co-permittees used a variety of resources for assistance in defining these categories including the Ventura County Environmental Health and the RWQCB websites, and the Environmental Protection Agency's glossary of terms and educational outreach materials.

Material Type & Definitions	
TYPE	DEFINITION
Hazardous Material	By-products of society that can pose a substantial or potential hazard to human health or environment when improperly managed. Posses at least one of the four following characteristics (ignitability, corrosivity, reactivity, or toxicity), or is identified as a listed waste (e.g., oil, used anti-freeze, hydraulic fluid)
Sewage	The waste and wastewater produced by residential and commercial sources and discharged into sewers, includes the sludge produced by Publicly Owned Treatment Works.
Wastewater	The spent or used water from a home, community, farm or industry that contains dissolved or suspended matter.
Building Materials	Any debris associated with construction activities used to construct a building and/or stand/alone facility, such as plaster, dry-wall, nails, wood, etc.
Landscape Debris	Excessive eroded soils, sediment and/or organic materials.
Animal Wastes	Discharge from confinement facilities, kennels, pens, recreational facilities, stables, show facilities and residential yards.
Litter/Trash	Synthetic consumer by-product
Other	Any remaining materials that do not fit into the above mentioned categories.

Table 8.2 Illicit Discharge Material Type

8.2.3 Enforcement

Co-permittees continue to implement enforcement procedures to eliminate illicit discharges and illegal connections available through their legal authority of their respective ordinances. Most enforcement processes follow a common sequence. These typically include:

- Verbal or written warnings for minor violations;
- Formal notice of violation or non-compliance with compliance actions and time frames;
- Cease and desist or similar order to comply; and
- Specific remedies such as civil penalties (e.g., infraction), non-voluntary termination with cost recovery, or referral for criminal penalties or further legal action;
- Authority to issue civil citations of $100 on site.

Enforcement activity begins at the appropriate level as determined by the Co-permittees' authorized representative. For incidents more severe or threatening at the outset, enforcement starts at an increased level. Enforcement steps are accelerated if there is evidence of a clear failure to act or an increase in the severity of the discharge. Enforcement actions for violating any of the provisions of the Co-permittees' ordinances may include any of the following or a combination thereof:

- Criminal Penalties
- Monetary punishment
- Imprisonment
- Civil Penalties

Figure 8-8 and **8-9** indicate the number and type of enforcement actions taken by the Co-permittees in response to reported illicit discharge/dumping events during this reporting period. The data presented in **Figure 8-8** indicates most Co-permittees issued some form of enforcement action when resolving an illicit discharge and/or dumping event. A total of 424 verified illicit discharges were reported countywide and Co-permittees issued enforcement actions on 84% of these incidents. Generally, enforcement doesn't occur only when a responsible party cannot be identified.

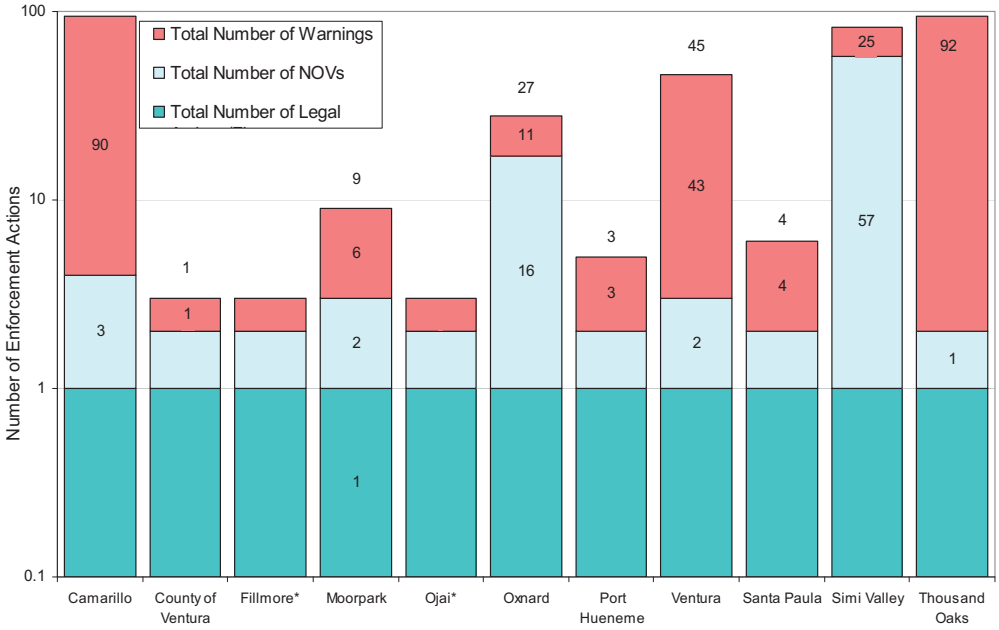


Figure 8-8 Number of Enforcement Actions

Number of Enforcement Actions Countywide = 357

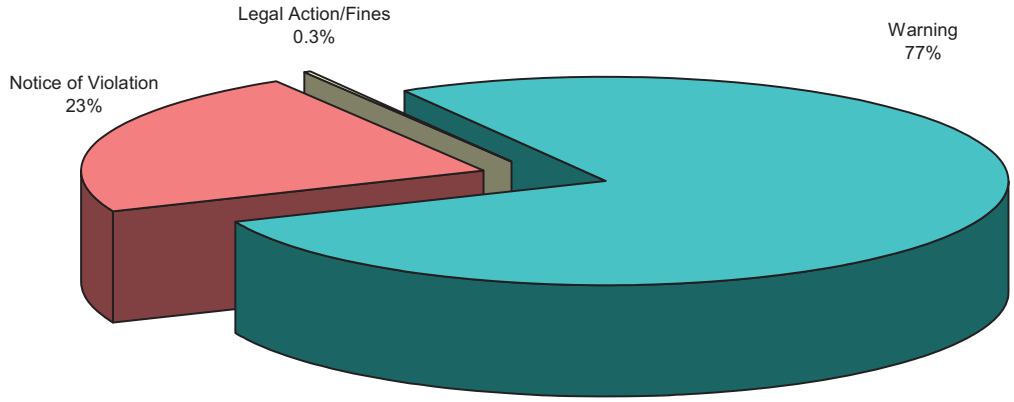


Figure 8-9 Types of Enforcement Actions taken Countywide

Note: Due to the wide range of number of discharges across the different Co-permittees it was necessary to present this on a logarithmic scale. This does not allow accurate representation of values of one or zero.

* No enforcement action taken.

As indicated in **Figure 8-9**, the vast majority of enforcement actions consisted of both verbal and written warnings of violation. Last reporting period had more enforcement actions, but this was due to there being more illicit discharges to enforce against. This year, the Co-permittees issued a total of 123 Notice of Violations (21%), 356 warnings (79%) and 1 legal action. No monetary fines were collected by the Co-permittees this year. This continued enforcement effort underscores the Co-permittees high level of expectations from its residential and business communities. After twelve years of stormwater educational outreach, the Co-permittees believe that additional tools, such as Notice of Violations (NOVs) and fines are appropriate in certain instances to achieve compliance.

In addition, the Co-permittees continue to utilize a database of reported illicit discharge incidents that includes the following information for each event:

- Date of initial inspection
- Type of material discharged
- Source type of discharge
- Probable cause of discharge
- Date of follow-up inspection
- Date of conclusion/clean up/removal/follow up/education
- Enforcement taken action

A printed copy of the Co-permittees' database is attached in Appendix 2. The Co-permittees annually update the database with their activities for the current reporting year and provide a copy as part of the Annual Report.

8.2.4 Education and Outreach

Stormwater pollution prevention is most easily and cost effectively achieved through education and awareness. Over the last five years the number of reported illicit discharges and actual illicit discharges has been trending downward as shown in **figure 8-1**. This is remarkable because over that same time there has been countywide outreach materials with reporting phone numbers distributed to educate the public on how to report discharges. This reporting year, Co-permittees continue to distribute educational material describing illicit discharges, and providing contact numbers for reporting illicit discharges during inspections to automotive, food service and construction sites.

Ongoing Co-permittees illicit discharge educational and outreach efforts:

- The City of Ventura implemented an innovative means to provide city employees and residents with a tool to report illicit discharges. The city developed and distributed to all city vehicles a static-cling windshield sticker that displays the city's Illicit Discharge Hotline phone number and a flyer describing illicit discharges and encouraging employee participation in this program.

- The City of Camarillo identified the phone number to report illicit discharges on the catch basin markers designed to discourage dumping. This combination of two permit-required activities (provide an illicit discharge reporting number to the public and stencil storm drains with a "no dump" message) has proven to be an effective approach, and has proven a great success for the city in their efforts to improve illicit discharge reporting. The city plans to implement the markers citywide.

- The City of Simi Valley on several occasions canvases streets or neighborhoods where illicit discharges were common. They distributed brochures, BMP fact sheets and informational door hangers during these sweeps in an effort to address localized stormwater issues. They have also incorporated stormwater criteria into the pretreatment inspections to aid in identifying illegal connections and stopping illicit discharges before they happen.

- Many Co-permittees host and fund household hazardous waste and electronic waste collection events for their residents. Quarterly or even monthly operations these programs for collecting household hazardous waste serve thousands of participants each year. Thousands of pounds of toxic waste collected may have otherwise have leaked into strom drains after being placed in the trash, or worse illegally dumped straight into the storm drain.

100% of targeted staff were trained.

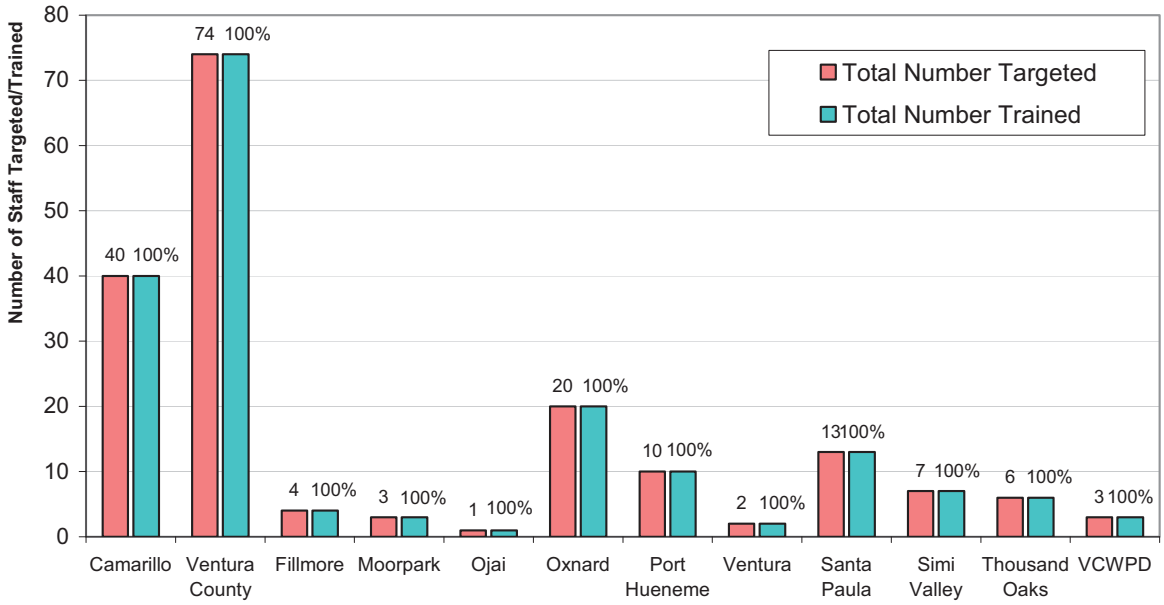


Figure 8-10 Illicit Discharge/Illegal Connection Staff Training

Details on the number of educational contacts made during this reporting period are included in **Section 4** (Program for Industrial/Commercial Business) and **Section 6** (Program for Construction Sites).

8.2.5 Stormwater Quality Staff Training

Each Co-permittee targets staff based on the type of stormwater quality and pollution issues they may encounter. Targeted staff included illicit discharge inspectors, drainage, roadway, landscape and facilities staff, industrial pretreatment inspectors and code enforcement officers. Training is incorporated with existing business inspection, construction site, and public agency activity programs.

Staff is trained in a manner that provides adequate knowledge for effective illicit discharge identification, investigation, reporting and/or clean up. Training was achieved in a variety of ways, including informal “tailgate” meetings, formal classroom training and/or self-guided training methods. During this reporting period, Co-permittees trained 162 municipal staff on illicit discharge response and non-stormwater discharges. **Figure 8-10** depicts the number of staff trained. All of the eleven Co-permittees exceeded the performance criterion established in the SMP, and trained more than the 90% of targeted employees.

9.1 Program Summary

Pursuant to NPDES Permit No. CAS004002, the Ventura Countywide Stormwater Quality Management Program (Management Program) must submit a Stormwater Monitoring Report annually by October 1st summarizing and providing a general interpretation of the results from water quality monitoring conducted during the monitoring year. Consistent with this requirement the Management Program has prepared this Report to satisfy the permit requirements and assess the effectiveness of the overall Ventura Countywide Stormwater Monitoring Program (Stormwater Monitoring Program).

This report provides an investigation of stormwater program effectiveness, characterizes the surface water quality of Ventura County, and summarizes available water quality data for monitoring conducted during the 2008/09 season. Analysis of samples collected at various monitoring sites throughout the watershed provides information to assess the impact of stormwater runoff and helps characterize the status of surface water quality for watersheds in Ventura County. The monitoring aids in the identification of pollutant sources as well as the evaluation of the Stormwater Monitoring Program's effectiveness. Evaluating the Stormwater Monitoring Program's effectiveness allows for changes to be made and continual improvement of the overall Program. This adaptive management strategy improves the quality and effectiveness of the Stormwater Monitoring Program and minimizes the impact of stormwater pollutant discharges throughout the watersheds.

For the 2008/09 monitoring season, several key points have been identified and are highlighted below.

- **This report presents and discusses the water quality monitoring data collected during four wet weather events and two dry weather events monitored by the Stormwater Monitoring Program.** The four wet weather events included monitoring at the Stormwater Monitoring Program's Land Use (Event 1), Receiving Water (Event 1), and Mass Emission (all events) sites. The two dry weather events included monitoring only at the Mass Emission stations. The Stormwater Monitoring Program conducted a thorough QA/QC evaluation of the environmental and QA/QC results generated from its analysis of water quality samples and found the resultant data set to have achieved a 98.1% success rate in meeting program data quality objectives. Overall, the 2009/09 monitoring season produced a high quality data set in terms of the low percentage of qualified data, as well as the low reporting levels achieved by all laboratories analyzing the Stormwater Monitoring Program's water quality samples.

- **VCWPD employed the services of CRG Marine Laboratories, Inc., in order to achieve low detection limits for the majority of the water quality parameters evaluated by the Stormwater Monitoring Program.** As a means of improving the detection capability of various constituents found in the water quality samples collected by the VCWPD, the Stormwater Monitoring Program has again employed the services of CRG Marine Laboratories, Inc (CRG). CRG began analyzing the majority of the water quality parameters evaluated by the Stormwater Monitoring Program at the beginning of the 2003/04 monitoring season. CRG is known for their ability to measure analytes at concentrations much lower than most water quality laboratories. During the current monitoring year, CRG was able to achieve detection limits for trace organic compounds (i.e., organics, PCBs, and pesticides) that are 100 – 1000 times lower than laboratories used in the past. Additionally,

CRG typically achieved detection limits for metals that are 10 times lower than historic levels for this class of constituent. Additional laboratories used by VCWPD also possess the ability to measure target analytes at very low levels.

- **VCWPD staff evaluated environmental and QA/QC water chemistry data using the *Data Quality Evaluation Plan* and *Data Quality Evaluation Standard Operating Procedures* guidance documents.** The *Data Quality Evaluation Plan* (DQEP) describes the multiple step process used by VCWPD staff to identify errors, inconsistencies, or other problems potentially associated with Stormwater Monitoring Program data. Furthermore, the DQEP describes the various data quality objectives (DQOs) to which environmental and QA/QC data are compared as part of the Stormwater Monitoring Program's quality assurance/quality control program. The *Data Quality Evaluation Standard Operating Procedures* document is a set of written instructions that describes both technical and administrative operational elements undertaken by the Stormwater Monitoring Program in carrying out its DQEP.

- **VCWPD used its water quality database to store and analyze stormwater quality data.** The Stormwater Monitoring Program has invested approximately $200,000 in the past six years to develop a water quality database to further expedite, standardize, and enhance the Stormwater Monitoring Program's data management and data analysis activities. Key database attributes include automatic importation and cursory evaluation of electronically formatted data, semi-automated QA/QC evaluation, automated comparison of the Stormwater Monitoring Program's data to water quality objectives, and a wide array of hard copy and electronic data reporting features. The database has allowed the Stormwater Monitoring Program to improve its overall data management effort by providing staff with a robust data management tool for the storage, analysis, and reporting of stormwater monitoring data.

- **Acute toxicity of *Ceriodaphnia dubia* was observed at Receiving Water sites W-3 (La Vista) and W-4 (Revolon Slough) for the samples collected during Event 1.** The permit requires that a TIE Baseline test be initiated for each sample with a TUa >1.0. This test was performed, but by the time the testing was initiated much of the toxicity had dissipated; therefore, no further TIE testing was undertaken.

- **No chronic toxicity of *Strongylocentrotus purpuratus* (Purple Sea Urchin) was observed at any of the Mass Emission stations.**

- **Toxaphene concentrations exceeded applicable water quality objectives at multiple locations during one or more wet weather monitoring events.** These exceedances mark the first time that this insecticide has ever been detected in Ventura County.

- **No samples (water chemistry or aquatic toxicity) were collected for the Ortega Street (I-2) and Swan Street (R-1) Land Use sites.** In previous years, the Stormwater Monitoring Program satisfied its NPDES permit condition stating that these two Land Use sites must be monitored a minimum of three times per permit term with respect to the collection of water chemistry samples. Beginning last year (2007/08), the Stormwater Monitoring Program felt that it had obtained enough data to fulfill its regulatory obligation to collect aquatic toxicity grab samples at these sites in order to amass baseline toxicity information related to land use discharges.

- **Elevated pollutant concentrations were observed at all monitoring sites during one or more monitored wet weather storm events, and at Mass Emission stations ME-CC and ME-SCR during one or more dry weather events.** Constituent concentrations above Los Angeles Region Basin Plan, California Toxics Rule, and/or California Ocean Plan[1] water quality objectives were measured at the following monitoring sites:

[1] The Stormwater Management Program believes the comparison of stormwater runoff data to the California Ocean Plan is inappropriate based on the following applicability language contained in the plan: "This plan is not applicable to discharges to enclosed bays and estuaries or inland waters, nor is it applicable to vessel wastes, or the control of dredged material." (California Ocean Plan. State Water Resources Control Board. 2005.)

Mass Emission Sites

ME-CC **Anion:** Chloride
Bacteriological: *E. coli*, Enterococcus, Fecal Coliform, Total Coliform
Conventional: Total Dissolved Solids
Metal: Aluminum, Chromium, Copper, Lead, Nickel, Zinc
Nutrient: Nitrate as N
Organic: Bis(2-ethylhexyl)phthalate, Total PAH Compounds
Pesticide: 4,4'-DDD, 4,4'-DDE, Total Chlordane Compounds, Total DDT Compounds
Toxaphene

ME-VR2 **Bacteriological:** *E. coli*, Enterococcus, Fecal Coliform, Total Coliform

ME-SCR **Bacteriological:** *E. coli*, Enterococcus, Fecal Coliform, Total Coliform
Metal: Aluminum, Chromium, Copper, Lead, Mercury, Nickel, Selenium
Nutrient: Ammonia as N
Organic: Bis(2-ethylhexyl)phthalate, Total PAH Compounds
Pesticide: Toxaphene

Receiving Water Sites

W-3 **Bacteriological:** *E. coli*, Enterococcus, Total Coliform
Metal: Aluminum, Copper, Lead, Zinc
Organic: Total PAH Compounds
Pesticide: 4,4'-DDD, 4,4'-DDE, Total DDT Compounds, Toxaphene

W-4 **Bacteriological:** *E. coli*, Enterococcus, Fecal Coliform, Total Coliform
Conventional: Total Dissolved Solids
Metal: Aluminum, Copper
Nutrient: Nitrate as N
Organic: Total PAH Compounds
Pesticide: 4,4'-DDD, 4,4'-DDE, Total Chlordane compounds, Total DDT Compounds, Toxaphene

Even though receiving water objectives are not directly applicable to constituent concentrations measured at Land Use monitoring stations, the Stormwater Monitoring Program performed comparisons between Land Use water quality data and Los Angeles Region Basin Plan, California Toxics Rule, and California Ocean Plan objectives as a means of identifying potential pollutants of concern.

Land Use Sites

A-1

Bacteriological: *E. coli*, Enterococcus, Fecal Coliform, Total Coliform
Conventional: Total Dissolved Solids
Metal: Aluminum, Copper
Nutrient: Nitrate as N
Organic: Total PAH Compounds
Pesticide: 4,4'-DDD, 4,4'-DDE, Total Chlordane Compounds, Total DDT compounds, Toxaphene

Figure 9-1: Mass Emission Site Photos: ME-CC (Calleguas Creek), ME-SCR (Santa Clara River), and ME-VR2 (Ventura River) during storm flows in January 2008 (Event 3)

Figure 1: ISCO 6712 refrigerated sampler, ISCO 4230 flowmeter, and steel enclosure at Mass Emission site ME-VR2

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Ventura Stream Team 2006 Annual Report

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The State of the Ventura River

A review of data collected from October 2005 through September 2006 by Santa Barbara Channelkeeper's Ventura Stream Team

Al Leydecker

Introduction

The Ventura River and tributary streams transport pollutants such as bacteria and excess nutrients downstream to the estuary and ocean, and the purpose of Santa Barbara Channelkeeper's Stream Team program is to provide comprehensive and long-term monitoring of conditions in this ecologically important watershed. Ventura Stream Team began early in 2001 as a partnership program of Santa Barbara Channelkeeper and the Ventura Chapter of the Surfrider Foundation. The program has three goals: (1) establish a baseline of information about stream conditions in the watershed; (2) establish a trained volunteer monitoring base; and (3) locate previously unidentified point sources of pollution.

Stream Team conducts monthly on-site testing of the Ventura and major tributaries at designated locations. Near the beginning of each month, teams of volunteers measure physical and chemical parameters in the field using portable, hand-held instruments. Data collected includes on-site measurements of dissolved oxygen, turbidity, conductivity, *p*H, temperature and flow. Water samples, collected at each site, are processed in Channelkeeper's laboratory for three Public Health bacterial indicators using approved standard methodology (Colilert-18 and Enterolert-24, manufactured by Idexx Laboratories; US-EPA, 2003). Additional samples are analyzed for nutrients through the cooperation of the Santa Barbara Channel – Long Term Ecological Research Project (SBC-LTER) at the University of California, Santa Barbara. The parameters measured are ammonium, nitrite plus nitrate, orthophosphate, total dissolved nitrogen and total dissolved phosphorus. Characteristics such as vegetation and observed aquatic life are also recorded. Occasionally, tests for other ions and contaminants are conducted. As part of every sampling event, instruments and meters are checked and calibrated against factory standards before taking them out into the field. Additional quality control checks are periodically performed in the field and as part of every bacteriological and chemical analysis.

In February 2006, a comprehensive report and analysis of the data collected during the first five years of the program was prepared and circulated to interested individuals, environmental organizations and government agencies. This report is available in PDF format on the Stream Team website (http://www.stream-team.org/Ventura/main.html), as are numerous other special reports on Ventura River conditions. The data collected as a result of Stream Team activities are also available here. The purpose of this report is to supplement the original document, *Ventura Stream Team: 2001-2005*, and bring it up to date with a summary and analysis of an additional year of data. Since this document is meant to supplement and not replace the original report, it does not contain the introductory sections describing the environmental setting, hydrology and detailed sampling site descriptions. The reader is referred to the original document for that information.

Sampling Locations

The Ventura sampling sites represent four distinct reaches or sub-watersheds: four on the lower Ventura River, two on Canada Larga, four on San Antonio Creek and its tributaries, and five upper Ventura/Matilija locations. Sampling is typically accomplished by three teams: one on the lower Ventura and Canada Larga, another on San Antonio Creek, and the third monitoring the upper Ventura/Matilija. A map of the sampling locations is shown in Figure 1.

VR01, the **Ventura River at the Main Street Bridge,** is sampled immediately upstream of the bridge. This site is just above marine influence from the nearby estuary and marks the freshwater boundary.

VR02, the **Ventura River near Stanley Drain,** is located just above the confluence with this large storm drain serving semi-industrial and brownfields areas in northern Ventura.

VR03, the **Ventura River at Shell Road,** is slightly downstream of the Shell Road bridge. The Ojai Sewage Treatment Plant is approximately a mile upstream of this location. VR03 allows us to monitor conditions below the treatment plant and, with two further downstream sampling locations (VR02 and VR01), track the sequential changes that occur as this mixture of normal river water and treated effluent flows to the estuary.

VR04, Lower Canada Larga, is located off Ventura Avenue, just downstream of the Canada Larga bridge. Canada Larga flows through extensive ranch lands before passing through industrial development on its way to the river.

VR05, Upper Canada Larga, is located 3.5 miles up Canada Larga Road, at a small bridge over the creek. The hills and valley bottom around this location provide grazing land for local ranches. The two Canada Larga sites monitor a major Ventura River tributary as land use changes from ranching to industrial.

VR06, the **Ventura River at Foster Park,** is located below the County's Foster Park, slighty downstream of the Casitas Vista Drive bridge. Highly influenced by relatively clean groundwater forced to the surface by a bedrock reef located ¼ mile upstream, VR06 exemplifies natural conditions on the lower river (or, these days, as close to them as we are likely to find) and provides a contrast from which to judge the impacts from the introduction of treated effluent below this point.

VR07, San Antonio Creek at Old Creek Road, monitors a major tributary of the Ventura River and represents the combined drainage from various Ojai Valley land uses.

VR08, Lion Canyon, is sampled just before it enters San Antonio Creek. A sub-watershed of approximately eight square miles, the entire catchment is mostly under single ownership and is used for cattle grazing and dude-ranch activities associated with the Ojai Valley Country Club.

VR09, Stewart/Fox, samples the combined flow out of Stewart and Fox canyons, both of which flow through western Ojai and are partially channelized through the town (this stream is shown on some maps as Pirie Creek).

VR10, Upper San Antonio Creek, adjacent to VR09, combines flow from the upper San Antonio and Thacher drainages in eastern Ojai.

VR11, the **Ventura River at Santa Ana,** is sampled below the Santa Ana Road bridge.

VR12, the **Ventura River at Highway 150** sampling location, is located upstream of the bridge. VR11 and VR12 monitor conditions on the upper Ventura River. The Robles Diversion Dam diverts water to Casitas Lake above these sites; diversions, and the porous sediments that form the river bottom in this reach, typically leave little flow in the channel after the rainy season.

VR13, the **Matilija Creek** sampling location, is approximately one kilometer downstream of Matilija Dam, at an obsolete USGS stream gauging station.

VR14, the **North Fork Matilija Creek** sampling location, is located below a bridge on Highway 33 used as a Ventura County flood gauging station. VR14 represents the most pristine sampling location in the program, the site least affected by anthropomorphic impacts.

VR15, Upper Matilija Creek, is the uppermost sampling location in the watershed. It is approximately 1.5 miles above Matilija Dam, in Matilija Canyon. Sampling above and below Matilija Dam, a candidate for removal and restoration, allows Channelkeeper to monitor the impact of its sediment-filled reservoir.

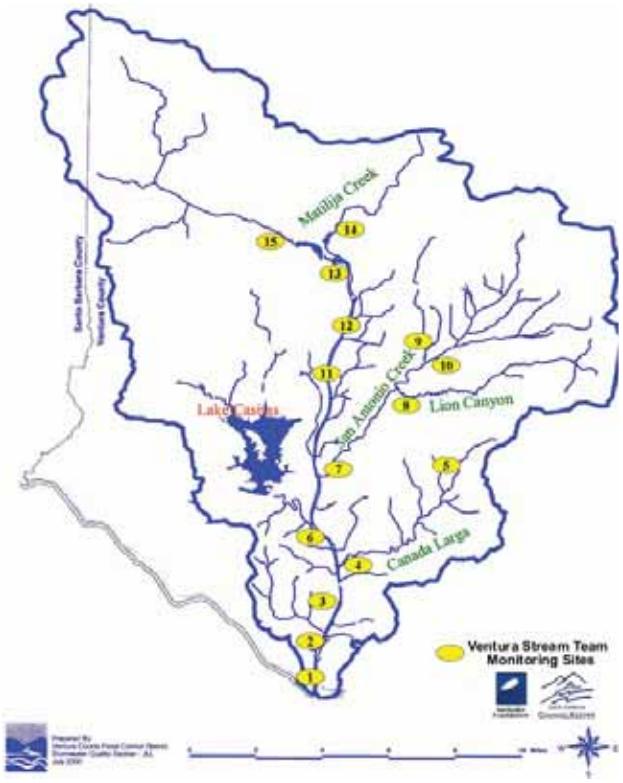

Figure 1. Map with Santa Barbara Channelkeeper's Ventura Stream Team sampling locations.

Since these groupings divide the watershed into reasonable geographic and ecological units, whenever possible we display and discuss the data that follows using a similar format. When the variation of a measured parameter with time is shown or discussed, four sites, VR04, VR05, VR11 and VR12, are omitted. Flow in these locations has become increasingly rare with the passage of time (more on this later); for example, the last three years saw only eleven months of flow at VR04 and VR05, four at VR11 and five at VR12. We do, however, include these sites in the presentation of the overall results for each parameter.

Hydrology

In the discussions and presentation of data that follow, the use of the terms "year" and "annual" usually refer to the "water-year." Unlike the calendar year, the water-year begins on October 1 and ends the following September 30, i.e., water-year 2006, with which this report is concerned, began on October 1, 2005 and ended on September 30, 2006. Hydrologists and agencies concerned with water in California use a water-year concept because it better fits the seasonal progression of annual precipitation: rainy to dry, snowfall to snowmelt.

Rainfall Variability

The dominant hydrologic characteristic of the Ventura River, and indeed, of all streams in coastal Southern California, is extreme inter-annual variation in rainfall and river runoff. On the Ventura River average annual flows have varied from near zero (1951) to 380 (1995) cubic feet per second (cfs).[1] Since 1878, the average winter rainfall in Los Angeles has been 15 inches (NWS-LA).[2] However, "average" conveys no sense of the extreme variability. Very few years actually have "average" rainfall; most years are drier than average and a relatively few really wet years heavily influence the record (these are usually, but not always, associated with strong El Niño events; Null, 2004; Monteverdi and Null, 1997). If a "wet" year is defined as having rainfall at least 150% above the average (greater than 22 inches in downtown Los Angeles), there have been seventeen "wet" years since 1878, approximately one every seven and a half years. The 1990s were unusual in that three wet years (1993, 1995 and 1998) occurred relatively close together within a single decade.

However, El Niños are just one of the climate cycles influencing local weather. The region is also impacted by the Pacific Decadal Oscillation (PDO), a roughly 50-year pattern of alternately cold and warm waters that abruptly shift location in the Pacific Ocean (Mantua et al., 1997; Minobe, 1997; Mantua, 2000). The "cold" PDO phase moves the jet stream (and a majority of winter rain) northwards, while the "warm" phase shoves it, and rainfall, southwards – giving the south coast and southern California wetter winters.

Annual flows in the Ventura River, dependent on rainfall, vary in a similar fashion, and one way of showing the long-term pattern is a plot of *cumulative departures from the mean*. The average annual flow in the river is equivalent to five inches of rainfall (measured at Foster Park).[3] The upper panel of Figure 2 plots the cumulative flow excess or deficiency. In other words, a

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[1] Flows recorded at the USGS gauging station at Foster Park, USGS-NWIS.

[2] The Los Angeles record is the longest in the region. Climate data for the region are available from a number of internet sources: DRI-WRCC, CDEC, CCDA and JISAO.

[3] If we assume that the average rainfall in the watershed is roughly that of Ojai, 21.5 inches, then approximately 20% ends up flowing down the Ventura River. As for the rest, most is evaporated or transpired by plants and trees, and a smaller part recharges the groundwater table or is stored as soil moisture.

continuous accounting of how much each year's flow affected the long-term departure away from maintaining the five inch per year average. The plot shows a pattern of alternately rising and falling trends, where flow was either generally above or generally below average, lasting decades. Increasing trends are generally caused by an increased frequency of big years. The general pattern between 1944 and 1968 was below average flows (a decreasing trend), but from 1968 to 1998 the trend reversed – except during the great California drought of 1987-1992.

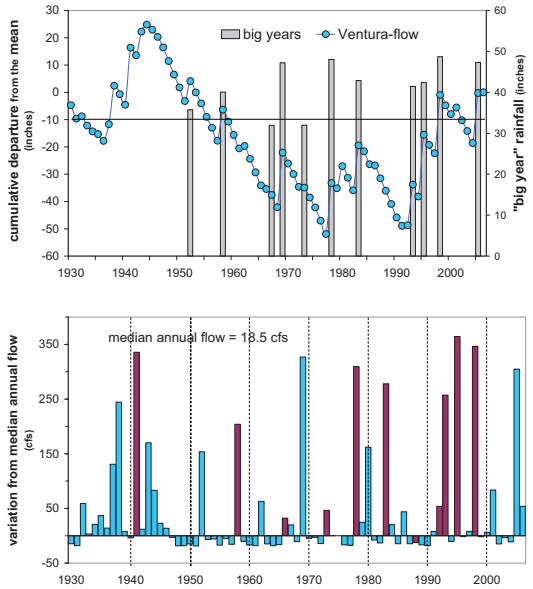


Figure 2. *Upper panel:* The cumulative *flow* excess or deficiency – how much each water-year's flow (measured in inches of runoff at Foster Park) varied from the 4.98 inch overall average. The plot shows the same pattern of rising and falling trends, heavily influenced by wet years, as rainfall. Wet years, in this chart, represent Ojai rainfall above 31.5 inches.
Lower panel: Median annual flow on the Ventura (at Foster Park) is 18.5 cfs, i.e., half the years on the chart had average flows less than this, the other half were greater. The distribution is skewed – "above the median" years tend to be extremely wet. While not a wet year, slightly above-average rainfall in 2006 reinforced increased groundwater inflows from 2005, giving appreciably enhanced flows (annual average = 72 cfs) in summer 2006.

Cycles of Change

The extreme rainfall variability experienced in the Ventura watershed engenders cycles of sediment deposition and removal, algal growth, and the advance and retreat of riparian and aquatic vegetation along the river. In turn, these changes dramatically alter the appearance and biological functioning of the river and riparian zone, and regulate the uptake of nutrients.

Major winter storms, such as occur during severe El Niño years, begin a transformational cycle by completely scouring the channel of vegetation and fine sediment; this occurs, on average, once every seven years (the interval has varied from three to 30 years) (Leydecker et al., 2003). The scoured river channel, with broadened flows, warmer water temperatures, an absence of shade and a nutrient-rich environment (caused by higher nutrient concentrations from enhanced groundwater inputs following a wet winter along with abundant nitrogen and phosphorus from urban and agricultural runoff), becomes dominated by filamentous algae (principally *Cladophora, Rhizoclonium*, *Enteromorpha* and *Spirogyra* spp.). Under these conditions, even

Figure 3. View of the Ventura River looking downstream from Shell Bridge (VR03) on October 2, 2004 (upper photo) and on Feburary 2, 2005 (lower).

the undeveloped upper sections of the Ventura River, or the area's pristine streams, provide a hospitable environment for explosive algal growth. Even where nitrate concentrations are low, high phosphorus content from eroding mountain bedrock allow expanded growth of algal species that are able to utilize symbiotic relationships with bacteria to fix atmospheric nitrogen. As long as the storms of succeeding winters continue to be severe enough to keep the channel clean and sediment moving to the ocean, algae both dominate and thrive.

However, sooner or later a low runoff year occurs – mostly sooner, since two out of three years have less than half the average runoff (Figure 2). In the absence of severe winter floods, sediment accumulates in the channel and seedlings, having gained a toe-hold during the previous summer, become more deeply rooted. Exuberant plant growth begins the competitive replacement of algae by aquatic vegetation (Leydecker and Alstatt, 2002). Perennial aquatic plants become established (ludwiga, speedwell, water cress), over-shadowing the water surface and narrowing the channel by further trapping fine sediment. The rapid growth of riparian vegetation provides increased shade to a narrowed waterway and algal growth becomes increasingly confined to open, deeper waters. Where the growth of taller riparian vegetation, like willows and giant reed (*Salix* spp. and *Arundo donax*), appreciably block sunlight, algae may disappear entirely. Over the years these processes increasingly stabilize the channel and elevate the threshold flow of a future scouring storm.

In the five years since 2001, Ventura Stream Team has sampled a wide variety of conditions dictated by the annual variation in rainfall. The last big rainfall event, the previous flood that reset the transformational cycle described above, occurred during the severe El Niño winter of 1998. From 2001 through 2004, Channelkeeper has observed and documented these changes (cf. SBCK(b)). Figure 3 shows the variations in both monthly and annual rainfall that have occurred during the years of the Ventura survey. Prior to 2005, two of the years were slightly above normal (2001 and 2003) and two below normal (2002 and 2004), one of which (2002) could be characterized as a severe drought year.

An Extraordinary Year

The 2005 water-year, characterized by weak El Niño conditions in the Pacific, began with expectations of another below-normal rainfall winter. However, in the three weeks following

Christmas, the South Coast was hit with a series of major winter storms delivering impressive amounts of rainfall in two distinct pulses: the first from December 26, 2004 through January 4, 2005 and, after a few days of sunshine, the second from January 7-11, 2005. In Ojai, 10.4 inches were recorded during the first phase and slightly more, 12.6 inches, in the second. By the end of January, a total of 28.8 inches had fallen since the beginning of the rainy season, compared with the annual average of 20.9 inches. As storms coming out of the Pacific are uplifted over the coastal mountains, even larger amounts of rain are wrung out of them: San Marcos Pass received 18.2 and 24.6 inches, respectively, and amounts even greater than this were recorded in the Ventura River watershed at Old Man Mountain.

As shown in the lower panel of Figure 2, not all high rainfall years are severe El Niño years. At times, some really wet winters are caused by a much shorter weather cycle of 30 to 60 days called the "Madden-Julian Oscillation." Simplifying the process greatly, atmospheric high pressure off of the Pacific Northwest moves *west*, allowing a low pressure system to develop off-shore, which in turn sweeps heavy moisture from Indonesia into southern California. This type of weather system is often called a “pineapple express” as the moisture plume passes over the Hawaiian Islands en route. However called, it delivered extraordinary amounts of rainfall in the winter of 2005.

The Ventura River reacts rapidly to changes in rainfall. The peak flow on January 11, 2005 is estimated to have been 41,000 cubic feet per second (cfs) – a seventeen foot wall of water at Foster Park. This flood, and the copious rainfall that occasioned it, made 2005 the new transformational year; the year that began the cycle anew (Figure 3).

Another good year

2006 was, again contrary to expectations, another good water-year. Annual rainfall in downtown Ventura was 17.8 inches. This was below the amount of rainfall in 2001 and 2003 (Figure 4), but still 3.9 inches above average. Ojai rainfall (25.3 inches) was also above its annual average of 21.5 (and its median, since 1948, of 18.6 inches). But what made the year exceptional was the extravagantly excessive rainfall in April. In downtown Santa Barbara, 6.31 inches were recorded, 4.6 inches at the Ventura Government Center, 5.4 inches in Ojai. The historical medians (one half the recorded years had April rains below, the other half above, this amount) are 0.72 inches in Santa Barbara, 0.55 inches in Ventura. This was more than eight times the normally expected amount of rain. April 2006 proved to the second wettest April in both Santa Barbara (since 1868) and Ventura (since 1874). The rains continued into May, with 1.2 inches in both Ventura and Ojai compared with long-term averages (since 1948) of 0.23 and 0.45 inches. The bar graph in the upper panel of Figure 3 shows the wet nature of Spring 2006 when compared with previous survey years, and demonstrates that most of the rainfall occurred rather late in the season (more than half the total rainfall fell after February).

The effect on the river of two good water-years in a row, one with exceptionally heavy rainfall and the other with an unusually wet spring, was enhanced groundwater inflows. Wet years, while noted for large amounts of runoff, also replenish groundwater reservoirs, elevating water tables and increasing seepage into rivers and creeks. This can be most directly seen in the unusually high dry-season flows that follow a wet winter, but there is also a carry-over of higher

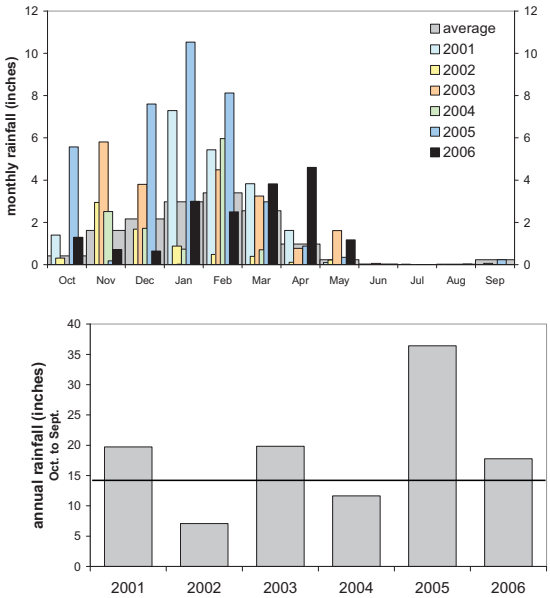


Figure 4. Monthly (upper panel) and yearly (lower panel, for October to September water-years) rainfall for 2006 and previous years of Channelkeeper's Ventura Stream Team surveys (Ventura COOP station, 049285-6, http://www.calclim.dri.edu/ccda/scacoop.html). The heavy line in the lower panel represents the average annual Ventura rainfall of 14 inches. While rainfall in 2006 was not as remarkable as that of 2005, it was an above average year (17.8 inches) with an extremely wet spring (April rainfall was 4.6 inches, the second wettest in since 1874) and far above the median of 0.55 inches (half of Ventura's Aprils have been wetter than this, half drier).

flows into subsequent years. The upper panel of Figure 5 compares June through September flows at Foster Park for each year from 1998 through 2006 and also shows annual rainfall (as well as median dry-season flows and rainfall for comparison). Note that flows were very high during the wet years of 1998 and 2005, but that flows in the years that directly followed were also much higher than might be expected from the amounts of rain that fell. 1999, 2002 and 2004 all had below median amounts of rainfall, yet dry-season flows in 1999 were over twice the median, while those of the other two years were less than half, and while 2004 had appreciably more rain than 2002, flows were quite similar.

What accounts for this is the relatively proximity of a wet year. Wet years recharge the groundwater table, almost all other years deplete it. The recharge that occurs during a wet winter can carry over for quite a number of years. We've attempted to quantify this effect in the lower panel of Figure 5, which shows the ratio between average dry-season flow and rainfall for each year (average dry-season flow divided by the rainfall of the preceding winter). If everything were equal, more rainfall should produce more summer flow and the ratio should be similar from year to year. However, this turned out not to be the case. The bold lines show the trend towards less flow per inch of rain as we move further from a wet year. In contrast with declines shown following the big El Nino year of 1998, and above average rainfall in both 2000 and 2001, 2006 shows a substantial increase in the ratio. In other words, summer flows were far higher than expected, the combined product of 2005 and the wet 2006 spring.

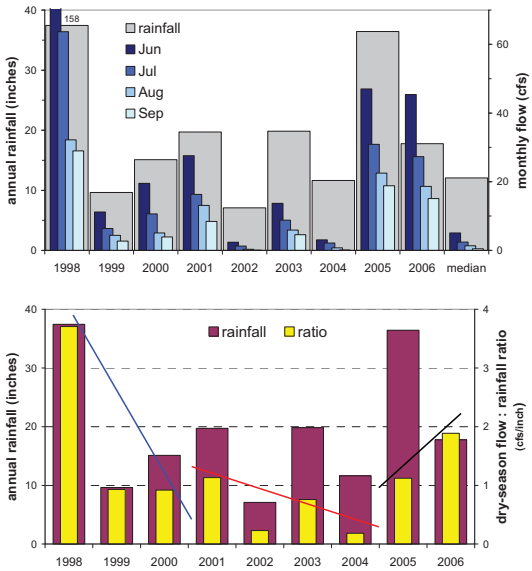


Figure 5. In the upper panel, annual rainfall (in Ventura) is plotted for the severe El Niño year of 1998 and every year since, along with average June, July, August and September flows at Foster Park in cfs for each year (shown on the right-hand axis). The median rainfall and monthly flows are included for comparison. Rainfall is again plotted in the lower panel, but the right-hand scale shows the ratio between average May through September flow and rainfall, i.e., the ratio between average dry-season flow and rainfall. The bold lines show the trend towards less flow per inch of rain as we get further from a large El Niño; it required two years of above-average rainfall (2000 and 2001) to partially recover from low rainfall in 1999. River flow in 2004 was as low as it was in 2000, despite having approximately five times the rainfall. In contrast, 2006 shows an increase in the ratio, more runoff than expected, as the result of a wet spring and two good years in a row enhancing groundwater supplies.

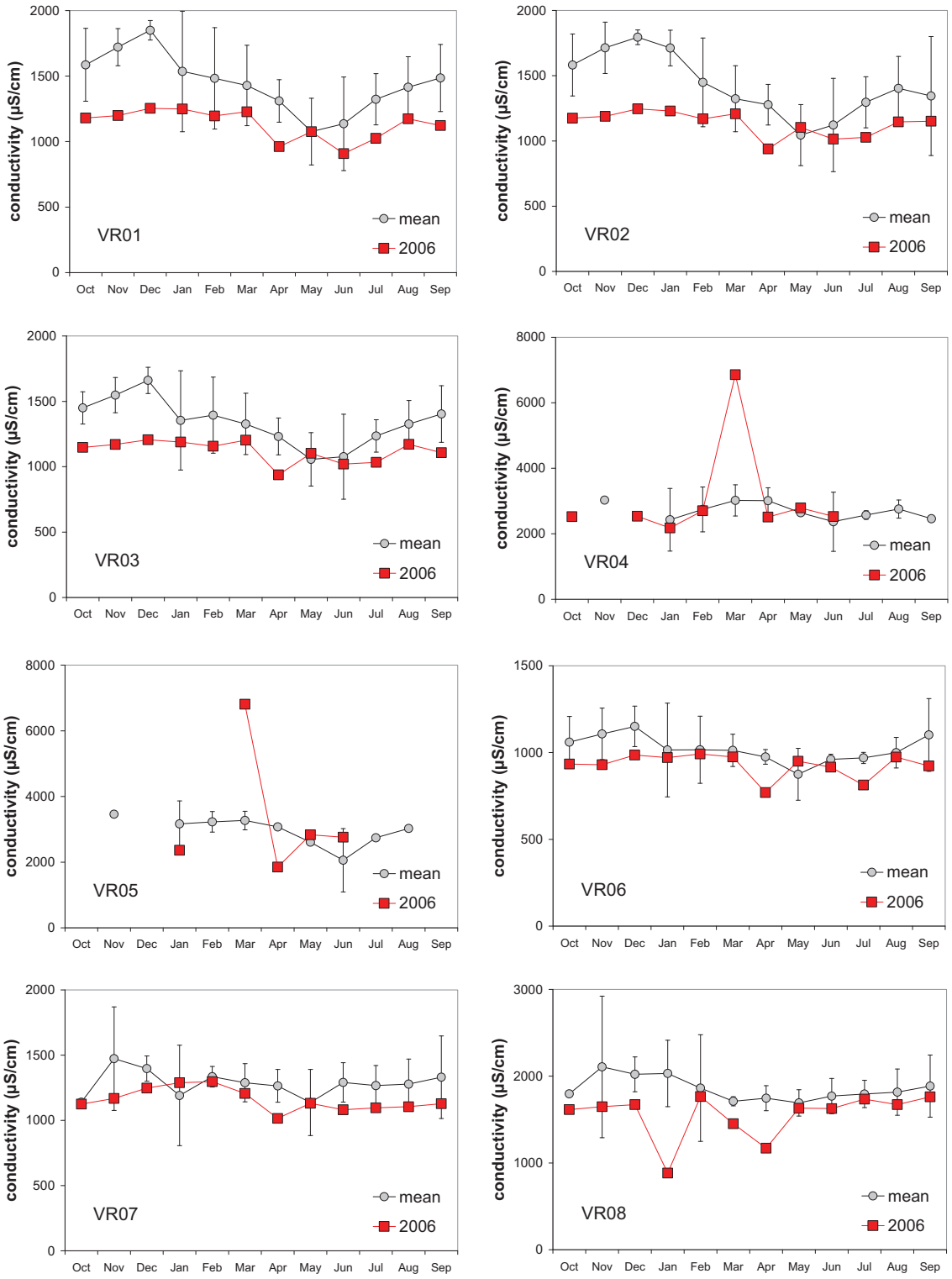
Conductivity[4]

Water, one of the most efficient solvents in the natural world, is able to dissolve a great many solids. Many of these solids when put into solution carry an electrical charge. For example, chloride, nitrate and sulfate carry negative charges, while sodium, magnesium and calcium have a positive charge. These dissolved substances increase water's *conductivity* – its ability to conduct electricity. Therefore, measuring the conductivity of water indirectly indicates the amount total dissolved solids (TDS). It's not a perfect measure because some dissolved substances, particularly organic compounds like alcohol or sugar, are very poor conductors. Each stream tends to have a relatively consistent range of conductivity that, once established, can be used as a baseline for future comparisons. Conductivity tends to decrease in winter when heavy rainfall and runoff increase the amount of fresh, lower-conductivity water entering a stream or river. With greater flow, mineral concentrations are typically more dilute. On the other hand, in late summer and fall, especially during periods of drought, dissolved solids become more concentrated (mostly because of increased evaporation), raising conductivity.

Conductivity is affected by temperature: the warmer the water, the higher its conductivity. For this reason, conductivity is usually reported at a standard temperature: 25 degrees Celsius

[4] US-EPA (1997), Deas and Orlob (1999) and Heal the Bay (2003) were used as references in the preparation of the following sections on water quality parameters.

(25°C). Conductivity is measured in micro-siemens per centimeter (µS/cm) or milli-siemens per centimeter (mS/cm). Distilled water has a conductivity in the vicinity of 0.5 to 3 µS/cm and the conductivity of rivers in the United States generally ranges from 50 to 1,500 µS/cm. Drinking water typically has to meet a standard of 1,000 mg/L total dissolved solids and a maximum conductivity of 1,600 µS/cm.



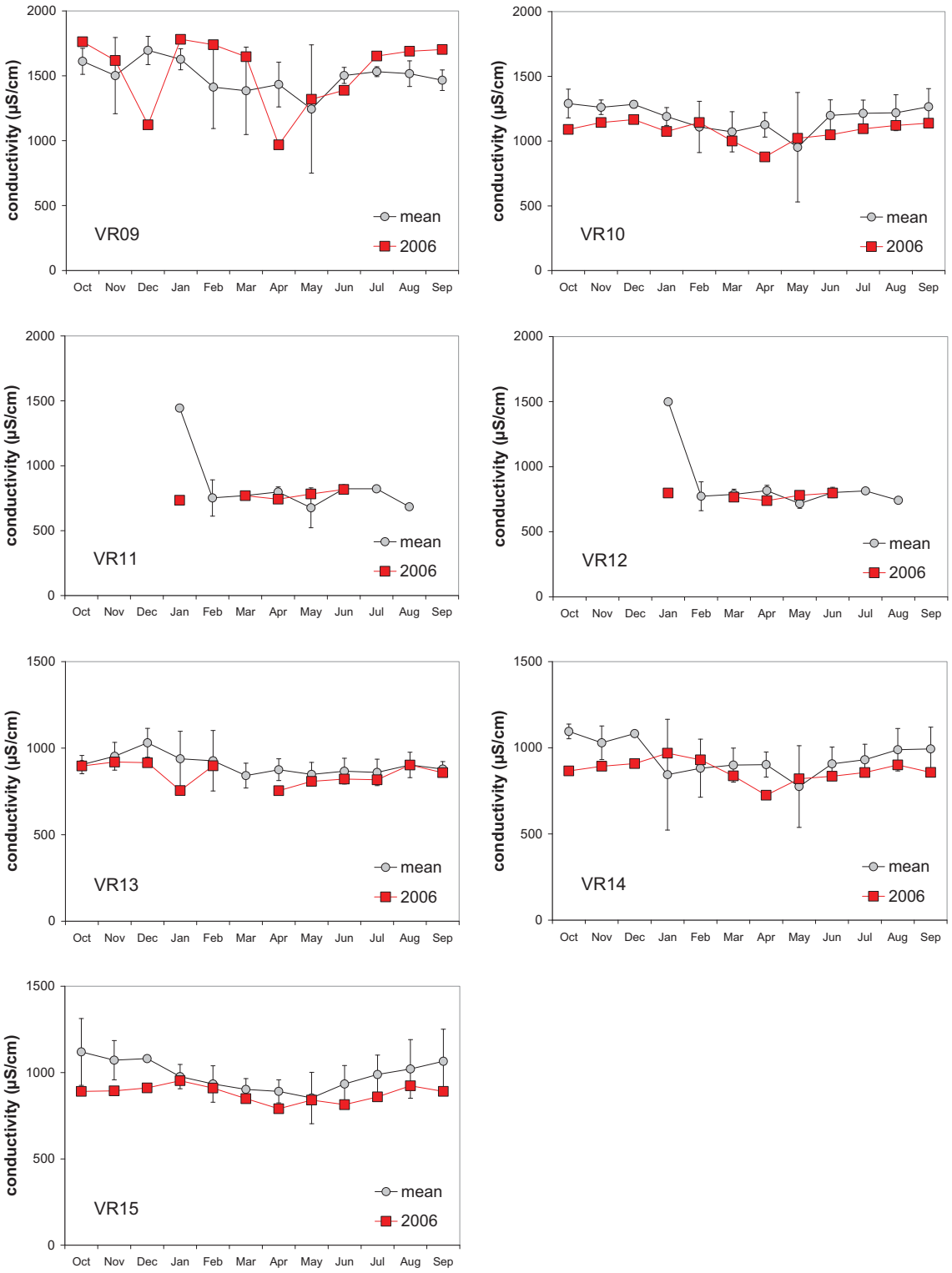


Figure 6. Monthly conductivies for the Ventura Stream Team sampling locations during the 2006 water-year are shown with along with the average monthly conductivity from 2001-2005. Error bars indicate the monthly standard deviation in µS/cm.

In the Ventura watershed, there has been a trend towards increasing conductivity from 2001 until the winter of 2005 (Figure 7). A trend (cf. SBCK, 2004) caused by (1) increasingly depleted and generally older groundwater inflows, (2) enhanced uptake by growing riparian vegetation, and (3) a relative increase in evaporation as dry-season river flows decreased. (All related, as described in the previous section, to increasing amounts of time since the last wet winter of 1997-98.) Conductivity, everything else being equal, generally increases with the age of water – the longer water is in contact with soil or geologic strata, the higher its conductivity; groundwater has higher conductivity than water in the soil, and older groundwater higher conductivity than younger.

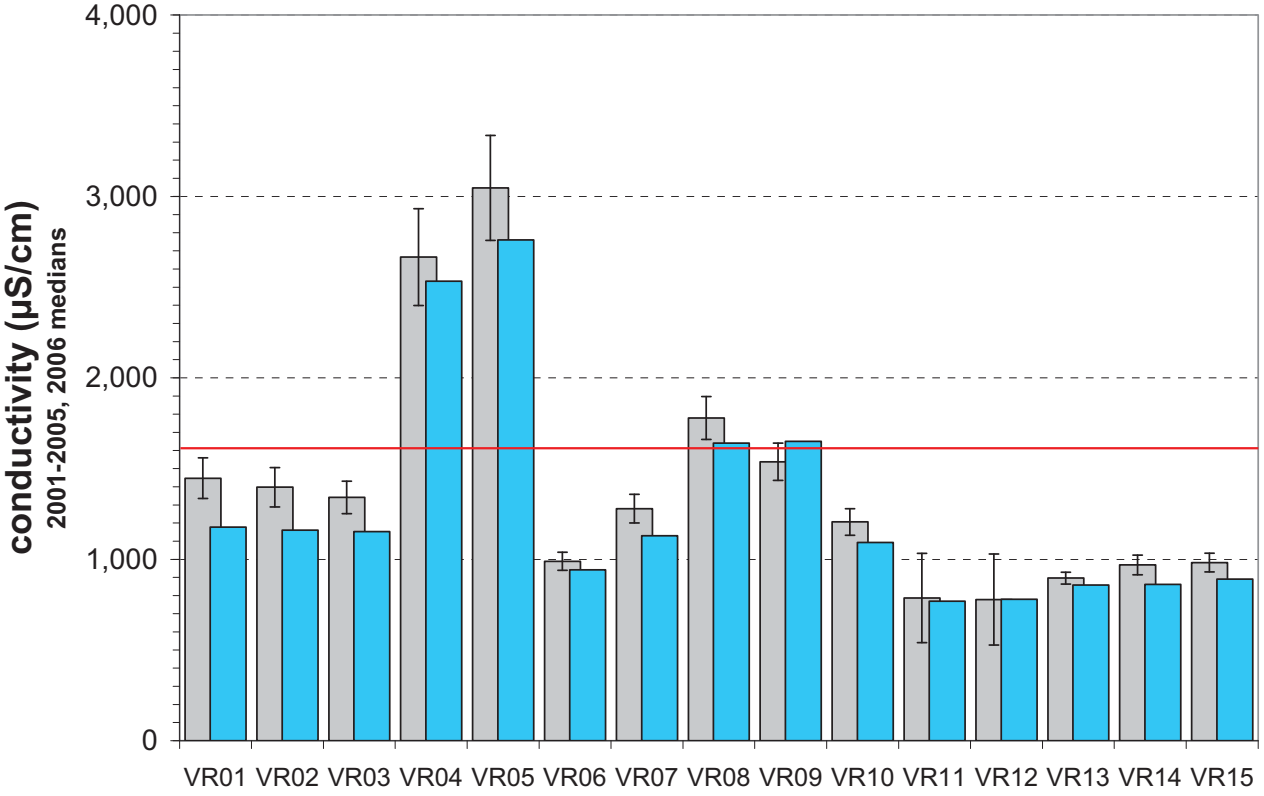


Figure 7. Median conductivities during the 2006 water-year are contrasted with median conductivity for the previous five years (2001-2005). The error bars indicate twice the standard error of the median, i.e., the 2006 median would be expected to lie within these error bars and anything beyond the limits could indicate a significant change (only one out of every 20 years would be expected to naturally fall outside of ± two standard errors). Note that 2006 conductivity at locations with year-round water generally falls below these limits. The horizontal line represents a generally accepted upper conductivity limit of 1,600 µS/cm for drinking water.

In 2005 the situation abruptly changed. The advent of a wet water-year (rainfall of 36.2 inches in Ojai) caused a dramatic increase in dry-season flows. With this increase there was an abrupt decrease in conductivity (Figure 8). Higher water levels, caused by increased flows from higher elevations (which generally have lower conductivity) and increased inputs from replenished water tables (with recent, lower conductivity, runoff) greatly lowered conductivity throughout the system.

When presenting 2006 data, for conductivity and all other parameters, we use two formats. One shows the 2006 monthly variation against a background of average monthly values (determined by averaging monthly results from 2001 through 2005), and the other shows the average 2006 value along with the long-term average from 2001 through 2005. In other words, monthly and average 2006 values are contrasted with previous results. This should enable us to tell at a glance where significant departures from the norm have occurred. Monthly variations in conductivity for each sampling location are shown in Figure 6 and the annual averages in Figure 7.

Figure 6 indicates that 2006 conductivities were almost always below average. This was somewhat to be expected since the monthly average incorporates four years of rising conductivity (2001-2004) and one year (2005) of low conductivity. Error bars in the figure indicate the monthly standard deviation. The inference is that we could expect conductivity to

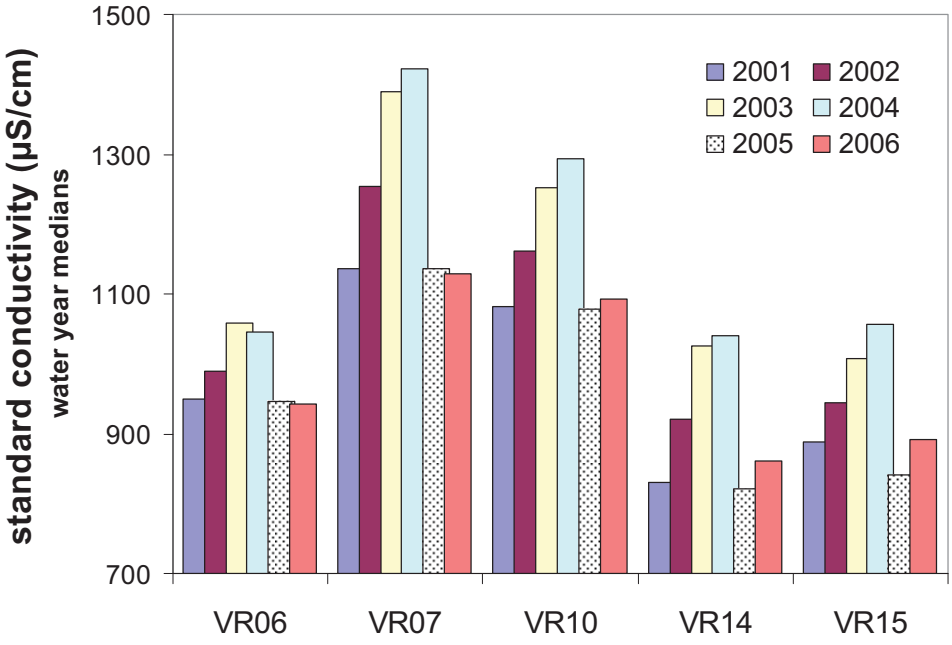


Figure 8.
Changes in annual median conductivity for Ventura Stream Team sampling sites with relatively natural, year-round flows, 2001-2006. There had been a consistent increase in conductivity over the initial four years of sampling; the percent increase from 2001-2004 at VR06 through VR15 was 12, 23, 19, 25 and 19%, respectively. However, in 2005 conductivity abruptly decreased by 20% throughout the Ventura system. In 2006 conductivity generally increased at upper elevation sites (VR14 & 15) and decreased at the lower ones (VR06 & VR07).

fall within the error bars every two out of three years. In other words, a 2006 value within the error bars can be considered relatively normal. For statisticians, reasonable values are those which fit between *two* standard deviations – twice the limits shown by the error bars – and Figure 6 shows very few results that fit this description. Those that do mostly occurred during October, November and December, and are part of the very low values seen in 2005, i.e., they occurred before the winter rains of 2006.[5]
Measurements taken during or soon after storms show very low conductivities due to large amounts of fresh runoff. Rain in this region generally has a conductivity between 10 and 40 µS/cm. Months in Figure 6 that have a large difference between error bars, i.e., indicating a wide variation in monthly values, include storm values in the data record. Similarly, low conductivity in April 2006 identifies rain-influenced measurements. Monthly averages derived from limited data show no error bars and some months are totally absent; these data identify sites that are usually dry during those months (e.g., VR04, VR05, VR11 and VR12). Occasional low 2006 values in December (VR09) or January (VR08) defy explanation and are probably the result of measurement error.

The most unusual site in 2006 was VR09, which showed higher than average conductivity whereas almost all other locations were below average. This is best seen in Figure 7, where median 2006 conductivity is contrasted with the median of all previous data. The median is a better measure of "average" conductivity than the actual average since it reduces the effect of occasional low, storm-influenced values. The error bars in Figure 7 indicate twice the standard error of the median. Note that the majority of sites in 2006 fell below this limit, indicating a significant difference. However, a significant difference may or may not be meaningful, and in this case, since we know too many dry-year data points with increasing conductivities were included in the median, the below-average results are not meaningful.

Figure 8 illustrates the overall trend, showing median annual conductivity for all years since 2001 at locations with relatively natural year-round flows (sites that don't go dry and that are uninfluenced by urban nuisance waters or Ojai sewage treatment plant effluent). Much of what was discussed earlier can be seen here: the abrupt 2005 decrease following the gradual increase from 2001 through 2004. However, sites in 2006 exhibited disparate trends. Locations on the upper Matilija showed the increasing conductivity we might have expected in the second season after a wet winter (VR14 and VR15), but lower-elevation locations had similar or even lower conductivity than during 2005 (VR06 and VR07). One possible explanation could be a greater percentage of 2006 recharge showing up at the lower sites, either due to shorter groundwater travel times or proportionally greater lower-elevation rainfall.

Temperature

The expected annual pattern for water temperature is straight-forward: rising from winter lows to summer highs and then decreasing in early fall. In other words, water temperature follows changes in air temperature. On the Ventura, that pattern is observed at all sites (Figure 9). The error bars in Figure 9 again indicate the monthly standard deviation. And while few of the 2006

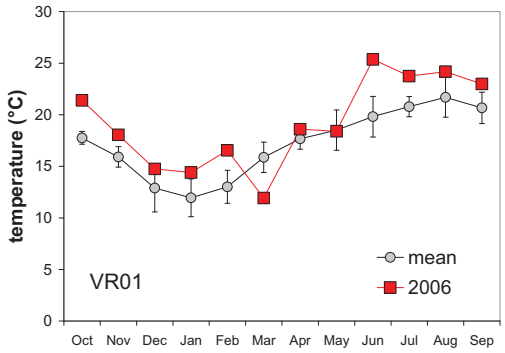
[5] Measurements that fall outside of two standard deviations are considered relatively rare, normally occurring only 5% of the time. Applying this to monthly conductivity, this would occur only once every twenty years, and a value this far outside the norm would be considered significantly different. In essence, this is the statistician's definition of significant.

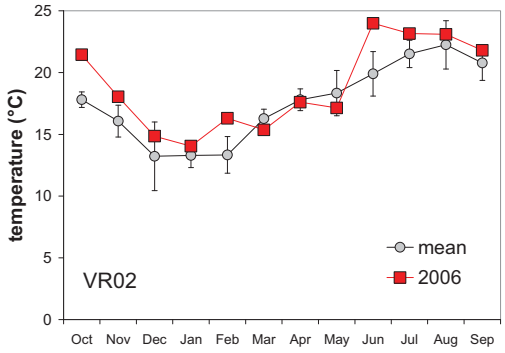
measurements were significantly different from monthly averages (i.e., fall below or above two standard deviations), there were some departures from the established pattern.

Most obvious were lower water temperatures in March, April and May, particularly at higher elevation locations (VR08-15). At lower elevations, temperatures seem to have been higher during both the earlier and later parts of the water-year. Abundant rain and increased flows probably account for lower temperatures during spring; flows in April were among the highest ever seen, higher than in 2005 or 1998. The lower sites exhibited some of the "apples and oranges" problem seen in the conductivity discussion. The monthly average combines years with different characteristics: years like 2002-2004 when almost complete aquatic plant cover shielded the river from sunlight vs. other years with more open flow. Data from October, November and December were particularly susceptible to this problem since these months in 2005 represent characteristics developed during 2004 instead of the changed circumstances that followed the big storms around the end of the calendar year.

Plant cover, increased flows and cooler weather produce lower water temperatures while the opposite circumstances produce higher. These effects are particularly pronounced on the lower Ventura's broad and shallow flows. On the other hand, sites that often go dry, like VR04 and 05, often show aberrant results for the low trickling or puddle type flows seen at the beginning and end of wet episodes.

Annual averages (with error bars denoting maximum and minimum water temperatures for both 2006 and the overall average) are shown in the bottom panel of Figure 11. The graph includes three horizontal lines to help put these results in perspective. These mark important threshold temperatures for trout and steelhead: above 24°C leads to death; below 16°C indicates good dry season conditions; and below 11°C in winter is excellent for spawning and incubation (Brungs and Jones, 1977; Armor, 1991; McEwan and Jackson, 1996; Sauter et al., 2001). As temperatures rise, fish have increasing trouble extracting oxygen from water, while at the same time the maximum amount of oxygen able to be held in solution decreases.


temperature (°C)
VR01
mean
2006
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


temperature (°C)
VR02
mean
2006
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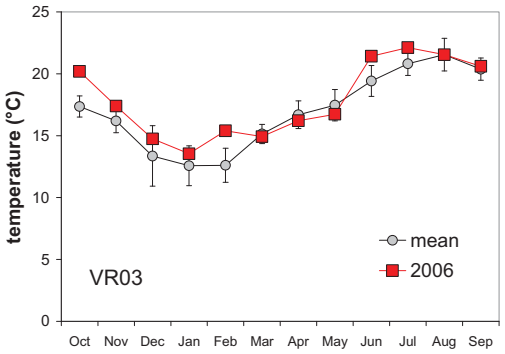
temperature (°C)
VR03
mean
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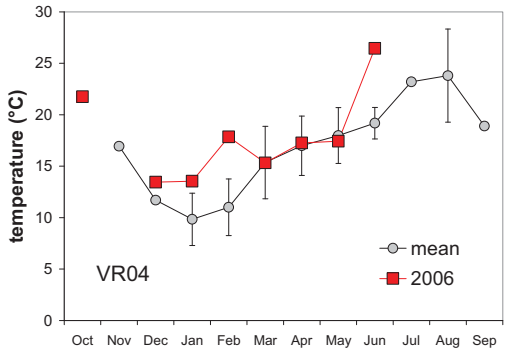
temperature (°C)
VR04
mean
2006
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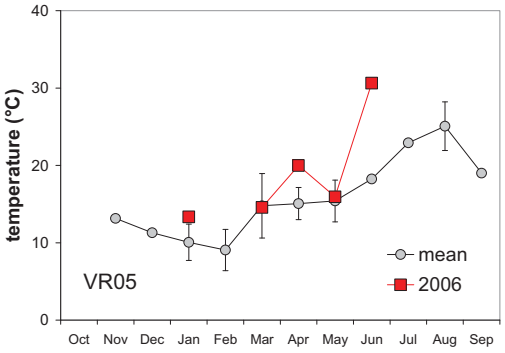
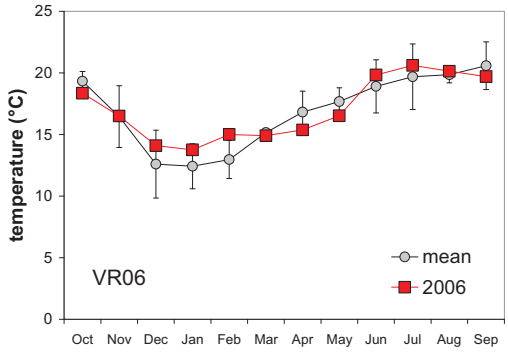
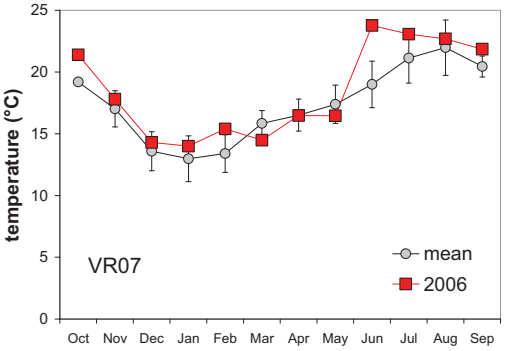
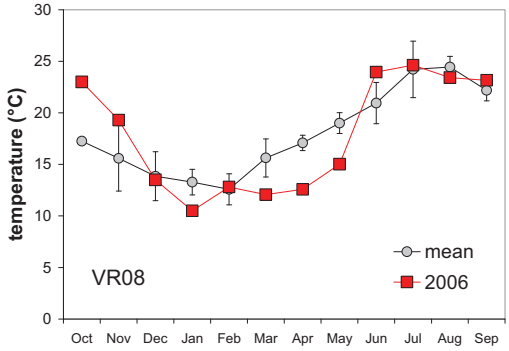

temperature (°C)
VR05
mean
2006
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


temperature (°C)
VR06
mean
2006
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


temperature (°C)
VR07
mean
2006
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


temperature (°C)
VR08
mean
2006
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

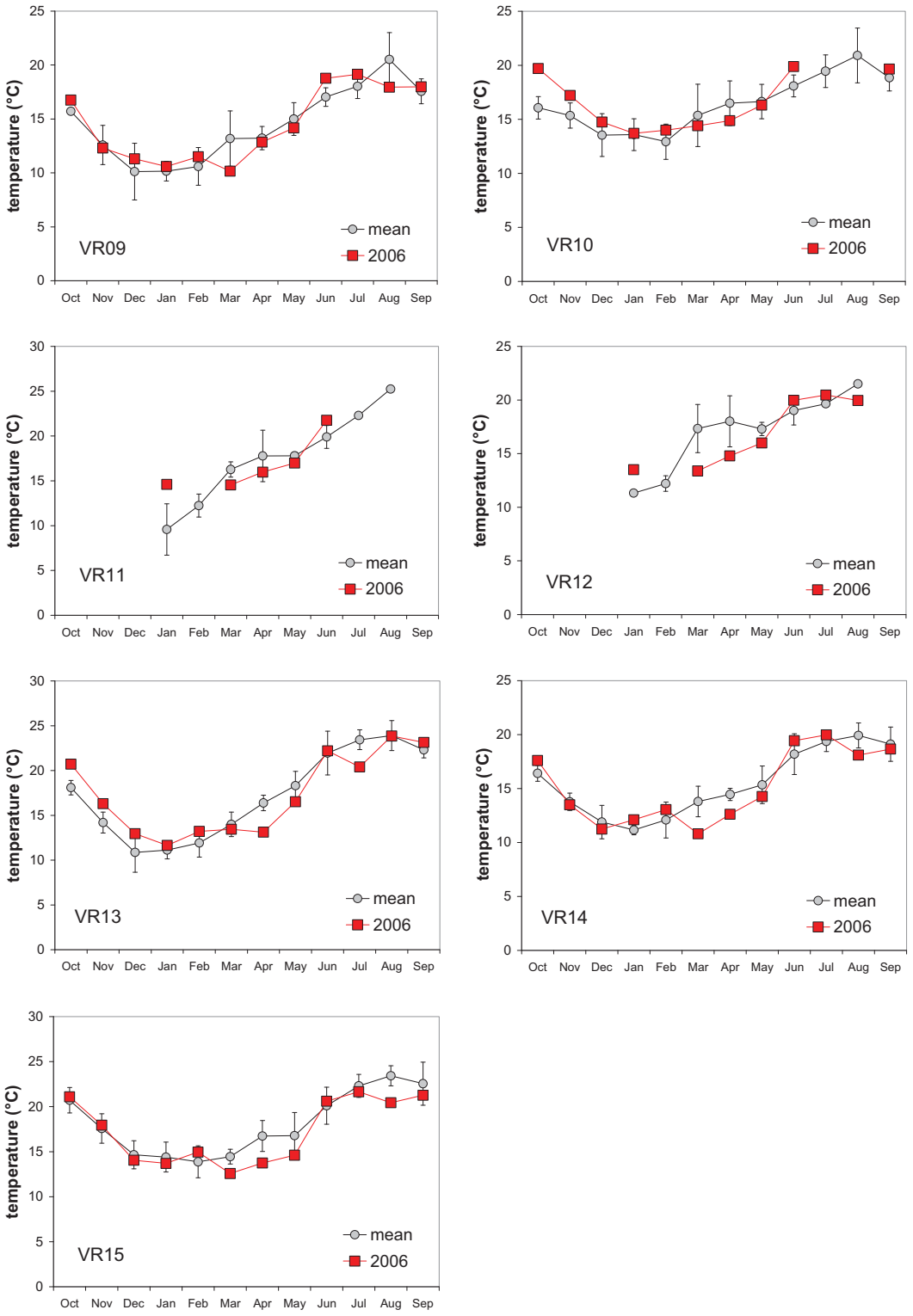


Figure 9. Monthly water temperatures for Ventura Stream Team sampling locations during the 2006 water-year are shown, along with the average monthly temperature from 2001-2005. Error bars indicate the monthly standard deviation in °C.

While the temperature requirements for steelhead are rather stringent, warm-water fish have greater tolerance for higher temperatures. Channelkeeper data show that temperatures often increase above 24°C in late summer and rarely drop below 11°C in winter. Reasonable departures from these criteria are probably not a vital concern. Southern steelhead evolved in what are essentially warm-water rivers and streams and undoubtedly have greater tolerance for higher temperatures than their more northern cousins; then too, fish are not passive participants but are free to seek out more favorable conditions (Matthews and Berg, 1997; Stoecker, 2002).

Dissolved Oxygen

Aquatic organisms are dependent on the presence of oxygen; not enough dissolved oxygen and they weaken or die. Water temperature, altitude, turbulence, season and time of day all affect the amount of oxygen in water. Water holds less oxygen at warmer temperatures and higher altitudes, and plants and algae can cause significant variations.

Dissolved oxygen (DO) is usually measured in milligrams per liter (mg/L) or percent saturation. Milligrams per liter is the weight of oxygen in a liter of water. It's often simpler to think of mg/L as "parts per million," since a liter of water weighs a million milligrams, 1 mg/L is the same as one part of dissolved oxygen in a million parts of water.

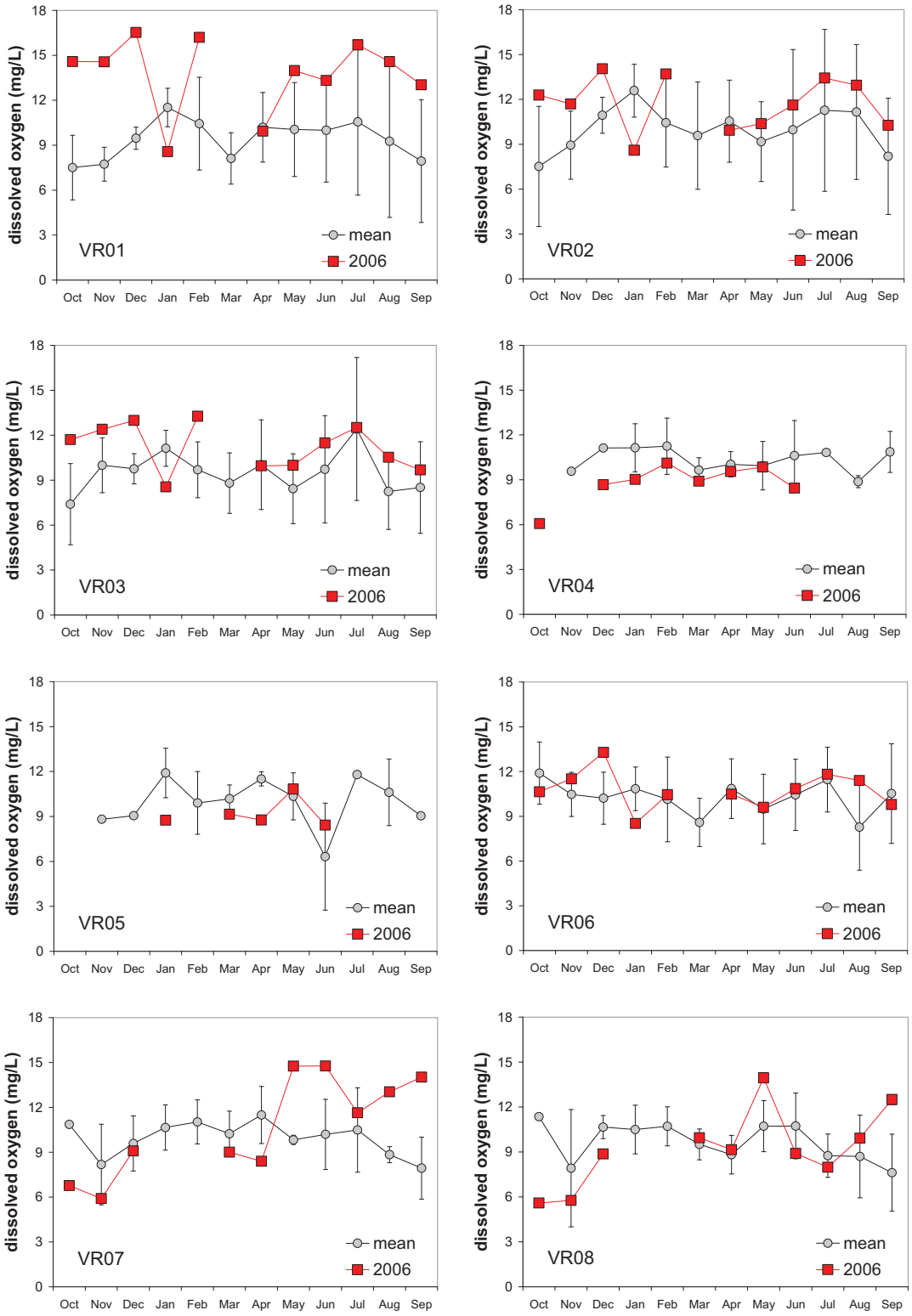
Cold water fish (trout and steelhead) require oxygen levels above 6 mg/L, and DO above 8 mg/L may be required for spawning (Davis, 1975; EPA, 1986; Bjorn and Reiser, 1991; Deas and Orlob, 1999). Warm-water fish can tolerate concentrations as low as 4 mg/L. Below 4 mg/L, fish are put in danger, and below 2 mg/L, usually defined as the beginning of hypoxia, all other aquatic organisms become stressed. Anoxic conditions, i.e., the total disappearance of oxygen, is not only fatal to oxygen-dependent biota but leads to fundamental microbial and geochemical changes in stream and sediments.

Dissolved oxygen concentrations during 2006 at the Ventura sampling sites are shown in Figure 10. Error bars represent the standard deviation of past monthly concentrations. DO in 2006 was generally higher than the average of past measurements, and in almost all cases monthly concentrations were above 6 mg/L. Unfortunately, this is not good news. DO concentrations were often too high and, as such, indicate trouble.

Stream sampling typically takes place in daylight. During much of the year, algae and underwater aquatic vegetation use sunlight for photosynthesis, removing carbon dioxide from the water column and replacing it with oxygen. This process is reversed at night when oxygen is removed and carbon dioxide added (Carlsen, 1994; NM-SWQB, 2000). Thus very high daytime oxygen concentrations can indicate an overabundance of algae. Under these conditions oxygen reaches a minimum just before sunrise – and it is concentrations during this critical period that determine the actual threat to fish and other aquatic species, a threat that is ordinarily not evaluated (Windel et al., 1987; Deas and Orlob, 1999; PIRSA, 1999).

Summer-time water temperatures in the Ventura River system usually peak around 20°C (Figure 9). Water at this temperature, in equilibrium with a sea-level atmosphere, can contain a maximum concentration of 9 mg/L of dissolved oxygen (i.e., completely saturated). Minimum stream temperatures generally fall to 10-12°C, with a DO concentration of ±11 mg/L at complete saturation. So summer concentrations above 10 mg/L or winter concentrations greater than 12 mg/L are an indicator of too much oxygen during daylight testing (and therefore the possibility of too little during the early morning hours), and most of Ventura Stream Team sampling

locations exhibit this problem during at least part of the year. (Note the early spring oxygen peaks on the Matilija; the May and early fall peaks at Foster Park and below Ojai (VR06, VR08, VR09 and VR10); and the almost year-round presence of abnormally high oxygen levels on lower San Antonio Creek and the lower Ventura (VR01-03, and VR07)).



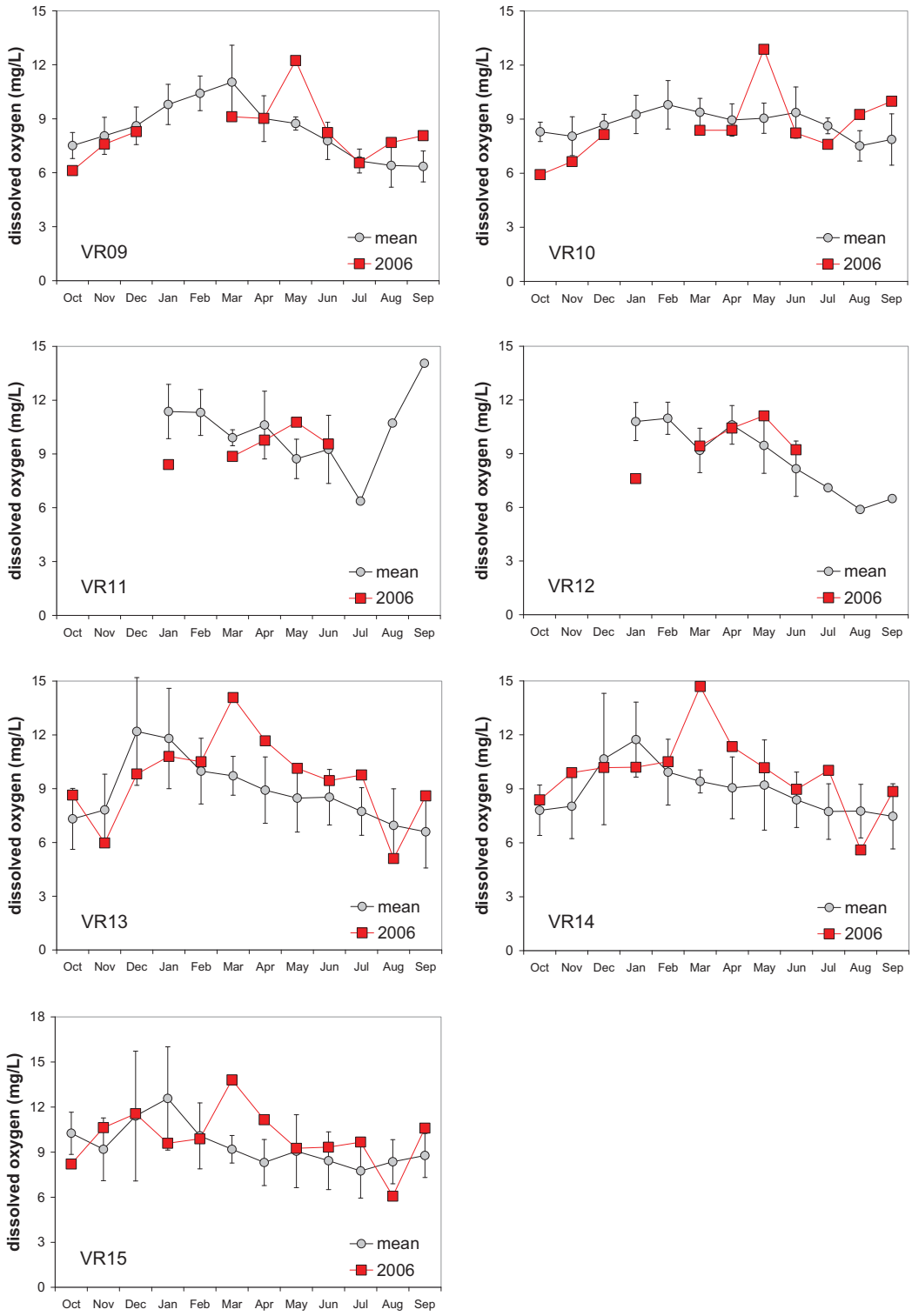


Figure 10. Monthly dissolved oxygen concentrations for Ventura Stream Team sampling locations during the 2006 water-year are shown, along with the average monthly dissolved oxygen from 2001-2005. Error bars indicate the monthly standard deviation in mg/L.

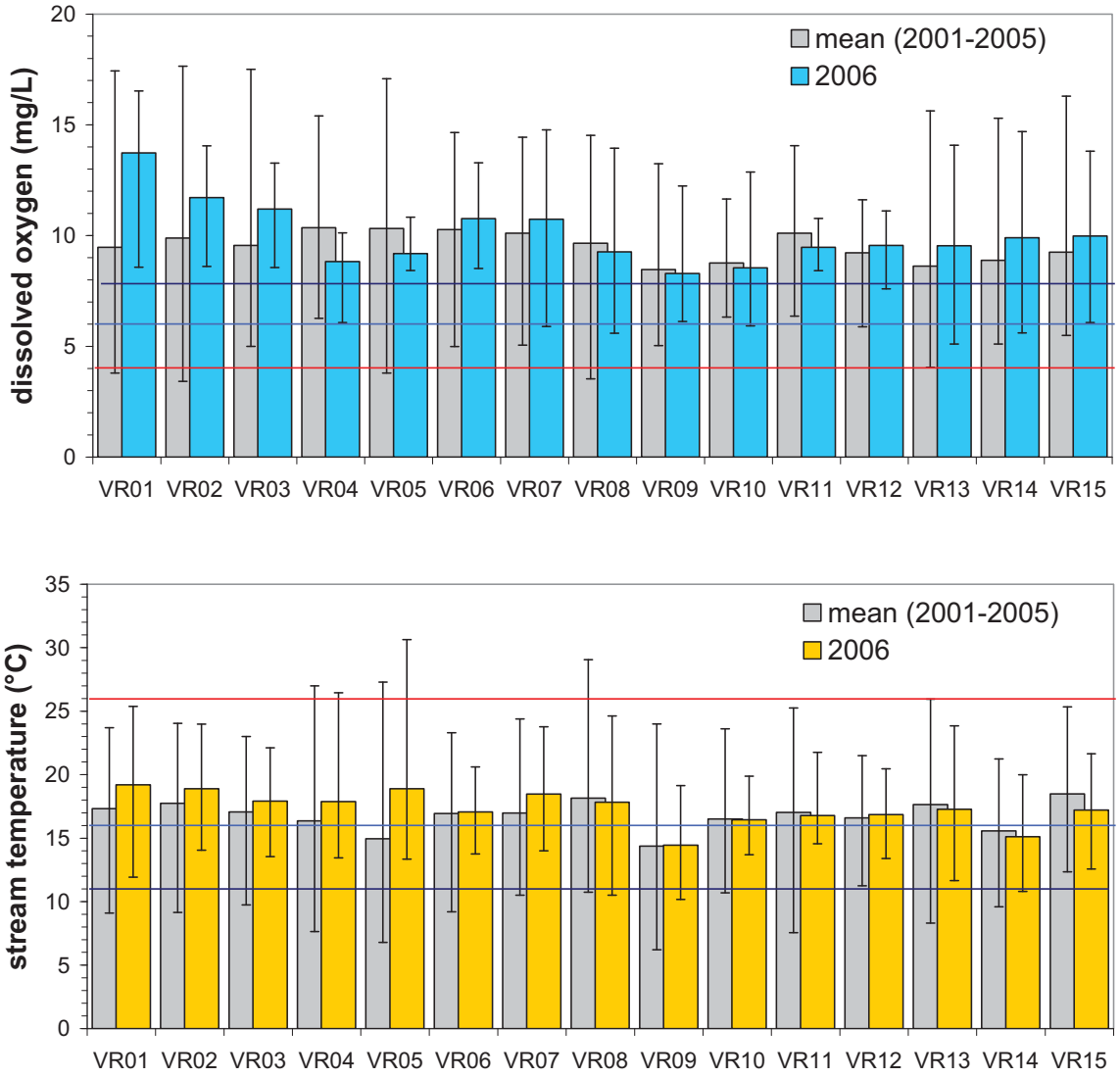
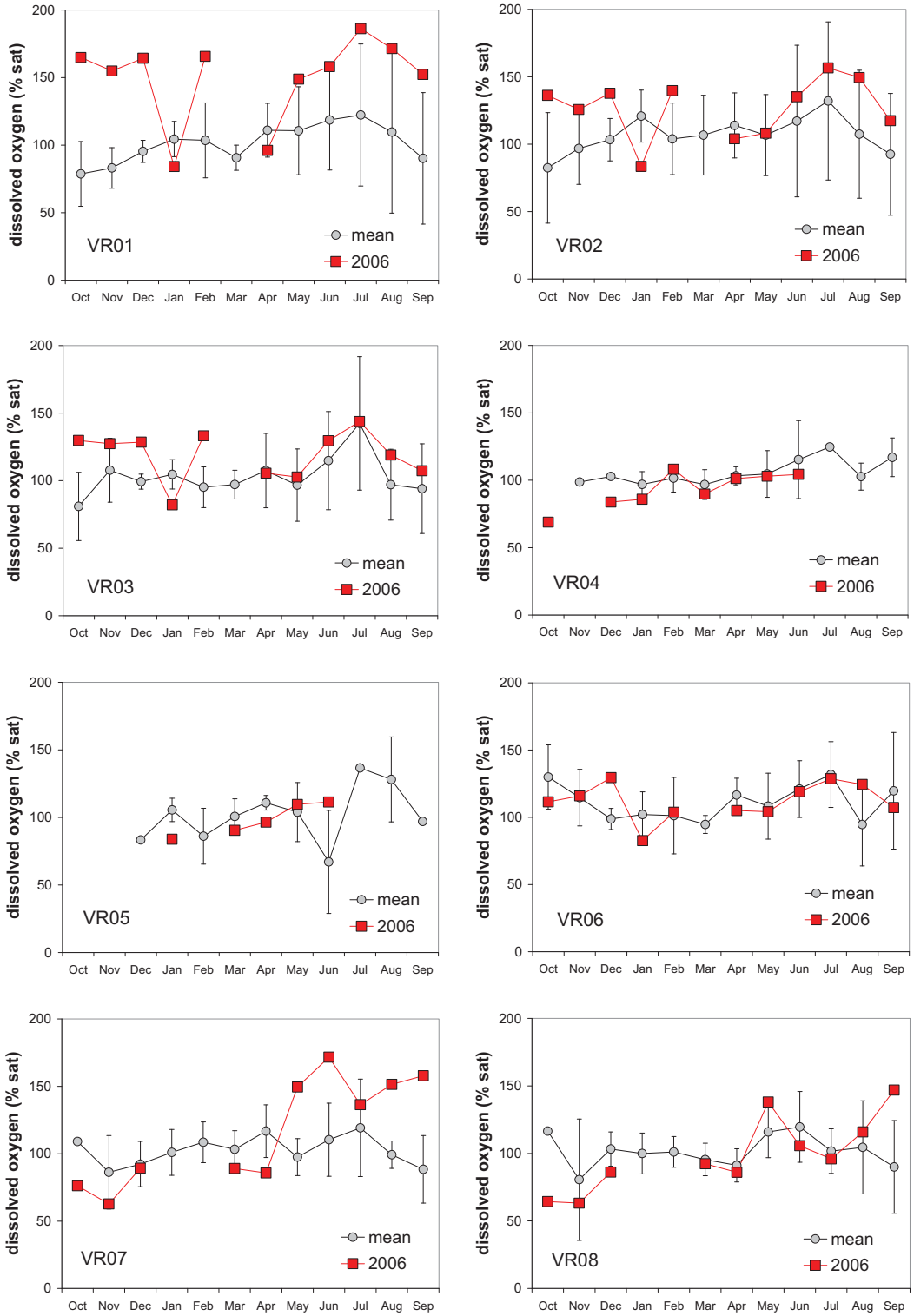


Figure 11. *Upper panel*: Average dissolved oxygen concentrations for Ventura Stream Team sampling locations during the 2006 water-year are contrasted with mean dissolved oxygen from 2001-2005. Error bars indicate the maximum and minimum concentrations for each average. The 3 horizontal lines mark important DO milestones; above 8 mg/L represents near ideal conditions; below 6 trout and steelhead start to feel stress (but no lasting harm is done in the short term); and below 4 lies severe damage and death. (lower panel) Average 2006 stream temperature contrasted with mean temperature from 2001 through 2005; error bars again indicate maximum and minimum temperatures. The lines represent temperature milestones: above 24°C leads to death; below 16°C indicates good dry season conditions; and below 11°C is excellent for spawning and incubation. Extreme values become critical at locations with measurements below (for DO) or above (for temperature) the bold line.

Channelkeeper's Ventura Stream Team sampling program also measures *percent saturation*, the amount of DO compared with what water, at the measured temperature and altitude, can hold at equilibrium; in other words, the oxygen excess or deficiency compared with this theoretical maximum. Theoretical, because a stream or river can become super-saturated with oxygen. The key word is *equilibrium*, meaning the attainment of some steady state, a balance between the amount of oxygen entering and the amount leaving. A stream slowly warming as morning air temperatures rise can become super-saturated, as can a turbulent reach actively entraining oxygen. But the only process capable of achieving high amounts of super-saturation is active photosynthesis. A dissolved oxygen content in excess of 120% of saturation is a good indicator of algal problems (it can go as high as 400%). Figure 12 shows 2006 percent DO saturation results for the sampling sites and demonstrates the large extent of algal problems during the past year.

Winter storms in 2005 created ideal conditions for excessive dry-season algal growth in the Ventura River system by: opening the river and tributaries to sunlight; removing competing vegetation; sweeping insect predators out to sea; flushing sediment; restoring a rocky bottom (the ideal substrate for most problem causing algal species in this area); and, through increased groundwater infiltration, insuring expanded habitat and plentiful nutrients. During 2006 these conditions continued. If anything, algal growth during the spring of 2006 may have exceeded that of 2005. Only during the latter part of the year did the heavy growth of aquatic plants inhibit the impact of algae on the lower river (Figure 13). This can be seen in the decrease in % saturation at VR01-03 and VR06 in August and September after peaking in July (Figure 12).


dissolved oxygen (% sat)
0
50
100
150
200
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
VR01
VR02
VR03
VR04
VR05
VR06
VR07
VR08
mean
2006

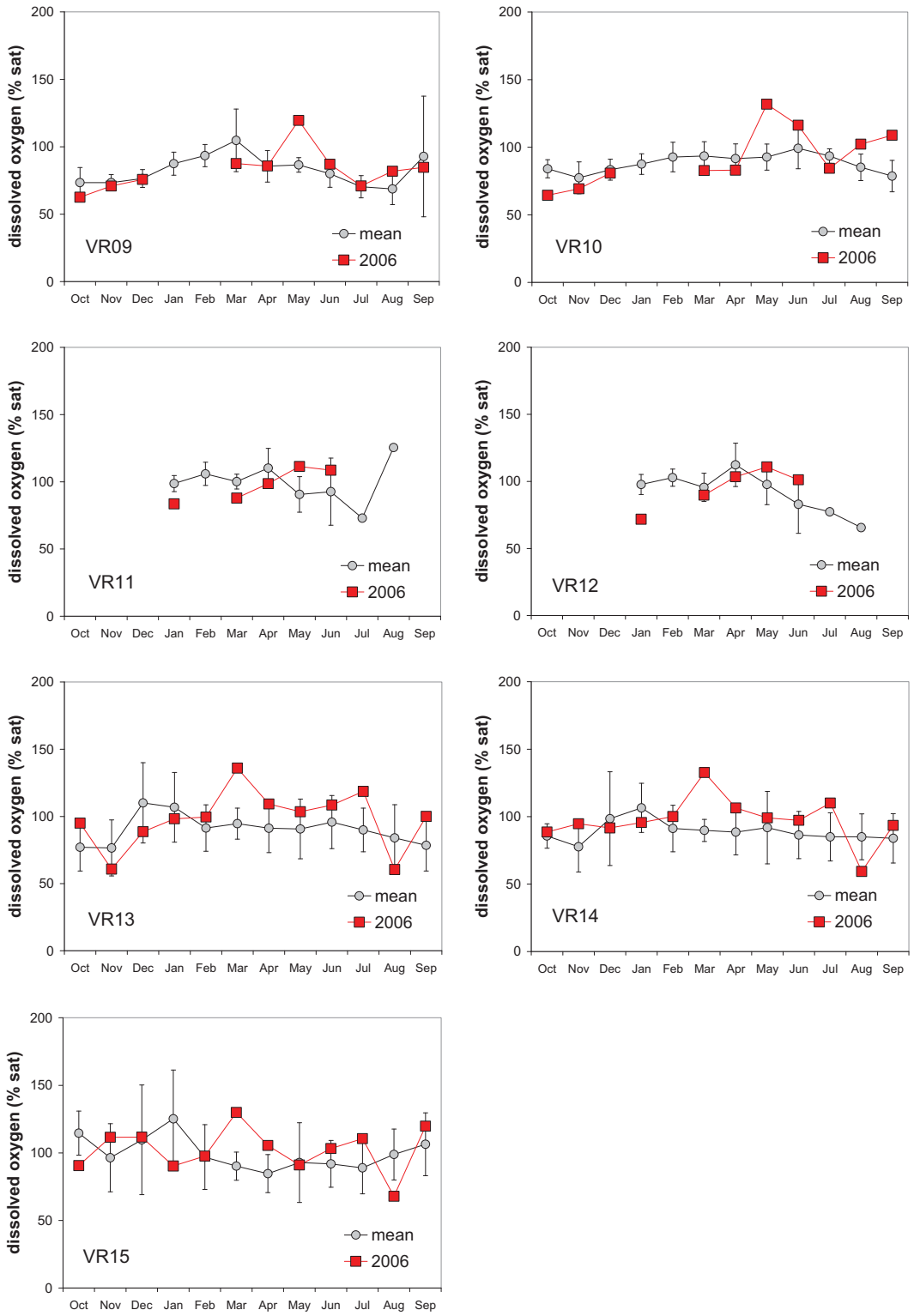


Figure 12. Monthly dissolved oxygen concentrations in percent saturation for Ventura Stream Team sampling locations during the 2006 water-year are shown, along with the average saturation from 2001-2005. Error bars indicate the monthly standard deviation.

Elsewhere the data appear to show two distinct algal blooms, one in early spring (March or May) and another in September (with the possibility of an additional July bloom on the Matilija).

Figure 13. Upstream from the Main Street Bridge (VR01), December 2005 (top) and November 2006 (bottom). By the end of 2006, the lower Ventura was covered with two types of plant cover. Most of what can be seen is watercress, however the arrow marks a line of slightly darker and taller vegetation near the stream edge: *Ludwiga hexapetala* or water primrose. If the past is prologue, this plant will come to dominate the lower river.

Mean annual DO concentrations for Ventura Stream Team sampling sites in 2006, along with mean concentrations from previous years, are shown in the upper panel of Figure 11. The error bars indicate maximum and minimum concentrations for each set of data. As with temperature, three important benchmarks are indicated by horizontal lines: above 8 mg/L represents near ideal conditions; below 6 mg/L trout and steelhead begin to feel stress (but no lasting harm is done in the short term); and below 4 mg/L lies severe damage and death. As before, these markers pertain particularly to steelhead and trout; for warm-water fish each limit could be lowered by 1 mg/L, decreasing them to 7, 5 and 3 mg/L, respectively.

Based on the discussion above, locations with an annual mean oxygen concentration greater than 10 mg/L exhibited a severe algal problem: VR01-03, 06 and 07. Figure 14, the average annual percent saturation for both 2006 and past years, reinforces this impression.

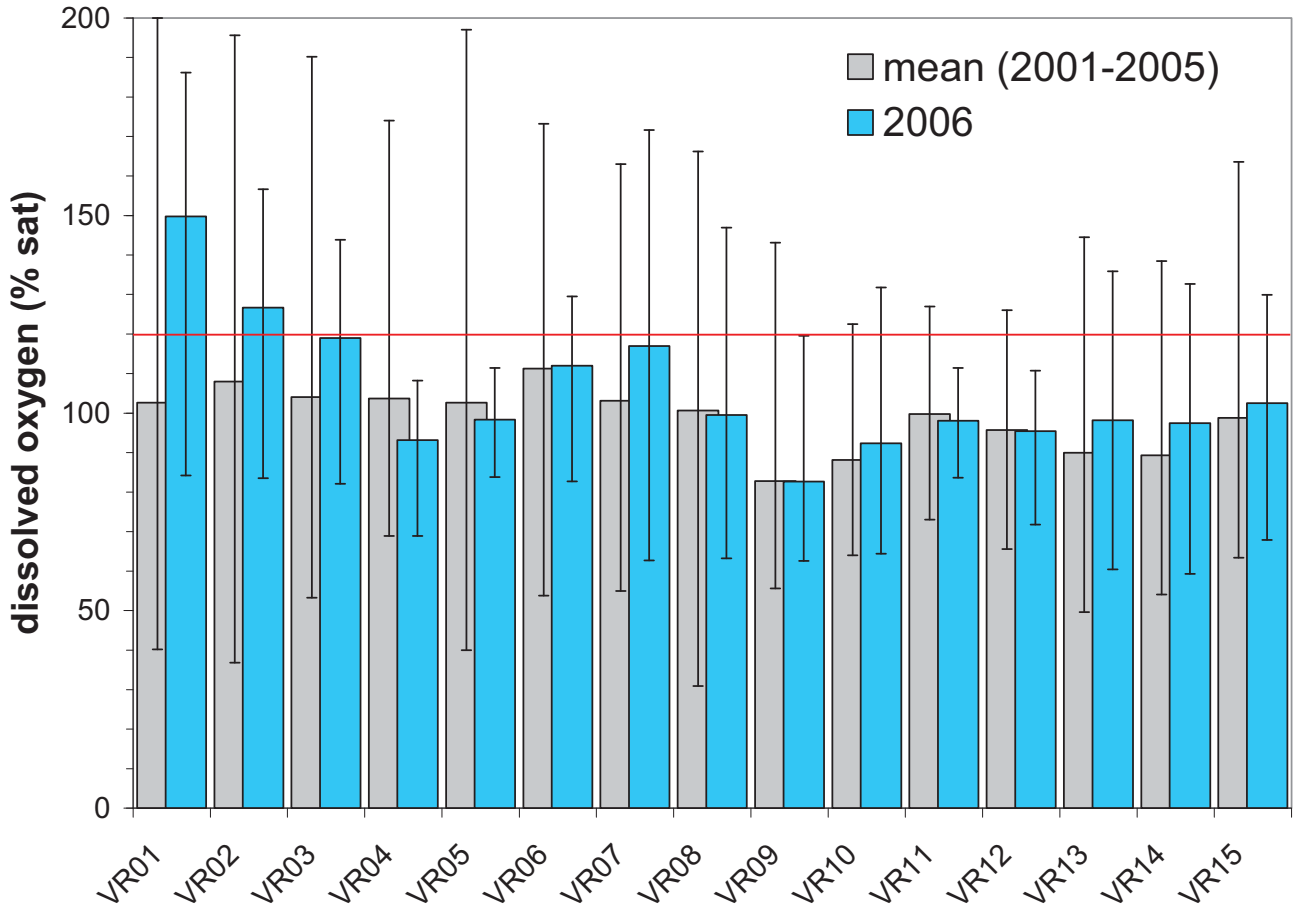


Figure 14. Average dissolved oxygen (in percent saturation) during the 2006 water-year is contrasted with average values from 2001-2005. Concentrations above 120% saturation (horizontal line) usually indicate problems with algal growth: over-saturation during daylight followed by depleted concentrations at night. The error bars indicate the maximum and minimum percent saturation at each site.

Turbidity

Turbidity is a measure of water clarity and the amount of sediment suspended in the water column. There are numerous methods for measuring turbidity and it can be reported in a number of different units. Channelkeeper measures clarity with a turbidity meter (or nephelometer) which reports results in Nephelometric Turbidity Units (NTU). A nephelometer passes a beam of light through a water sample and records how much of the beam is scattered at right angles; the more sediment in the sample, the more light is scattered and the higher the turbidity reading.

Particles suspended in the water column have both long- and short-term effects on steelhead and other fish (Sigler et al., 1984; Newcombe and MacDonald, 1991; ODEQ, 2001a, 2001b). Over the long term, sediment settles on the bottom and fills the interstices between streambed gravels

and rocks, decreasing the amount of desirable habitat for spawning and for the insects fish feed upon. Over the short term, turbidity reduces the ability of fish and invertebrates to find food. Water quality begins to be degraded by suspended sediment somewhere between turbidities of 3 and 5 NTU; turbidities above the range of 7-10 NTU appear to diminish the numbers and variety of benthic invertebrates (Quinn et al., 1992; Munn et al., 1989), and above 25 NTU, impacts on steelhead and trout begin to be noticeable. These limits apply to the dry season and periods between storms. During storms they become meaningless in the Ventura River watershed as local suspended sediment concentrations reach tens of thousands of milligrams per liter – turbidity readings in the hundreds of thousands. Fortunately, on the Ventura, turbidities rapidly drop soon after the end of rainfall, and return to near-background levels within 3-7 days after a storm.

Figure 15 shows 2006 geomean turbidity for each of the sampling locations along with geomean turbidity for the earlier record (2001-2006).[6]

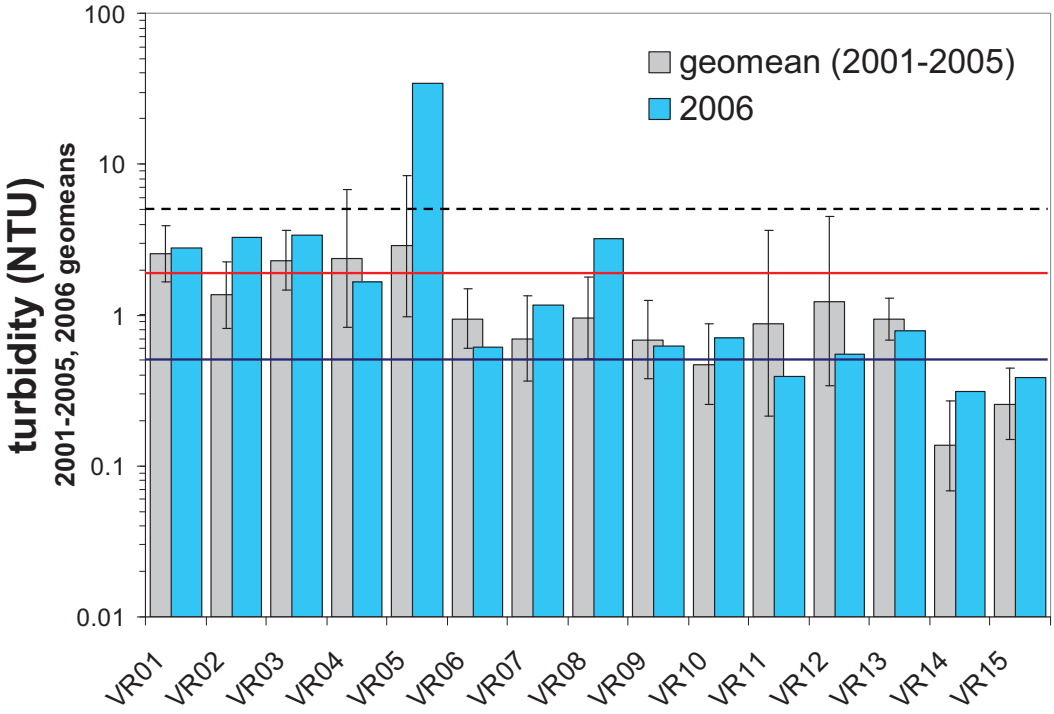


Figure 15. Geomean turbidity during the 2006 water-year is contrasted with the geomean of all measurements from 2001-2006. Error bars indicate the 95% confidence interval for the geomean. Two of the horizontal lines mark typical Public Health drinking water quality benchmarks: a maximum turbidity of 5 NTU and no more than 5% of monthly samples with greater than 0.5 NTU. The bold line indicates the EPA's proposed ecological limit for maximum (non-storm) turbidity in streams of this region, 1.9 NTU.

[6] The geomean is calculated by converting measurements to logarithms, averaging, and then converting the logarithm of the average back to a number. Like the median, it can be a better indicator of "average" conditions than a simple average, particularly when a dataset has numbers that span many orders-of-magnitude – as does turbidity, ranging from near zero into the thousands during storms. The median, the number that falls in the center of a group of measurements, ignores very high or very low numbers as long as they are few. In contrast, the geomean incorporates them but reduces their importance in calculating the average.

Two of the horizontal lines in Figure 15 represent typical Public Health drinking water limits: a maximum turbidity of less than 5 NTU and no more that 5% of monthly samples greater than 0.5 NTU. The third represents an ecological standard. Since increased turbidity may be related to over-productivity or excess nutrient enrichment – more biologically productive water often contains increased amounts of suspended organic matter – the EPA has suggested turbidity standards for various eco-regions in the United States. The goal for Ecoregion III, the xeric (dry) west, in which the most of sampled Ventura watershed is located, is less than 1.84 NTU (US-EPA, 2000a, 2000b). Ecoregion III has been further divided into sub-regions, and the sub-region in which the Ventura lies (sub-region six) has a slightly higher 1.90 NTU limit.

Turbidity measurements in 2006 were roughly compatible with those of earlier years (Figure 15). Some locations had higher turbidity, some lower. Generally, when flows are relatively high, turbidity increases (higher stream velocities tend to keep more particles in suspension), and greater amounts of algae tend to increase the amount of suspended organic matter. Sites with higher turbidity in 2006 (VR01-03, VR07, VR08, and VR10) tended to combine both of these factors. Results for 2005 were also higher for the same reasons. The only exceptionally high result, VR05, is an artifact of three very high, storm-influenced readings during the five months that flow was observed at this site. Using the EPA criterion, only the lower Ventura River and Canada Larga would appear to have persistent problems with excessive turbidity, but even at these sites it is usually below biologically significant limits (7-10 NTU).

*p*H

*p*H is a relative measure of alkalinity and acidity, an expression of the number of free hydrogen atoms present. It is measured on a scale of 1 to 14, with 7 indicating neutral – neither acid nor base; lower numbers show increasing acidity, whereas higher numbers indicate more alkaline waters. *p*H numbers represent a logarithmic scale, so small differences in numbers can be significant: a *p*H of 4 is a hundred times more acidic than a *p*H of 6. All plants and aquatic species live within specific ranges of *p*H, and altering *p*H beyond these ranges causes injury or death. Pollutants can push *p*H toward the extremes, and low *p*H in particular is highly dangerous because it allows toxic elements and compounds to *mobilize* (go into solution) and be taken in by aquatic plants and animals. A change of more than two points on the *p*H scale can kill many species of fish; the EPA and Regional Water Quality Control Board (SWQCB-LA) regard a *p*H change of more than 0.5 as harmful (SWQCB-LA, 1994).

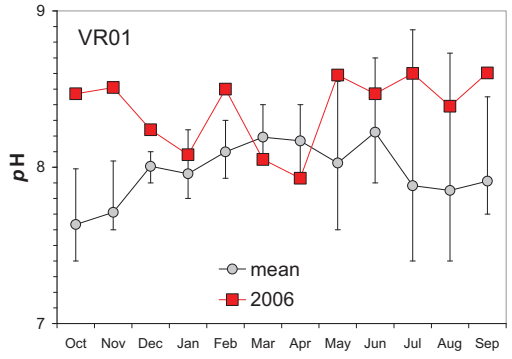
There are numerous available standards for *p*H. Fish live within a range of 5-9, but the best fishing waters lie between 6.5-8.2. The Central Coast Regional Water Quality Board uses a standard of 7.0-8.5 for surface water, 6.5-8.3 for potable water and swimming (SWQCB-CC, 1994); the Los Angeles Regional Water Quality Control Board uses 6.5-8.5 (SWQCB-LA, 1994); and the EPA recommends 6.5-8.0 as being the best for aquatic animals. We use 8.5 as an upper reference limit since the Los Angeles Regional Board establishes the legal standard for the Ventura River.

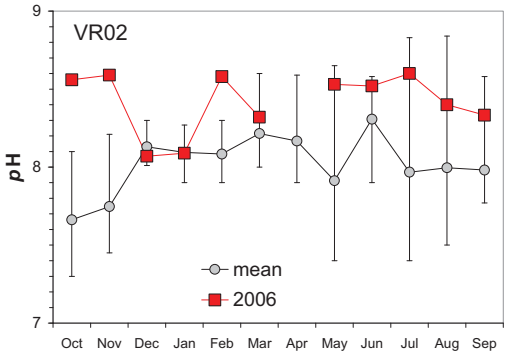
Photosynthesis, discussed earlier in the section on dissolved oxygen, removes carbon dioxide from the water at the same time as it releases oxygen. Removing carbon dioxide is the same as removing acidity, thus photosynthesis increases *p*H at the same time as it increases the amount of dissolved oxygen (PIRSA, 1999; NM-SWQB, 2000).

Normally, absent this process, we should see little change in *p*H. The dissolved minerals that give Ventura waters high conductivity contain large amounts of carbonates which "buffer" the river against large variations (waters in the region typically contain around 120 mg/L of acid neutralizing capacity expressed as carbonate), but changes in the concentration of dissolved carbon dioxide are a major exception.

Figure 16 shows monthly 2006 *p*H measurements along with the average monthly results from previous sampling; the error bars represent maximum and minimum values for 2001-2005. Algal productivity on the lower Ventura River did manage to keep *p*H slightly above the 8.5 limit for much of the dry season. Elsewhere, values were in the allowable 6.5-8.5 range. Figure 18 summarizes the 2006 results, comparing the annual mean with the overall mean from previous years. The general trend is a slight increase at all locations with year-round flow (i.e. with appreciable dry-season algal production).

The data, however, show some discrepancy. When significant amounts of algae are present, dissolved oxygen concentrations and *p*H should rise and fall together. In Figure 17, percent DO saturation is plotted, along with *p*H data from Figure 16, for a subset of Ventura locations. The lower river sites (e.g., VR01 and VR02) do show the expected correspondence, but at other locations *p*H decreases as percent saturation rises above 120% (e.g., VR08, VR10 and VR15). *p*H is difficult to measure accurately and this may simply be an example of that.


VR01
pH
9
8
7
mean
2006
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


VR02
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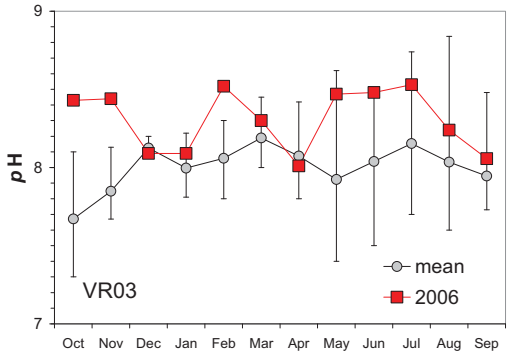
VR03
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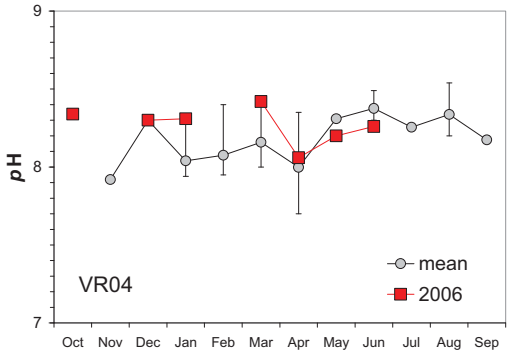
VR04
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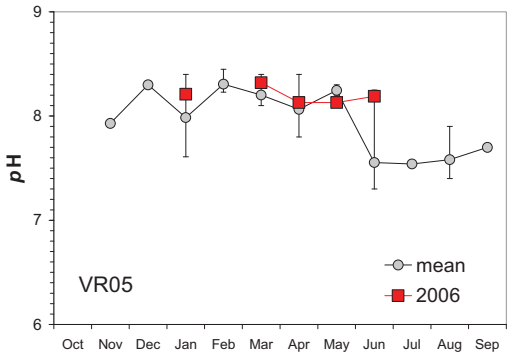
VR05
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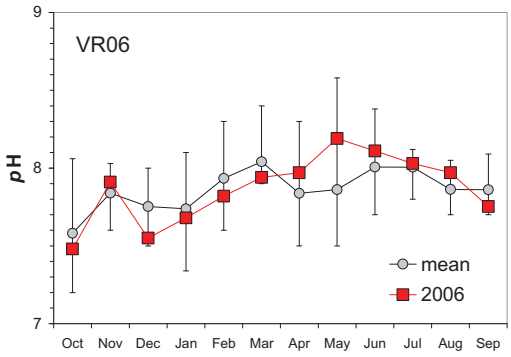
VR06
pH
9
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2006
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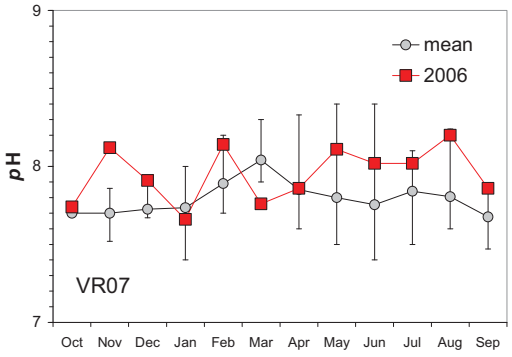
VR07
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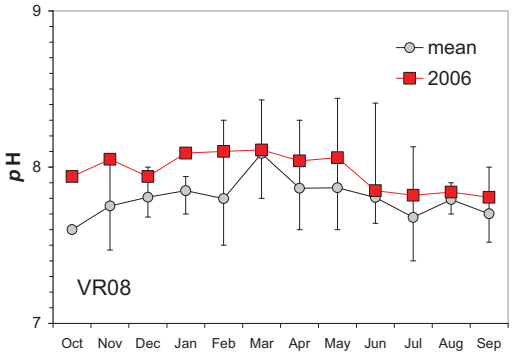
VR08
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8
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mean
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Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

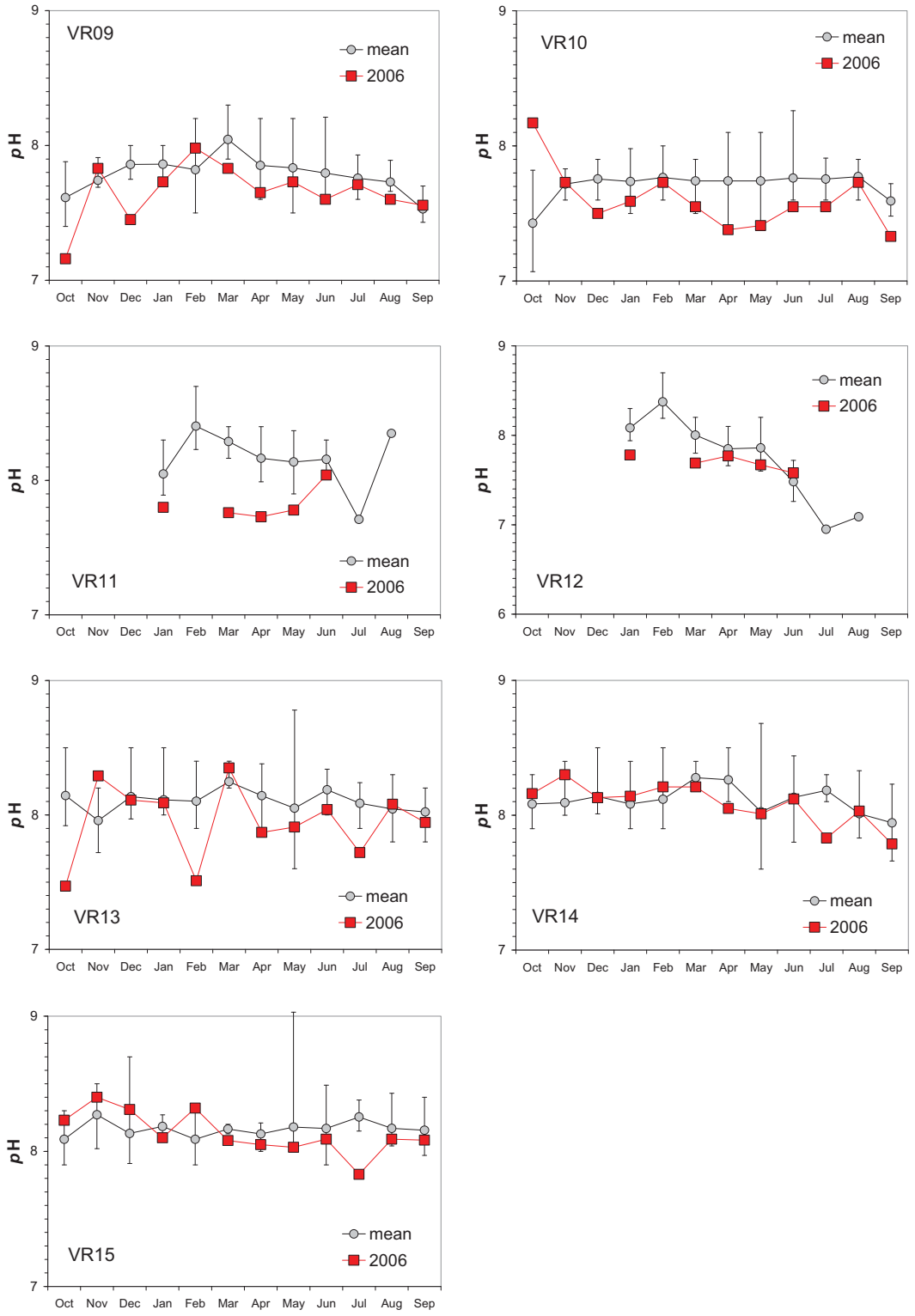


Figure 16. Monthly *p*H values for the Ventura Stream Team sampling locations during the 2006 water-year are shown, along with the average *p*H from 2001-2005 (*p*H of the average H ion concentration). Error bars indicate the maximum and minimum values from 2001-2005.

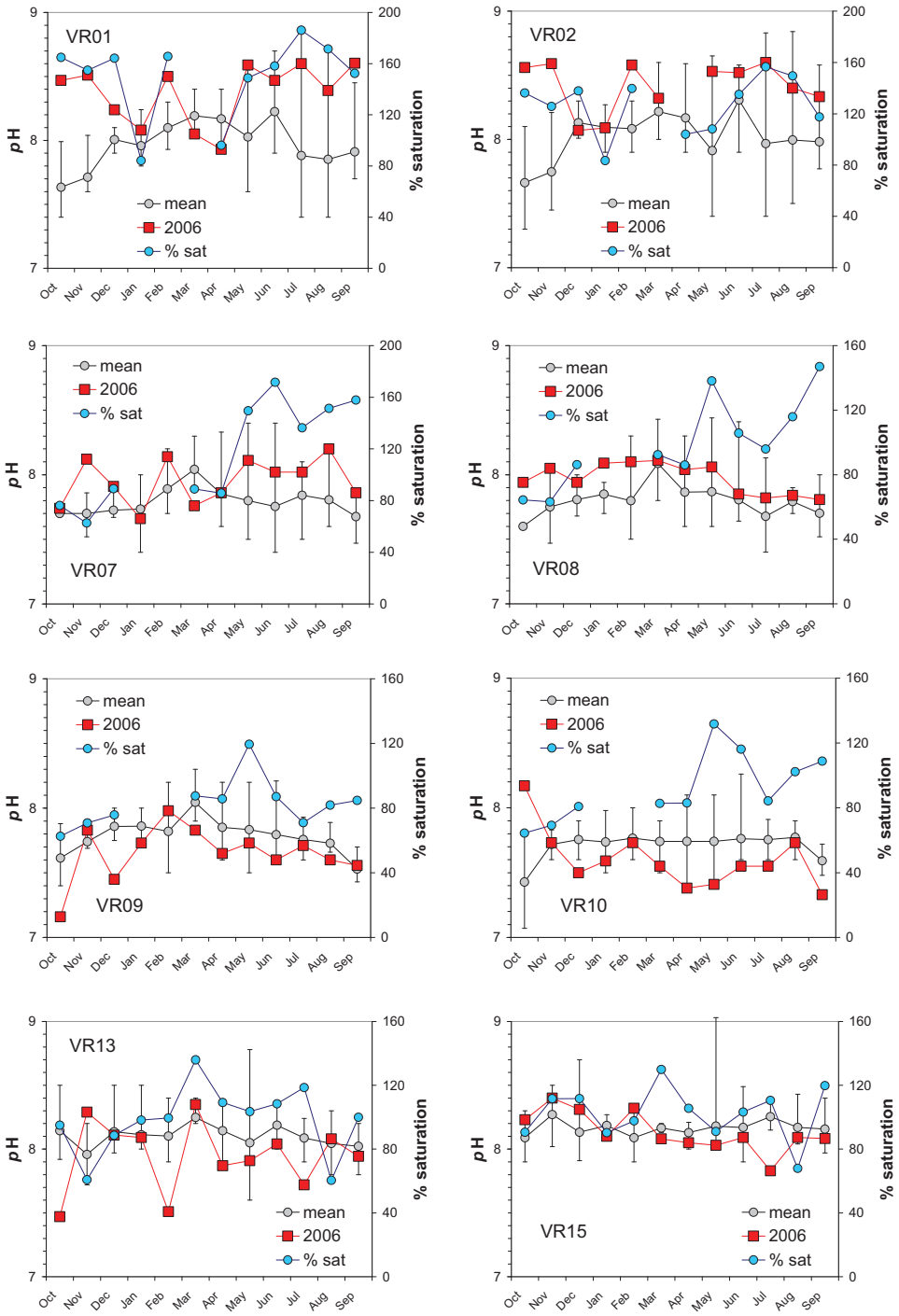


Figure 17. Monthly 2006 percent DO saturation values for selected Ventura Stream Team sampling locations are plotted along with pH data from Figure 16. Since Ventura waters are highly buffered, there should be a reasonable correspondence between pH and % saturation, since both increase with daylight photosynthesis. This is generally the case at the lower river sites and elsewhere during the first part of the year. However at many locations, particularly towards the end of the year, this relationship breaks down.

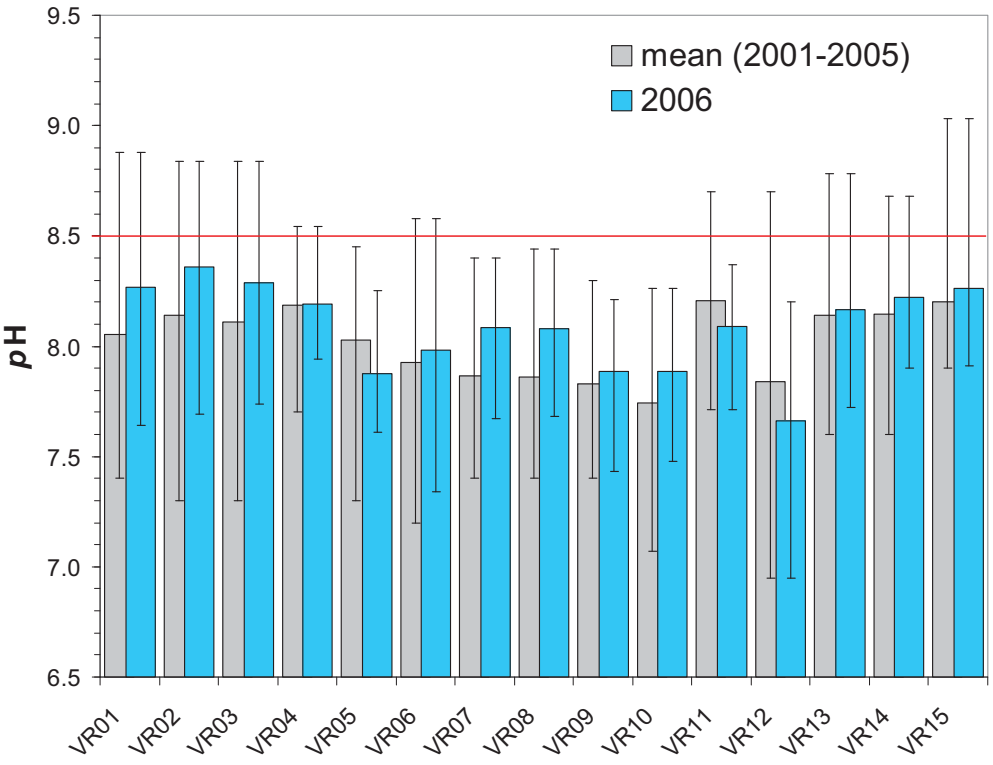


Figure 18. Average *p*H during the 2006 water-year is contrasted with average values from 2001-2005. The error bars indicate the highest and lowest values measured for each time period at the sampling locations. The horizontal line represents the Los Angeles Regional Water Quality Control Board's upper *p*H limit of 8.5 (from the Ventura Basin Plan). Average pH was computed from the mean hydrogen ion concentration. Concentrations above 120% saturation (horizontal line) usually indicate problems with algal growth: over-saturation during daylight followed by depleted concentrations at night. The error bars indicate the maximum and minimum percent saturation at each site. A *p*H above 8.5 is usually associated with excessive algal growth.

Nutrients

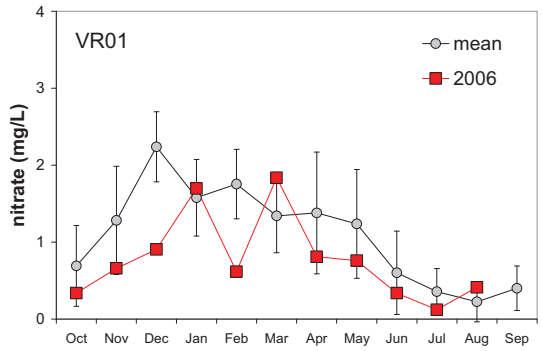
Phosphorus and nitrogen are essential nutrients for all living organisms (nitrogen for protein synthesis and phosphorus for energy transformation in cells), but in excess amounts they cause severe problems (Sterner, 2002, Smith et al, 1999, Carpenter et al., 1989).

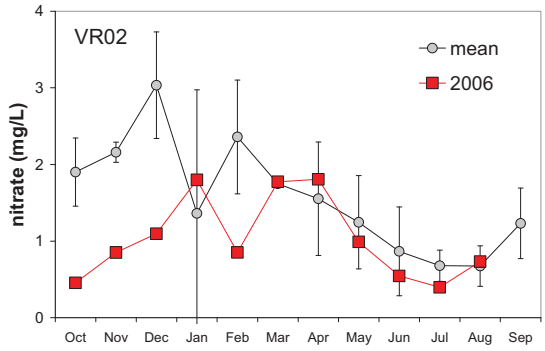
Phosphorus in streams and rivers can come naturally from soil and rocks and decaying plants, or unnaturally in runoff from pastures, fertilized lawns and cropland. Failing septic systems and wastewater treatment plants are also sources, as are disturbed land areas and drained wetlands. Phosphorus, both as phosphate and in organic molecules, moves in solution or attached to particles suspended in the flow.

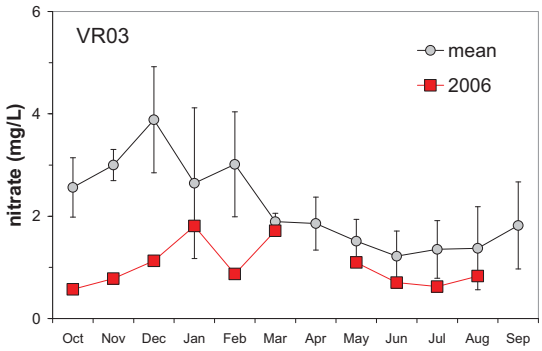
Nitrogen is available as dissolved inorganic molecules (nitrate, nitrite and ammonium) and as dissolved or suspended organic matter (complex compounds associated with living, or once living, tissue). Nitrate, the most common form of nitrogen found in the Ventura watershed, can be toxic to warm-blooded animals, particularly babies, at high concentrations (greater than 10 mg/L), and there may also be a link between high nitrate levels and cancer (cf. non-Hodgkin's

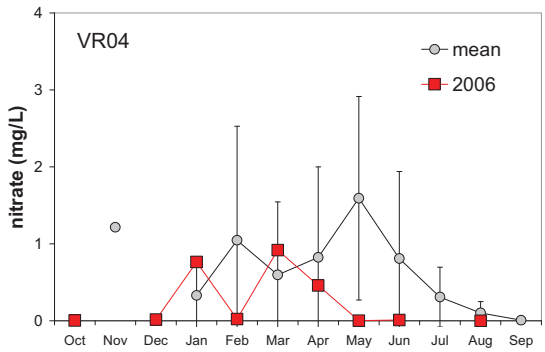
lymphoma, Ward et al., 1996). Sources of nitrate include effluent from wastewater treatment plants, runoff from fertilized lawns and cropland, failing septic systems, animal manure and industrial discharges. Nitrates move quickly into streams and rivers since they readily dissolve and are not adsorbed on soil particles.

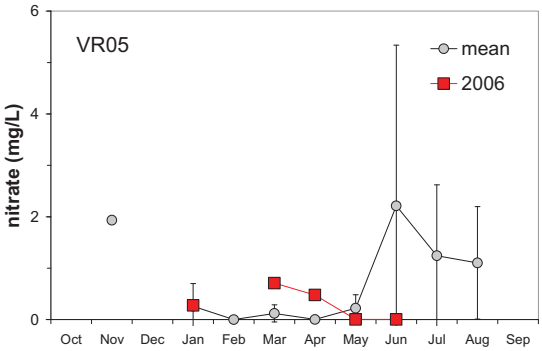
Nutrients in excessive amounts can cause *eutrophication*, defined as over-enrichment or over-fertilization of a lake or stream, which sets off a chain of undesirable events including accelerated plant growth, algal blooms, low dissolved oxygen and, if carried to extremes, the death of all oxygen-dependent aquatic life.

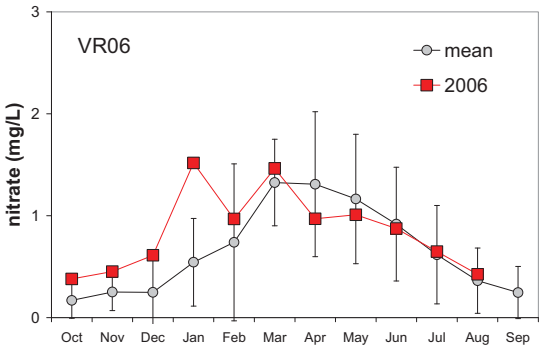

VR01
mean
2006
nitrate (mg/L)
0
1
2
3
4
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

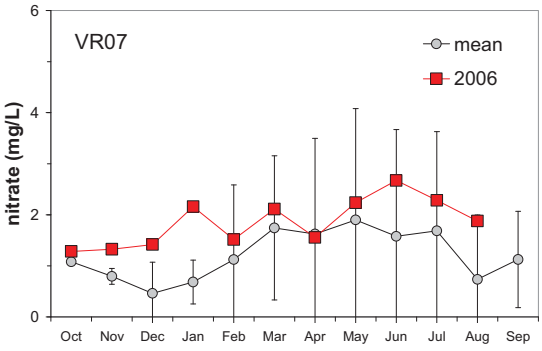

VR02
mean
2006
nitrate (mg/L)
0
1
2
3
4
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

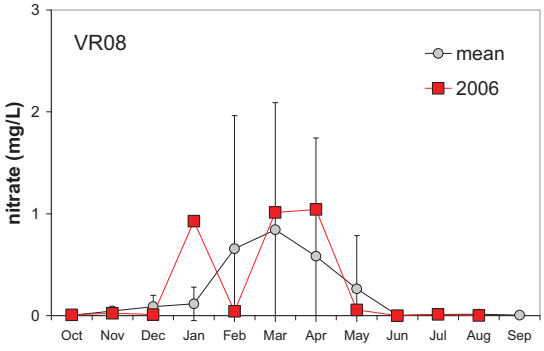

VR03
mean
2006
nitrate (mg/L)
0
2
4
6
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


VR04
mean
2006
nitrate (mg/L)
0
1
2
3
4
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


VR05
mean
2006
nitrate (mg/L)
0
2
4
6
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


VR06
mean
2006
nitrate (mg/L)
0
1
2
3
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


VR07
mean
2006
nitrate (mg/L)
0
2
4
6
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


VR08
mean
2006
nitrate (mg/L)
0
1
2
3
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

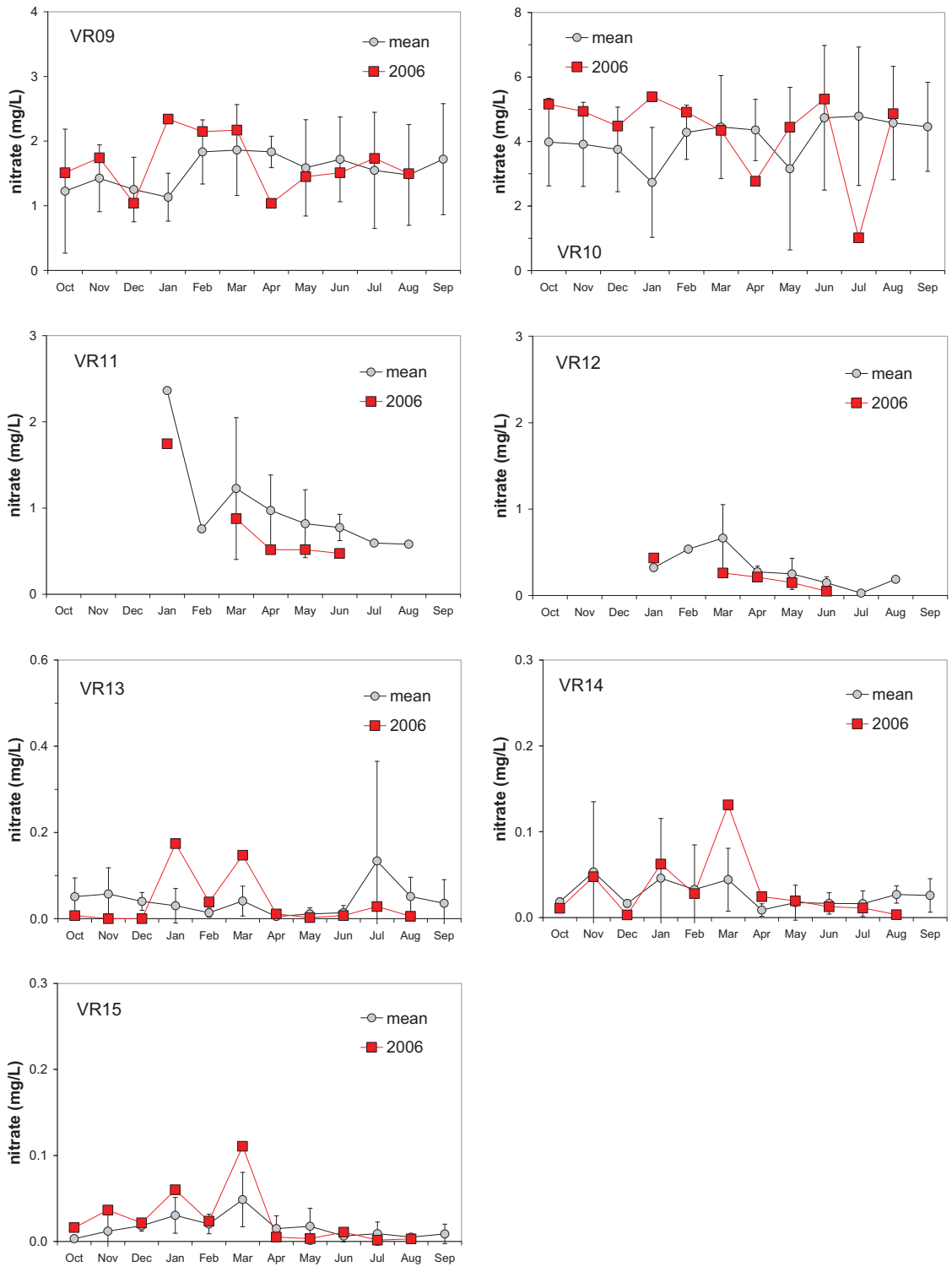


Figure 19. Monthly nitrate concentrations for Ventura Stream Team sampling locations during the 2006 water-year are shown, along with average monthly nitrate from 2001-2005. Error bars indicate the monthly standard deviation in mg/L.

Nitrate

Nitrate is the most important form of dissolved nitrogen in the Ventura River catchment: roughly 70% of the total dissolved nitrogen in river and stream samples is nitrate (ammonium contributes about 1% and organic forms make up the rest). 2006 monthly nitrate concentrations for Ventura Stream Team sampling locations are shown in Figure 19. Concentrations were generally similar to those of past years, i.e., within one standard deviation of the 2001-2005 average. Exceptions were VR01, VR02 and VR03, where lower than normal concentrations were seen during the fall of 2005 due to above average wet-year flows diluting the high-nitrate Ojai sewage treatment plant effluent that usually dominates these sites.

Elsewhere, higher wet-year flows usually produce increased nitrate while lower flows typically have lower, often near-zero, concentrations. Biological uptake (removal by plants, algae and critters) reduces the amount of available nitrate as water flows downstream, and since *amount* is the product of concentration multiplied by flow, the decrease in concentration is much greater when flows are low. This acounts for generally higher than average concentrations at locations with year-round flow (e.g., VR06-10 and on the Matilija) and lower at those that rapidly go dry (VR04-05 and VR11-12) (see Figure 20). Since biological uptake and lower flows are both more common in the summer, concentrations exhibit seasonal patterns at some locations, increasing during the winter from enhanced runoff and groundwater inflows and decreasing thereafter (i.e., VR06). Annual results, expressed as average water-year concentrations, are sumarized in Figure 20.

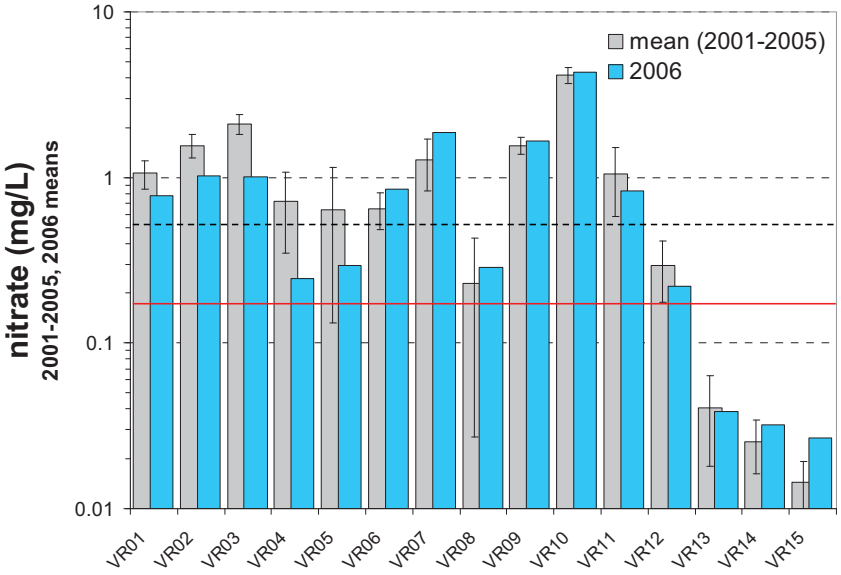


Figure 20. Average nitrate concentrations for the Ventura Stream Team sampling sites during the 2006 water-year are contrasted with average concentrations over the previous five years (2001-2005). The error bars indicate twice the standard error of the mean, i.e., the 2006 average would be expected to lie within these error bars, while anything beyond these limits could indicate a significant change. Note that most 2006 locations are generally within or below the error bars. The bold horizontal line marks the EPA's proposed limit for maximum nitrate in this region (0.16 mg/L); the dashed line is the recommended limit for nitrogen (0.52 mg/L). In 2006, nitrate typically made up about 80% of the total nitrogen in the Ventura system, so most sites considerably exceeded both the recommended nitrate and total nitrogen amounts. Only the higher elevation, relatively pristine, Matilija sampling sites consistently exhibit low nitrogen.

Note that nitrate concentration in the Ventura watershed vary considerably from location to location (Figures 19 and 20). The almost universal Public Health limit is 10 mg-N/L (10 milligrams of nitrogen per liter. However, 10 mg/L is far too much nitrate in terms of eutrophication and river health. The EPA has suggested standards for various eco-regions in the United States, and the goal for Ecoregion III, the xeric (dry) west, in which the Ventura River is located, is less than 0.38 mg/L of total nitrogen (US-EPA, 2000b). Notice that this is less than 4% of the Public Health nitrate limit (e.g., SWQCB-LA, 2001). Ecoregion III has been further divided by the EPA into sub-regions, and for the sub-region in which the Ventura lies (sub-region six) a slightly higher 0.52 mg/L limit has been proposed. Sub-region 6 also has a suggested nitrate limit of 0.16 mg/L. Both these limits are shown on Figure 20.

Considering this, the Matilija sites are in very good shape: nitrate concentrations are usually below the 0.16 mg/L benchmark and average annual concentrations are well below. All other sites have nitrate concentrations above the 0.16 limit: more than an order-of-magnitude greater in many cases. VR10 (Upper San Antonio Creek) continues to have the most severe excess nitrate problem on the river.

Phosphate

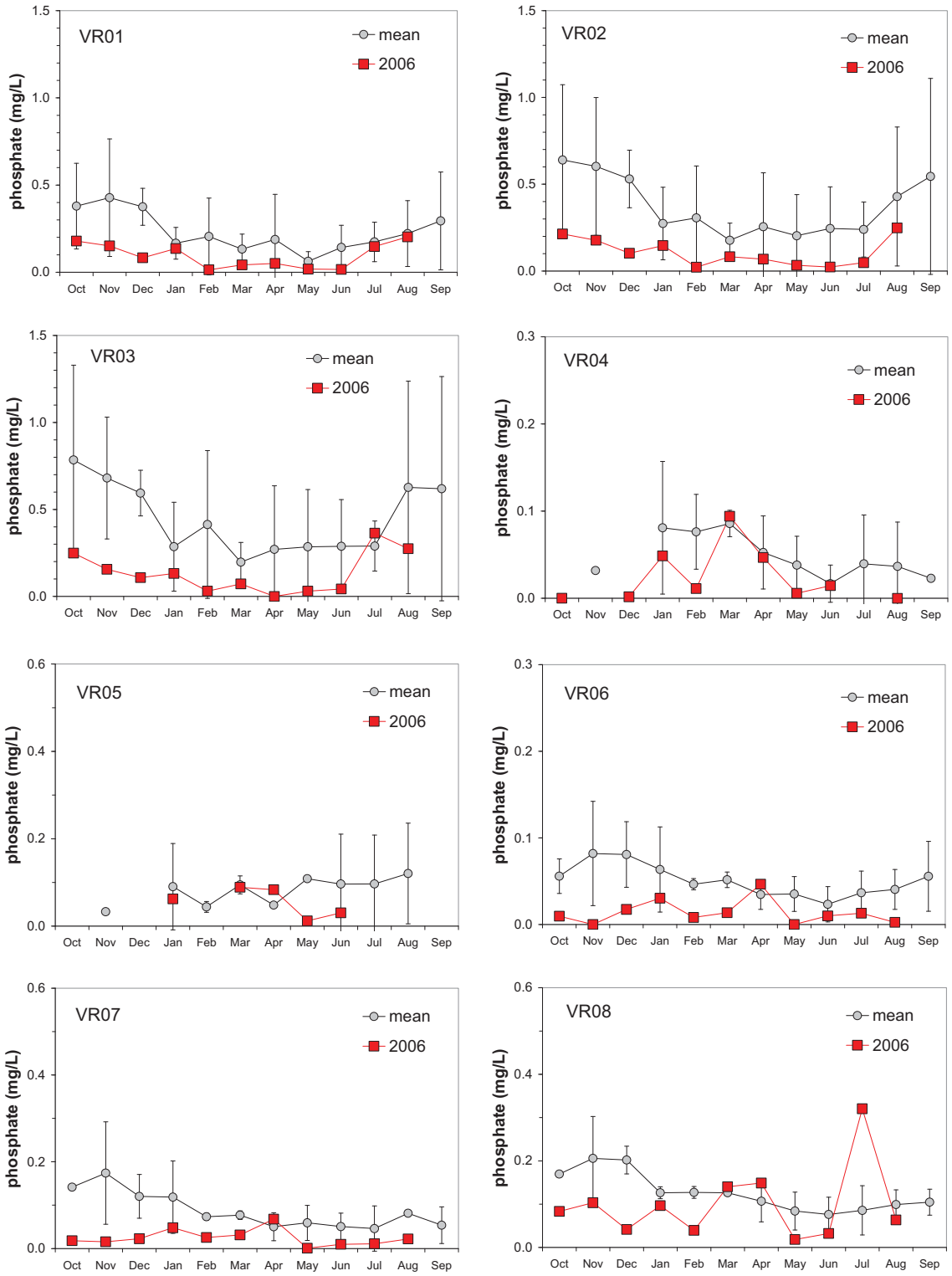
As with nitrate, a question arises of how much phosphorus is too much phosphorus? The EPA has recommended levels of maximum phosphorus concentration for streams in Ecoregion III: an overall recommendation of 0.022 mg/L, increased to 0.030 mg/L for the sub-region 6 that includes the Ventura (US-EPA, 2000b). We use 0.030 mg/L as a benchmark. All streams in Ventura and other watersheds in the area have high phosphate concentrations because phosphorus content is high in the marine deposits that make up a large part of the underlying geologic strata (Dillon, 1975; Grobler and Silberbauer, 1985; Schlesinger,1997); this is somewhat reflected in the increased sub-region 6 EPA limit.

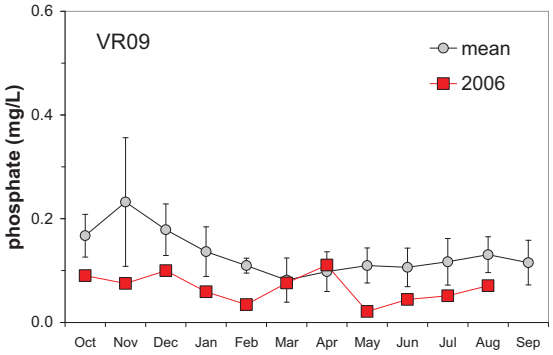
Figure 22 summarizes the 2006 phosphate results, showing annual mean phosphate concentrations at each location and contrasting them with the 2001-2005 average. The results are quite startling: *all* locations had significantly lower average phosphate concentrations than in previous years (2006 results are two or more standard errors below the 2001-2005 mean). The monthly data in Figure 21 verify this conclusion at almost every location. There are two possible explanations: less phosphate is getting into the Ventura River and its tributaries, and/or larger amounts are being removed by biological uptake and productivity.

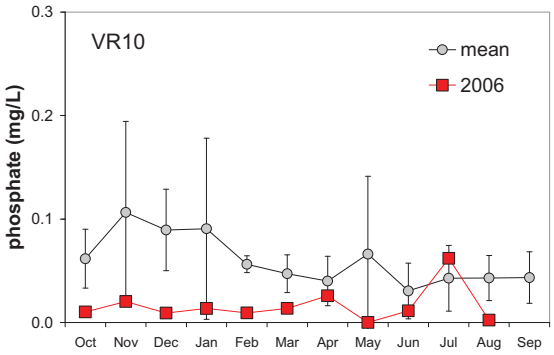
It is most likely a combination of these two reasons. The dry seasons of 2005 and 2006 were characterized by extraordinary algal blooms, and the increased uptake of phosphorus undoubtedly played an important role in reducing concentrations. It is biological uptake that gives form to the pattern seen with most of the average monthly data in Figure 21: lower concentrations during the dry season, with a low seen between April and June.

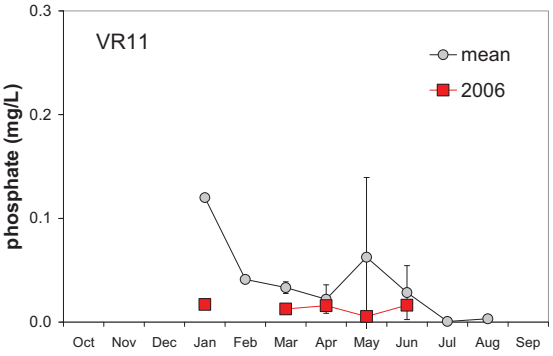
Exceptions to the pattern are usually samples taken during or soon after storms, because high phosphate concentrations are typically caused by high sediment loads. Phosphate molecules are easily attached to soil particles, and the width and condition of streamside buffer areas, the extent of stream bank armoring, and the proximity of un-vegetated, easily erodable soil to channel or storm drain inlet, as well as rainfall intensity, determine how much sediment ends up in the creek. This, in turn, drives the phosphate increase. This is particularly true of the first storm of the season, which usually moves a lot of sediment and accumulated debris in what were initially

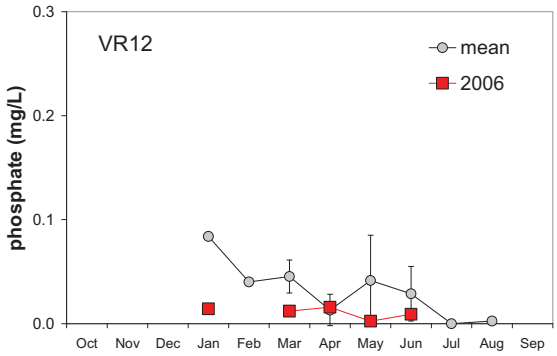
Figure 21. Monthly phosphate concentrations for Ventura Stream Team sampling locations during the 2006 water-year are shown, along with average monthly phosphate from 2001-2005. Error bars indicate the monthly standard deviation in mg/L.

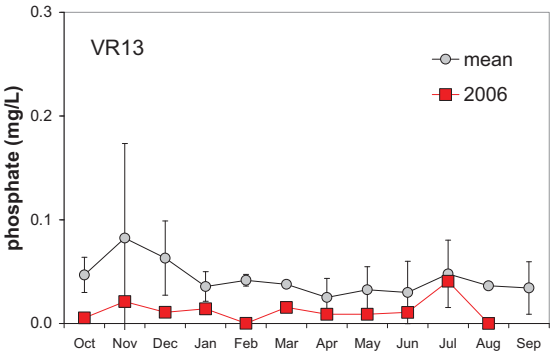


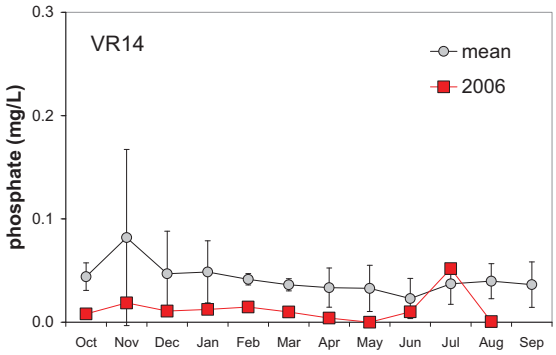

VR09
mean
2006
phosphate (mg/L)
0.0
0.2
0.4
0.6
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

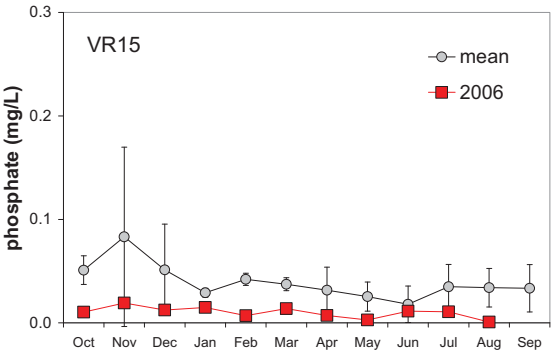

VR10
mean
2006
phosphate (mg/L)
0.0
0.1
0.2
0.3
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


VR11
mean
2006
phosphate (mg/L)
0.0
0.1
0.2
0.3
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


VR12
mean
2006
phosphate (mg/L)
0.0
0.1
0.2
0.3
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


VR13
mean
2006
phosphate (mg/L)
0.0
0.1
0.2
0.3
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


VR14
mean
2006
phosphate (mg/L)
0.0
0.1
0.2
0.3
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


VR15
mean
2006
phosphate (mg/L)
0.0
0.1
0.2
0.3
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

dry or near stagnant streams, explaining why the highest monthly concentrations are usually seen in October or November. In 2006, we saw the effect of storm-influenced concentrations in higher March and April values.

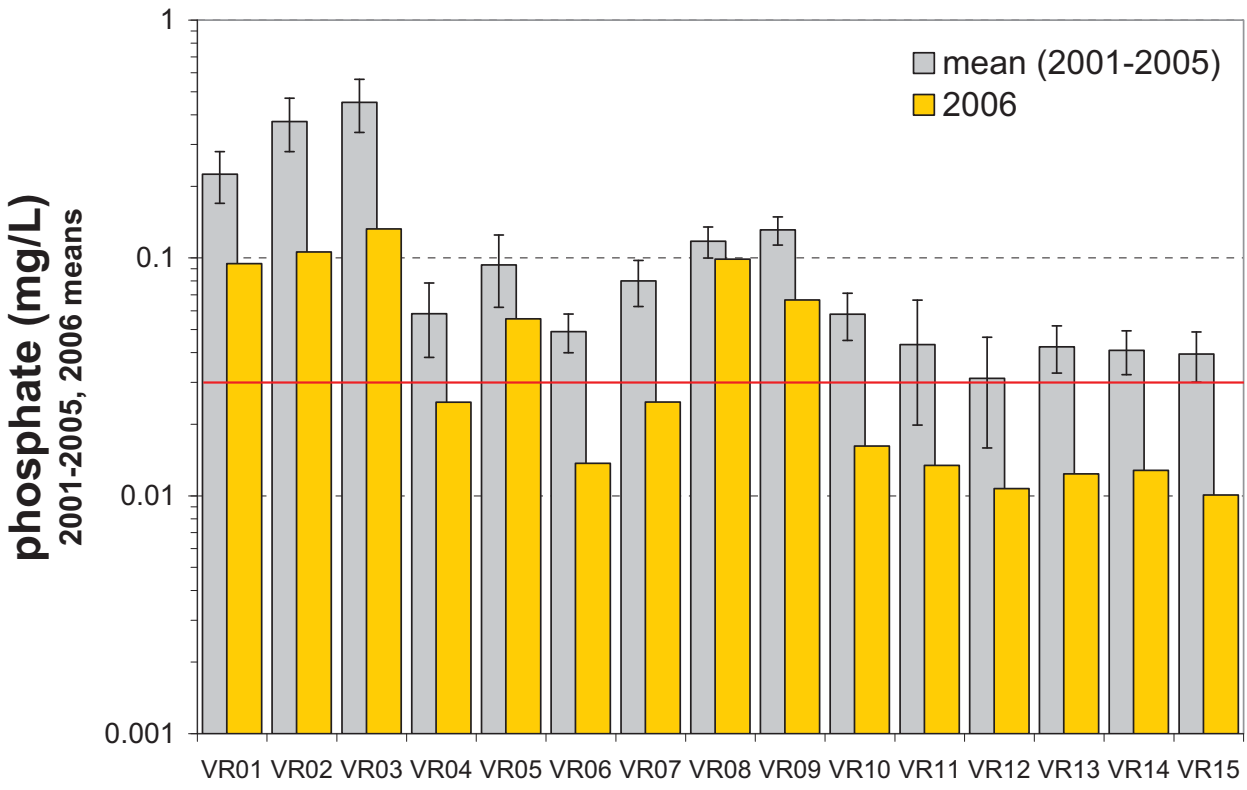


Figure 22. Average phosphate concentrations for the Ventura Stream Team sampling sites during the 2006 water-year are contrasted with average concentrations over the previous five years. The error bars indicate twice the standard error of the mean, i.e., the 2006 average would be expected to lie within these error bars, while anything beyond these limits could indicate a significant change. Note that almost all 2006 results are below the error bars, indicating unusually low phosphate. The heavy horizontal line mark marks the EPA's proposed limit for maximum phosphorus in this region (0.030 mg/L).

However, something else appears to be happening. Monthly phosphate concentrations since January 2001 (for locations with year-round flow) are plotted in Figure 23. The figure clearly shows a major shift taking place around April 2005, i.e., at the end of the 2005 rainy season. Along with increased uptake, it is probable that increased groundwater inflows, from a water-table recharged with low-phosphate runoff from 2005 storms, played a role since the effects extend beyond the growing season. This could be similar to the process used to explain the 2005 decrease in conductivity, and the slow rise since: shorter groundwater residence times within the underlying geologic strata leading to lower phosphate concentrations. Like conductivity,

phosphate concentrations in 2006 have shown an increase over those of the 2005 dry season. In addition to these other processes, dilution by above-average flows of the high-phosphate effluent from the Ojai sewage treatment plant contributed to lower concentrations at VR01, VR02 and VR03.

The results from 2001-2005 indicate that all sites typically had mean phosphate concentrations above the 0.03 mg/L phosphorus limit. However, lower phosphate in 2006 does not necessarily represent a dramatic improvement since phosphate alone is only part of the total phosphorus concentration in the stream or river, and organic phosphorus makes up the remainder; typically phosphate represents approximately 90% of the total phosphorus in Ventura nutrient samples.[7]

[7] Unfortunately, while total dissolved phosphorus (TDP; dissolved organic phosphorus is TDP minus phosphate) is measured in the UCSB nutrient analysis, the results are unreliable. TDP and phosphate are determined by different tests and sometimes the results show phosphate to be higher than the TDP concentration. Obviously, this cannot be true; something either went wrong or the precision of the analysis was not high enough to produce a satisfactory result. Error and imprecision are part of all laboratory analysis; a result is never simply a number, it is a number plus or minus some associated error. This is ordinarily expected to occur some of the time, particularly when overall concentrations are high, i.e., it happens about 4% of the time with nitrate and total dissolved nitrogen samples. Unfortunately, it happens almost half the time with phosphorus and indicates a real problem, one that the UCSB laboratory has not been able to solve; in 2006, 40 % of the TDP samples produced unacceptable results.

However, a high percentage of unacceptable results does not mean that an analysis is entirely meaningless. While any single result has to remain suspect, overall trends in the data are likely to reflect reality (based on the assumption that, in aggregate, "acceptable" results are likely to be either valid or, at worse, contain an error that always underestimates TDP – underestimates because that is the implication of many samples with TDP higher than phosphate). In 2006, samples with realistic values were concentrated in the months of October, January, April and May (samples later than May are, as yet, unavailable) – almost all samples from these months appear valid. Looking only at those results, the percentage of TDP contributed by phosphate was 65, 86, 49 and 26% for the respective months. Overall, acceptable 2006 samples contained an average of 60% phosphate, considerably lower than the 90% of previous years.

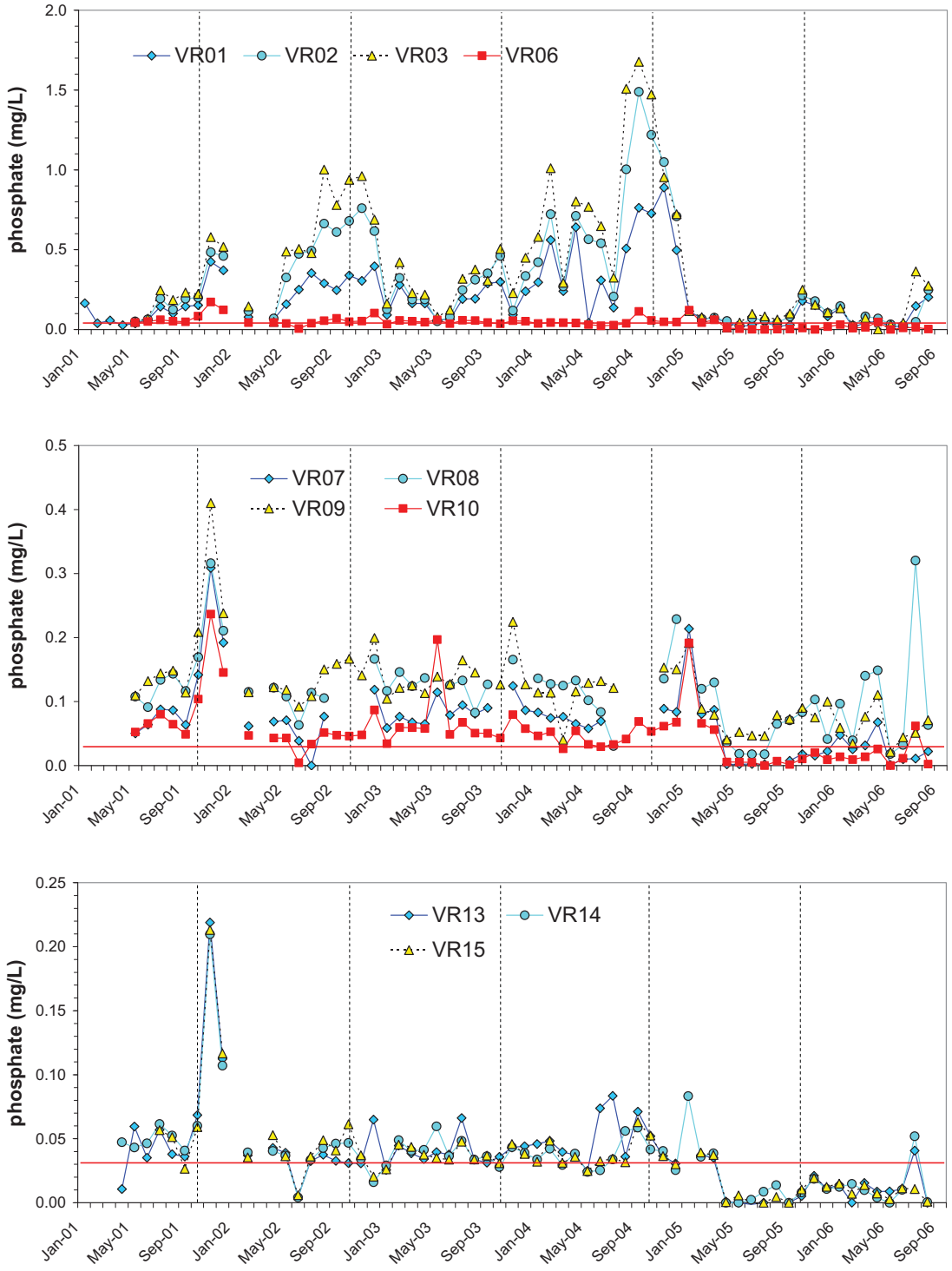


Figure 23. Phosphate concentrations, January 2001-August 2006. Dashed vertical lines mark the start of each water-year. The horizontal line marks the EPA proposed target for maximum phosphorus in this region, 0.030 mg/L (Ecoregion III, sub-region 6). The graphs show phosphate, which typically makes up approximately 90% of total phosphorus in the stream. Note that the graphs use different vertical scales.

The 2006 data reflect exactly what we might expect during a year with extensive algal uptake: more organic phosphorus than phosphate during the most productive months. During their life-cycle, algae and other aquatic organisms preferentially take up phosphate while living and then release organic phosphorus when they shed, die or decay, thus during highly productive periods, phosphate declines while organic phosphorus concentrations increase.

This complicated and convoluted explanation is simply preparation for a basic point: although phosphate concentrations declined in 2006, the overall phosphorus situation may not have substantially improved because an increase in organic phosphorus accompanied the phosphate decline. We are unable to accurately measure actual organic phosphorus concentrations because of the problematical TDP analysis, but know the increase was appreciable. Even considering phosphate alone, six sites, VR01-03, VR05, VR08 and VR09 had concentrations higher than would be deemed acceptable for total phosphorus. The river reach below the Ojai sewage treatment plant continues to have the highest phosphate concentrations in the watershed.

Combining Nitrate and Phosphate

Living organisms need both nitrogen (N) and phosphorus (P), and it is necessary to consider both nutrients in combination. Absent *either* nitrogen or phosphorus, a plant or alga needing both can not grow. Oceanic plankton need N and P in a ratio of 16 atoms of nitrogen to one atom of phosphorus, this ratio, 16:1, is named after its discoverer, the “Redfield ratio” (Sterner and Elser, 2002). For freshwater organisms, the average ratio is closer to 30:1 (Nordin, 1985; Sterner and Elser, 2002). Less than 30:1 means some of the phosphorus goes unused, greater than 30:1 and nitrogen is under-utilized. The first case is called N-limited, the second, P-limited, referring to which nutrient is found in limited amounts and thus controls growth. This is an important concept in stream ecology since unused nutrients cannot contribute to eutrophication and its associated problems (Borchardt, 1996).

However, there are exceptions. Some aquatic plants and algae don’t get nitrogen from the water, but have the ability “fix” nitrogen from the air, in other words, convert nitrogen gas into ammonia, and then use ammonia for cell metabolism. Ammonia is an important source of N, normally found only in low concentrations in the Ventura watershed (typically around 1-2% of the nitrate concentration). These organisms are literally accompanied by their own nitrogen supply since attached symbiotic bacteria do the actual work. Plants and algae with this relatively rare ability are normally not very competitive in aquatic environments where dissolved nitrogen is abundant, but when nitrogen becomes limiting they come into their own. Because plants, algae and micro-organisms are the foundation of the aquatic food chain, it is important to know which assemblage of species provides this function, and the type of nutrient limitation and its severity, help to determine this.

Channelkeeper's Ventura Stream Team sampling locations provide examples of both N-limitation and P-limitation, and at some sites the situation flips back and forth. Figure 24 shows median nitrate to phosphate ratios for 2006 and prior years. Error bars mark the quartile points, i.e., the middle 50% of all monthly results fit between these limits. In the figure, the Matilija sites and VR08 have very low ratios; these locations are always N-limited. Conversely, VR10 is always P-limited. At the other locations nitrogen and phosphorus are either roughly in balance or the stream in these areas bounces back and forth depending on circumstances.

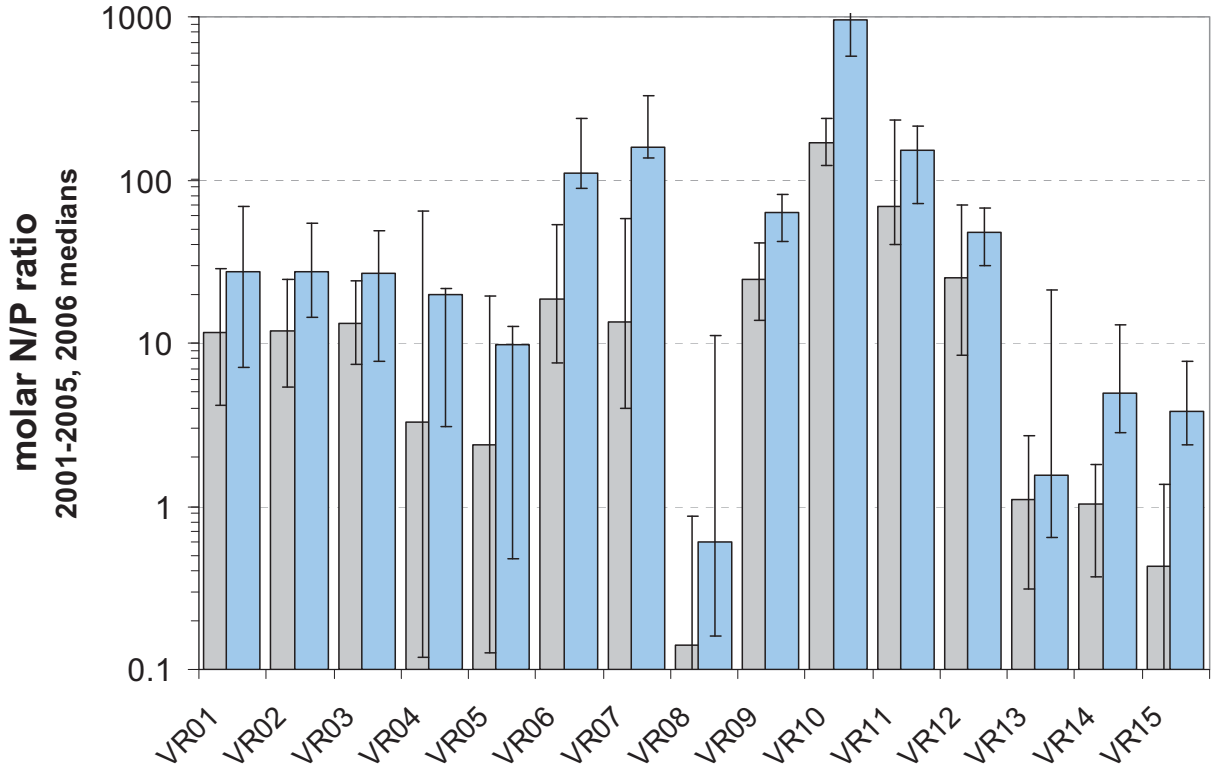


Figure 24. Median nitrate to phosphate ratios for the Ventura Stream Team sampling sites, 2001-2005 and 2006. Life requires both nitrogen and phosphorus, but in different amounts. Plankton, on which the oceanic food chain is based, use nitrogen and phosphorus in a ratio of 16 molecules of nitrogen to one of phosphorus; this is known as the "Redfield Ratio." In creeks and rivers, the ratio is closer to 30:1 and is indicated by the horizontal bar in the figure. The nitrate to phosphate ratio is being used as an approximation of the nitrogen to phosphorus ratio; on average, nitrate is approximately 85% of the total nitrogen and phosphate 90% of the total phosphate in Ventura Stream Team samples). The Matilija tributaries and Lion Canyon are severely "nitrogen limited," meaning that while phosphorus is plentiful, nitrogen is often exhausted. VR10, below Ojai, is "phosphorus limited". All other locations move across the boundary depending on time of year, typically being phosphorus limited during winter and spring, nitrogen limited in summer and fall. The error bars indicate the quartile points, i.e., 50% of the monthly N/P ratios for that location lie within the band represented by the error bar. In 2006, N/P ratios noticeably increased above long-term mean values, mainly as a result of lower than usual phosphate concentrations (see Figure 18).

Relatively dry winters typically produce N-limited conditions, mainly due to reduced inflows of nitrate in storm runoff (recall that approximately 30-times more nitrogen than phosphorus is needed for balance). Wet winters usually produce plenty of high-nitrate groundwater inflows and runoff, resulting in P-limitation. 2006, with reduced phosphate concentrations probably shifted the entire system towards P-limitation. Comparing dry-season (June-September) nutrient ratios, Figure 25 illustrates the changes that occurred from 2004 (a low rainfall year) through 2006. It is important to stress the word "probably" since we have only limited knowledge of

organic phosphorus concentrations: the TDN to TDP ratio is usually a better predictor of nutrient status than the nitrate: phosphate relationship used here.[8]

While nutrient concentrations can determine the nature of the aquatic community and whether or not algae thrive, other factors are equally important. Flow controls the extent of habitat availability and the amount of sunlight sets an upper limit on primary productivity. In many parts of the watershed, overhanging vegetation and trees restrict available sunlight, retarding algal growth which, given the over-abundance on nutrients in the Ventura River watershed, is no small thing.

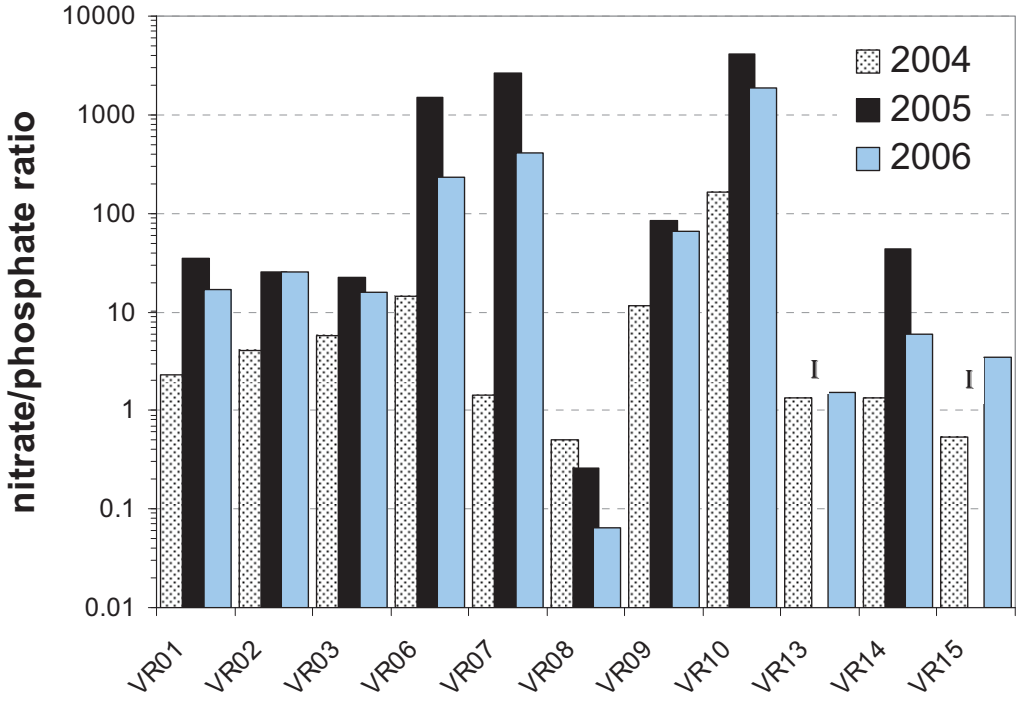


Figure 25. Average dry-season (June through September) nitrate to phosphate ratios for 2004, 2005 and 2006. The horizontal bar marks the approximate 20:1 to 30:1 zone where both nutrients are in balance. The letter "I" indicates sites where phosphate concentrations fell below detection limits (< 0.3 µM) and the N:P ratio was indeterminate. In 2005, increased nitrate concentrations and heavy algal growth following a wet winter produced a substantial increase in N:P ratio at all locations except VR08 (Lion Canyon). Wet years flush out the nitrogen accumulated in higher elevation chaparrel during dry spells, increasing nitrate concentrations in both storm runoff and groundwater seepage. Increased algal growth - which follows a wet winter due to greater availability of nitrogen, sunlight and favorable habitat - disproportionately reduces stream phosphate concentrations. 2006 is an example of the gradual return to conditions seen in 2001-2004: growing season N:P ratios remain high because of heavy algal growth, but they have decreased from the level seen in 2005 as nitrate becomes less plentiful and growing aquatic vegetation reduces available algal habitat.

[8] Figures 24 and 25 use molar ratios, where the concentrations of nitrate and phosphate were expressed in µM – micromoles per liter – before dividing one by the other. The µmole, a measure of the number of atoms, is more useful when comparing the proportions of nutrients; 1 mg/L of nitrate as nitrogen is equal to 72 µM, 1 mg/L of phosphate as phosphorus equals 32 µM.

Bacteria[9]

Members of two bacteria groups, the coliforms and fecal streptococci, are used as indicators of possible sewage contamination because they are commonly found in human and animal feces. Although they are generally not harmful themselves, they indicate the potential presence of pathogenic (disease-causing) bacteria, viruses, and protozoans that also live in human and animal digestive systems. Their presence in water suggests that pathogenic microorganisms might also be present and that contact with these waters could be a health risk. Since it is difficult, time-consuming and expensive to test directly for a large variety of pathogens, water is usually tested for coliforms and fecal streptococci instead. Channelkeeper analyzes monthly samples for three types of bacteria:

Total Coliform: Total coliforms are a large and widespread group of bacteria that occur in human feces, but are also found in animal manure, soil, vegetation, submerged wood, and in other places outside the human body. They are no longer recommended by the EPA as an indicator for freshwater but remain the standard test for drinking water because their presence indicates contamination of a water supply by some outside source. California still requires the total coliform test for recreational waters because the *ratio* of fecal to total coliforms remains a good indicator of swimming related illness.

E. coli: A species of coliform bacteria specific to fecal material from humans and other warm-blooded animals, *E. coli* is recommended by the EPA as the best indicator of health risk from water contact in freshwater: California still allows the broader, and older, fecal coliform test.

Enterococcus: A relatively human-specific subgroup of fecal streptococci with an ability to survive in salt water, enterococci mimic many pathogens more closely than the other indicators. The EPA considers enterococci the best indicator of health risk in saltwater and as a useful indicator for freshwater as well.

Bacteria are reported as the "*most probable number*" (MPN) of bacteria in 100 milliliters (ml) of water (100 ml is about 4 ounces). Channelkeeper uses a statistical test instead of directly counting bacteria so the reported number is actually a statistical estimate. California Public Health requirements for bacteria counts are complicated and vary somewhat by jurisdiction; what follows is an amalgam of EPA recommendations and various California standards. Generally, there are two limits for each test, a single sample limit and a limit for a geometric average of five or more samples collected over a period of either five weeks or a month.[10]

For freshwater recreational use, the total coliform limits are "not to exceed 10,000 per 100 ml in a single sample, and a geomean of less than 1,000." For *E. coli* the geomean requirement is less than 126 bacteria/100 ml of water and the single sample limit varies from 235 to 500 depending on intensity of use (not to exceed 235 for beach areas, 576 for occasional recreational use). For enterococcus the "geomean average of five or more samples" limit is less than 33/100 ml and the single sample limit can vary from 61 to 151/100 ml, again depending on frequency of use.

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[9] US-EPA (2002 and 2004), SWQCB (2003 and 2004), and SWQCB-LA (2001) were used as references for this section. There are significant differences between EPA indicator bacteria guidelines and current California State regulations. The regulatory situation is in a state of flux and the following narrative should be considered a reasonable overview and not taken as definitive.

[10] The "geometric average" or "geomean" is calculated by converting bacteria counts into logarithms, averaging the logarithms, and then converting that average back to a regular number. The geomean reduces the influence of very high or low numbers – which might unfairly represent aberrant samples.

The total coliform limits are a geomean of less than 1,000 with single samples not to exceed 10,000, *as long as the fecal/total coliform ratio is less than 0.1* (in other words, as long as less than 10% of the coliforms are of fecal origin). If the ratio rises above 0.1, then the single sample limit decreases to 1,000.[11]

Since Channelkeeper only samples once a month, using "average geomean" standards would be inappropriate. However, the geomean concept, of reducing the importance of occasional very high or very low samples, is a useful tool. Accordingly, geomean values for all samples collected at each Ventura location during the 2006 water-year are shown, for each of the three types of bacteria, in Figures 26 and 27. For comparison, geomeans calculated from data collected from January 2001 through September 2005 are also exhibited. Fecal to total coliform ratios for both 2001-2005 and 2006 are included in the lower panel of Figure 27. The single sample standards discussed above are shown as horizontal lines on the charts.

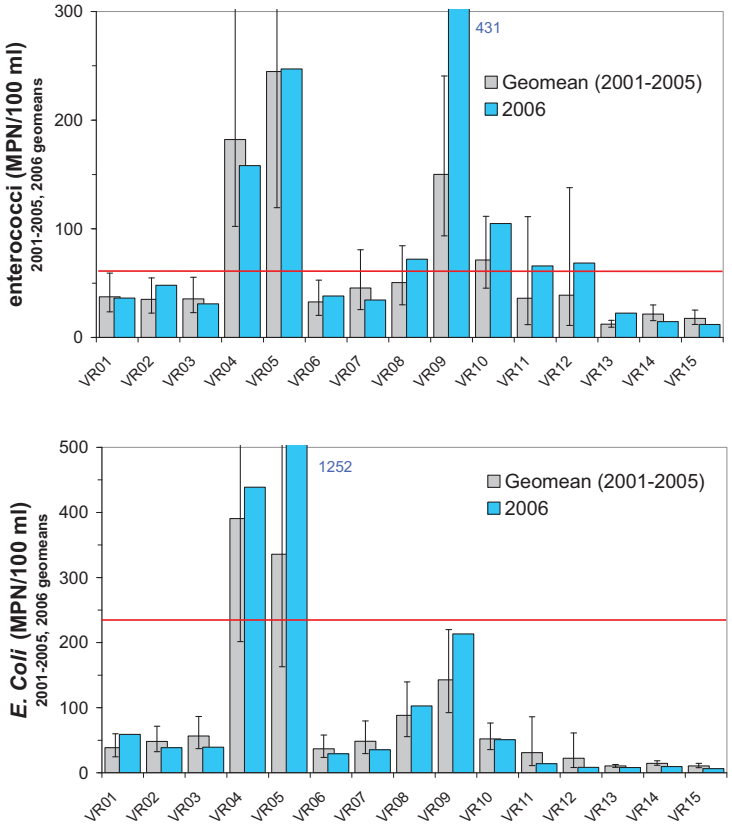

Figure 26. 2006 geomean enterococci (upper panel) and *E. coli* (lower panel) concentrations compared with geomeans from 2001-2005. Error bars represent the 95% confidence interval for the long-term geomeans. Solid horizontal lines mark the EPA's recommended freshwater beach Public Health limits for maximum enterococcus (61 MPN/100 ml) and *E. coli* (235 MPN/100 ml).

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[11] The most recent Basin Plan update for the Los Angeles Regional Water Quality Control Board, which sets standards for Ventura, requires, for water-contact recreation in freshwater, a single sample *E. coli* limit of 235 and a 30-day geomean below 126. In marine waters, the single sample enterococcus number is not to exceed 104 with a 30-day geomean limit of 35; single total coliform samples have a limit of 10,000 and a 30-day geomean requirement of 1,000, unless the ratio of fecal to total coliform exceeds 0.1, in which case the single sample total coliform limit is reduced to 1,000. Currently, the Los Angeles Regional Water Board does not have a freshwater standard for either enterococcus or total coliform. It does, however, retain a fecal coliform requirement of 400 for a single sample, 200 for the geomean. Agencies are allowed to use either the fecal coliform or *E. coli* test.

The error bars in Figures 26 and 27 indicate the 95% confidence interval of the long-term geomeans. Think of this as similar to the "twice the standard error of the mean" criteria shown in previous figures. Both indicate the bounds within which an annual geomean might be expected to vary. Note that in 2006, enterococcus and total coliform counts at VR09, and *E. coli* counts at VR05, were significantly higher than past results. Geomeans for 2006 at all other locations were consistent with past results (enterococcus did show a significant increase at VR13).

When it comes to determining which locations generally have the highest levels of bacteria, there is relatively good agreement between all three tests, but in terms of which sites meet the standards for freshwater recreation (using single sample standards of 61 enterococci, 235 *E. coli* and 10,000/1,000 total coliforms as criteria) the results present a mixed picture. All three tests agree that VR04 and VR05 (Canada Larga) are highly polluted and do not meet any standard. However, while VR09 and VR10 (Pirie and Upper San Antonio creeks) usually fail to meet the enterococci standard, they have acceptable levels of *E. coli* and total coliform (2001-2005 geomeans). In 2006, VR08 through VR12 generally exceeded the enterococcus limit, but not that for *E. coli* or total coliform.

This is not an unusual result. Studies show that while there is usually agreement between the three tests at either highly polluted or pristine locations, they can appreciably disagree at sites that lie in the middle (Kinzelman, 2003; Nobel et al., 2003). As to why the enterococcus standard is often exceeded in Channelkeeper results while the *E. coli* limit almost never is, it is possible that enterococci are able to live and reproduce in some local waters during the summer. Predation is the primary driver that removes indicator organisms from open water and not adverse environmental conditions (Rassoulzadegan and Sheldon, 1986), and research has shown that coliforms and enterococci can often survive, grow (Francy et al., 2000; Nasser and Oman, 1999) and reproduce in plants and soil (Solomon et al., 2002; Hardina and Fujioka, 1991; Marino and Gannon, 1991).

In any event, aside from VR04, VR05 and possibly VR09, all other Ventura locations are generally safe for water-contact recreation; test results at these sites usually have no problems meeting the applicable *E. coli* standard. Figure 28 repeats the 2006 results: annual geomeans for *E. coli* and enterococcus, as well as the fecal to total coliform ratio, are shown in the upper panel, while all three indicator bacteria are shown in the lower.[12]

[12] Channelkeeper does not actually test for fecal coliform, instead the *E. coli* values have been multiplied by 1.7 to estimate fecal coliform concentrations (this assumes that a fecal coliform sample would consist of approximately 60% *E. coli*; this equivalency is the value assumed by most regulatory standards and is a conservative estimate; see also Cude, 2005.

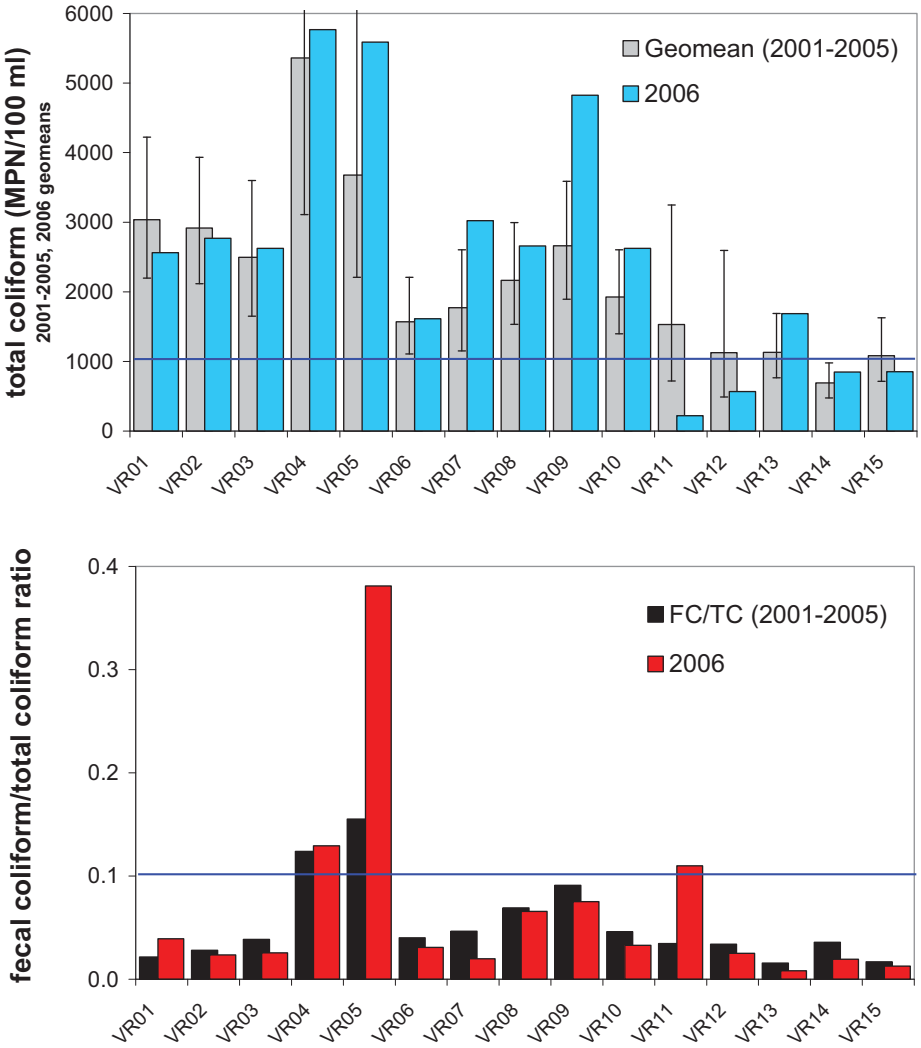

Figure 27. *Upper panel*: 2006 geomean concentrations for total coliform compared with 2001-2005 geomeans. Error bars represent the 95% confidence interval for the long-term geomeans. The California limit for total coliform is 10,000 MPN/100 ml.
Lower panel: 2006 and 2001-2005 fecal to total coliform ratios (the California limit for total coliform decreases to 1,000 MPN/100 ml if the fecal coliform/total coliform ratio exceeds 0.1 (horizontal line)).

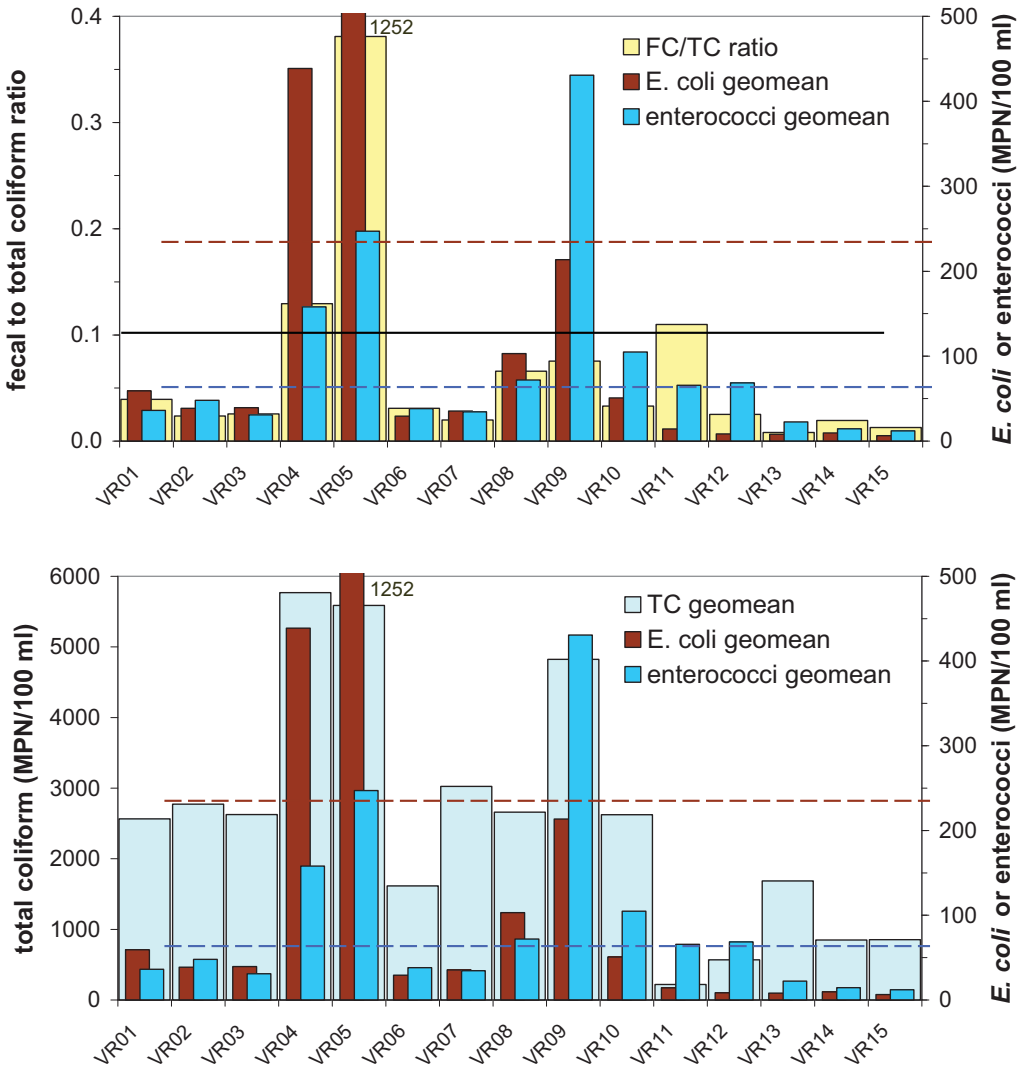

Figure 28. *Upper panel*: The average 2006 fecal to total coliform ratio with *E. coli* and enterococci concentrations (as geomeans). Dashed horizontal lines mark the EPA's recommended freshwater beach Public Health limits for maximum enterococcus (61 MPN/100 ml) and *E. Coli* (235 MPN/100 ml). The California limit for total coliform (10,000 MPN/100 ml) decreases to 1,000 (indicating a pollution problem) if the fecal coliform/total coliform ratio exceeds 0.1 (solid line).
Lower panel: Total coliform, *E. coli* and enterococci geomean concentrations, 2006.

Summary of Results: Problem Areas

In this section, Channelkeeper's 2006 sampling results are reviewed to identify problems and potential causes. Problem locations indicated by abnormal physical parameter values (conductivity, water temperature, *p*H and turbidity) are summarized in Table 1.

Excessively high conductivities can signify any combination of waste flows and dry-season runoff containing high concentrations of dissolved salts, high evaporation rates occurring under stagnant conditions, and possibly, dissolution of cement by trickling flows in concrete channels.

Table 1. Physical parameters. Numbers in the table are calculated criteria values that identify specific problems during 2006 at the Ventura sampling sites. Column headings show the parameters, measurement units and the criteria used flag problem areas. Values in parentheses are those from the 2001-2005 report. The specific criteria were: (1) median conductivity > 2,000 µS/cm; (2) 10% of monthly water temperatures ≥ 26.4°C; (3) 10% of monthly *p*H values > 8.5; and (4) median non-storm turbidity > 1.9 NTU.

	µS/cm	percent	percent	NTU
	median	10 % ≥ 26.4 °C	10 % ≥ 8.5	median
site	**conductivity**	**temperature**	***p*H**	**turbidity**
VR01			33% (*12.3%*)	2.0
VR02			45% (*25.0%*)	
VR03			33% (*15.8%*)	2.3
VR04	2,534 (*2,663*)	13%	11%	
VR05	2,760 (*3,048*)	20%		3.5
VR06				
VR07				
VR08				
VR09				
VR10				
VR11				
VR12				
VR13				
VR14				
VR15				

Canada Larga is the only Ventura tributary with excessive conductivity. The probable causes are grazed pasture runoff at the upper site and industrial nuisance flows at the lower. Both locations are prone to low flows with high evaporation, and the concrete canal above VR05 may also contribute to the problem. The criterion used to identify excessive conductivity was a median value greater than 2,000 µS/cm (25% above the maximum limit for domestic water supplies). Although conductivity during 2006 at VR08 and VR09 did not exceed the 2,000 µS/cm standard, high median conductivities (1604 at VR08, from pasture runoff and high evaporation, and 1,650 at VR09) are of some concern.

The criterion for water temperature was a statistical test; if 10% of the monthly values were equal to or exceeded 26.4°C, it was judged excessive (26.4 is 10% higher than the maximum temperature benchmark of 24°C used earlier). Excessive temperatures are caused by un-shaded, shallow trickling flows, i.e., the absence of riparian vegetation. Both VR04 and VR05 had excessive temperatures in June 2006; at no other sites did recorded temperature exceed 26.4°C.

The similar criterion was used for *p*H: excessive pH was identified as greater than 10 percent of the monthly values exceeding 8.5 (8.5 is the SWQCB-LA upper limit for surface waters). Excess *p*H in the Ventura River and its tributaries is almost always caused by algal blooms.

High *p*H on the lower river in 2006 (VR01-03) and at VR04 was due to excessive algae throughout the summer.

Excessive turbidity was identified as non-storm median values exceeding the suggested EPA limit of 1.9 NTU. Failed sites are usually characterized by either periodic disturbance or relatively stagnant waters and excessive biological productivity (the presence of microscopic algae and bacterial films at the site or immediately upstream). VR01, VR03 and VR05 exceeded the 1.9 NTU criterion in 2006. Cattle were probably responsible at VR05 and there is some as yet unknown source of disturbance upstream of VR01. It is possible that Ojai sewage treatment plant outflows may bear some responsibility for higher turbidity at VR03.

Biological problems, identified by aberrant parameter values and concentrations (nitrate, phosphate, minimum dissolved oxygen and excessive DO saturation), are summarized in Table 2. Excessive biological productivity or eutrophication is the major biological problem identified by Channelkeeper's sampling. Excessive nutrient concentrations are major causal factors and both minimum DO values and excessive DO saturation pinpoint the deleterious effects. The criteria used to identify excessive nutrients were median nitrate concentrations above 0.52 mg/L and median phosphate concentrations above 0.030 mg/L. These limits are, respectively, the suggested EPA values for nitrogen and phosphorus in the Ventura region. As applied here, they are slightly less conservative since they evaluate only the nitrate and phosphate fractions of these elements.

Almost all sampling locations have excessive nutrients. To distinguish locations and reaches with severe concentrations *far above the norm* are shown in red: we have defined far above the norm as five times the EPA limit. Urban and agricultural runoff are the major causes of high nitrate at VR09 and VR10 (below Ojai) if the definition of agriculture is extended to include "urban agriculture," i.e., runoff from the fertilization and over-watering of lawns, landscaping, parks and golf courses. However, on the lower river (VR01-03), treated sewage effluent is the primary source of high nitrate. VR07 and VR06 also had excessive nitrate in 2006, probably caused by greater contributions from upstream sites on San Antonio Creek and increased groundwater inflows. Other sources contribute to the overall nitrate problem in the Ventura watershed: deposition of airborne pollutants, auto emissions, high groundwater concentrations from past land use, etc. However, the effects of these inputs are mainly noticed during storms and the rainy season, whereas the majority of Channelkeeper sampling takes place during the dry weather – when nuisance urban flows and the discharge of treated sewage effluent dominate.

Channelkeeper's 2006 results demonstrate a substantial improvement in phosphate concentrations on the Ventura River. Previously, every sampling location had problems with high phosphate – all sites having median phosphate concentrations that exceeded the EPA recommended limit for total phosphorus. This is primarily a consequence of natural geological conditions in the watershed. However, the release of treated sewage effluent above VR03 adds considerably to the problem on the lower river (VR01-03). In 2006, only six of the fifteen sampled locations had excessive phosphate. Other than VR01-03, these were VR05, VR08 and VR09. The probable cause at VR08 and VR05 is animal waste from cattle and horses. The precise cause of high phosphate concentrations at VR09 remains unknown, but urban agriculture (fertilizer, pesticides, etc.) and domestic pets and horses undoubtly contribute. It is important to stress the caveat stated in the section on phosphate: that the overall phosphorus situation may not have improved as much as decreases in phosphate concentrations indicate because an increase in

organic phosphorus, which we were unable to accurately measure, accompanied the phosphate decline.

Table 2. Biological parameters. Numbers in the table are calculated criteria values that identify specific problems at Ventura Stream Team sampling sites in 2006. Values in parentheses are those from the 2001-2005 report. Column headings show the parameters, measurement units and the criteria used flag problem areas. The specific criteria were: (1) median nitrate > 0.52 mg-N/L; (2) median phosphate > 0.03 mg-P/L; (3) greater than 5% of monthly DO < 5 mg/L and a minimum DO ≥ 4.0; and (4) 10% of the monthly values exceeding 120 % DO saturation. Particularly egregious results are shown in bold.

	mg-N/L	mg-P/L	% (mg/L)	percent
	median	median	5% < 5 (min)	10% < 120%.
site	**nitrate**	**phosphate**	**minimum DO**	**% DO sat.**
VR01	0.66 (*1.04*)	0.083 ***(0.164)***		**80% (*26.3%*)**
VR02	0.85 (*1.67*)	0.083 ***(0.270)***	{*8.1 % (4.0)*}	**64% (*37.5%*)**
VR03	0.85 (*2.00*)	0.108 ***(0.312)***		**55% (*22.8%*)**
VR04		(*0.044*)	{*10.8 % (3.5)*}	(*12.9%*)
VR05		0.062 (*0.080*)		
VR06	0.87	(*0.044*)		**27% (*31.6%*)**
VR07	1.88 (*0.66*)	(*0.076*)	{*11.1 % (3.9)*}	**50%** (*14.9%*)
VR08		0.083 (*0.121*)	{*11.1 % (3.9)*}	**20%** (*11.1%*)
VR09	1.51 (1.44)	0.071 (*0.124*)		
VR10	**4.68 (*3.75*)**	(*0.051*)		
VR11	(*0.87*)	(*0.033*)		(*11.8%*)
VR12		(*0.034*)		(*11.8%*)
VR13		(*0.037*)		
VR14		(*0.039*)		
VR15		(*0.036*)		17 % ***(23.4%)***

Actual rather than potential algal problems can be identified by dangerously low levels of dissolved oxygen and excessive oxygen saturation. Two criteria were used to identify low DO: (1) minimum concentrations equal to or below 4 mg/L, and (2) greater than 5% of the monthly values lower than 5 mg/L. The criterion for percent saturation was greater than 10% of the monthly values exceeding 120% saturation. Locations where more than 20% of monthly DO saturation exceeded 120% are identified in bold.

The DO criteria are somewhat contradictory, as excessive percent saturation values are likely to be found only during daylight, while minimum DO concentrations generally occur at night. Since almost all Channelkeeper sampling currently takes place in daylight, excessive % saturation is the better metric. With continued pre-dawn sampling and the further accumulation of this type of data, a better minimum DO criterion can be established. At present, only problem locations with relatively deep stagnant waters and with high concentrations of bacteria can be identified by minimum DO levels. It is for this reason that different problem areas have been identified by each of the two parameters. This is particularly true for locations with the most egregious percent saturation values - where low DO concentrations are unlikely to be found during daylight hours.

In 2006, no locations had DO concentrations below 5 mg/L. The lowest recorded concentration was 5.59 mg/L in October 2005 at VR08. However, as indicated by the percent oxygen saturation, excessive algal growth in 2006 was a problem throughout the watershed. The lower Ventura River (VR01-03 and VR06), lower San Antonio Creek (VR07), Lion Canyon (VR08) and Matilija Creek above the reservoir have the greatest problems with over-saturation. These problem locations all feature open reaches with high levels of sunlight. High nutrient levels at VR01-03 undoubtedly contribute, and the algal problem at these three locations is the primary cause of excessive *p*H (Table 1). Although critically low values of "just before sunlight" dissolved oxygen were not investigated in 2006 at these sites, we suspect they may have3 occasionally occurred.

Finally, indicator bacteria concentrations and the fecal to total coliform ratio (FC/TC) were used to identify public health threats. Results are summarized in Table 3. Geomean concentrations above acceptable EPA, County or State of California limits were used as selection criteria to identify locations unsuitable for water contact recreation. This may be too high a standard since these concentrations (*E. coli* < 235 MPN/100 ml; enterococci < 61; total coliform < 10,000, 1,000 if FC/TC > 0.1) are applicable to freshwater public beaches. Accordingly, egregious sites (in bold) are identified as those which exceed a lower standard, identified by the EPA as "infrequent full body contact recreation" - *E. coli* < 576 and enterococci < 151 MPN/100 ml.

Very few sites fail to meet Public Health standards for swimming, and only VR04 and VR05 (Canada Larga) may present a true hazard for occasional recreational users – the most likely form of public contact with these waters. *E. coli* is judged by the EPA as the best freshwater indicator of problems, and only these two locations had concentrations consistently exceeding the "infrequent use" standard. Some of the possible reasons for high enterococci counts at VR09 and VR10 were discussed in earlier sections of the report; high enterococci numbers may not be related to actual pathogenic pollution problems. The very high FC/TC ratios at Canada Larga probably result from cattle grazing and are an additional reason for occasional visitors to be wary around this stream.

Table 3. Public Health parameters. Numbers in the table are calculated criteria values for the 2006 water-year that identify specific potential contamination problems at the Ventura Stream Team sampling sites. Values in parentheses are those from the 2001-2005 report. Column headings show the parameters, measurement units and the criteria used flag problem areas. The specific criteria were: (1) geomean > 235 MPN/100 ml for E. coli; (2) geomean > 61 MPN/100 ml for enterococci; (3) FC/TC geomean ratio > 0.1 ; and (4) total coliform geomean > 10,000 MPN/100 ml, unless FC/TC exceeds 0.1, then 1,000. Geomeans exceeding the EPA standards for "infrequent full body contact recreation" are shown in bold.

	MPN/100 ml	MPN/100 ml	ratio	MPN/100 ml
	geomean	geomean	geomean	geomean
site	***E. Coli***	**enterococci**	**FC/TC**	**total coliform**
VR01				
VR02				
VR03				
VR04	439 (***595***)	**158 (*176*)**	0.13 (*0.21*)	5,768 (*4,905*)
VR05	**1,250** (*403*)	**247 (*245*)**	0.38 (*0.20*)	5,586 (*3,490*)
VR06				
VR07				
VR08		72		
VR09		**431 (*150*)**		
VR10		135 (*71*)		
VR11		66	0.11	
VR12		69		
VR13				
VR14				
VR15				

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Appendix: Methodology

Water sampling and chemical analyses

Stream water samples are collected manually at mid-depth near the center of flow. Sample bottles (and caps) of high-density polyethylene (HDPE) are rinsed three times with deionized water before being used, and twice with sample water immediately prior to being filled; samples are placed in coolers as soon as possible and are transported on ice. Once in the laboratory, they are stored at 4°C.

Samples for dissolved constituents are generally filtered in the field through Gelman A/E glass fiber filters, pre-flushed with deionized and sample water. A syringe is used to force the sample through the filter unit. Stormflow samples with high sediment concentrations cannot be field-filtered and are usually allowed to settle before filtration in the laboratory. Samples are analyzed at UCSB for nitrogen (dissolved organic nitrogen, nitrate (NO_3 + NO_2) and ammonium) and phosphorus (soluble reactive phosphate, i.e., SRP). Nitrate, ammonium and phosphate are determined colorimetrically on a Lachat® auto-analyzer. Ammonium is measured by adding base to the sample stream, converting ammonium to ammonia, which diffuses across a Teflon® membrane (Willason and Johnson, 1986) and into phenol red pH indicator. Nitrate is analyzed using a standard Griess-Ilosvay reaction after Cd reduction (EPA, 1983), and phosphate after reaction with ammonium molybdate and antimony potassium tartrate and reduction by ascorbic acid with heating at 45°C.

Detection limits are 0.3 μmol L^{-1} for NH_4^+ and PO_4^{3-} and 0.5 μmol L^{-1} for NO_3^-; accuracy is ±5%. Total dissolved nitrogen (TDN) is determined after persulfate digestion (Valderrama, 1980) followed by measurement of nitrate. The basic persulfate reagent is added to a separate sample aliquot at the time of initial processing or labortory filtration and the digestion completed within one week The detection limit is 0.5 μmol L^{-1} and accuracy $\pm$ 10%. Dissolved organic nitrogen (DON) is calculated as the difference between TDN and dissolved inorganic nitrogen (DIN: nitrate and ammonium).

Bacteriological analysis

Water samples for bacteria analysis are collected manually, at mid-depth near the center of flow, in sterile plastic bottles pre-charged with small amounts of sodium thiosulfate to remove residual chlorine (a possible problem below sewage treatment plants and in urban nuisance waters). Samples are placed in coolers, transported on ice, and analyzed within six hours of collection.

Each sample is analyzed for three indicator bacteria: total coliform, *E. coli*, and enterococci using IDEXX Colilert® and Enterolert® methodologies (ASTM #D6503-99). Both methods are approved by the Environmental Protection Agency (EPA, 2003). The sample, diluted with distilled, bacteria-free water (typically using a dilution of 10:1), is used to fill multiple wells in an analysis tray. Colilert uses two indicators, one that changes color when metabolized by total coliform and another that fluoresces when metabolized by *E. coli*; the Enterolert indicator fluoresces when metabolized by enterococci. The number of positive wells after incubation for 18 hours at 35°C (Colilert) or 24 hours at 41°C (Enterolert) provides a statistical determination of concentration. The unit of measure is the "most probable number" of "colony forming units," abbreviated as either "MPN" or "cfu," in 100 ml of sample.

Quality control is evaluated by analyzing laboratory "blanks" (zero bacteria samples), duplicate field samples, and by performing multiple tests on single samples. The reproducibility of the bacteria results is evaluated by examining the differences between duplicate field samples; three to four duplicates (consecutive samples taken at the same location), one for each sampling team, are collected during each sampling event.

In-field measurements

Portable, hand-held meters are used to take field measurements for dissolved oxygen, *p*H, conductivity, water temperature and turbidity. Measurements are typically taken near the center of flow, below the surface in the upper half of the water column. The objective is to obtain measurements characteristic of the bulk of streamflow and not a spectrum of variation at the testing location. All instruments are calibrated according to manual instructions using certified laboratory standards on the day prior to sampling. The following list shows the type and accuracy of each meter used:

Meter	*Accuracy*
YSI Model 55 Dissolved Oxygen/Temperature Meter	± 0.3 mg/L or 2 %; ± 0.2°C
Oakton CON 410 Conductivity/TDS/Temperature Meter	± 1 %; ± 0.5°C
LaMotte 2020 Turbidimeter	± 2 % or 0.05 NTU
Oakton Waterproof *p*H Testr2 (prior to April 2005)	± 0.1 *p*H
Oakton *p*H/mV/Temperature Meter (April 2005)	± 0.01 *p*H

At each site, three readings are taken in three different locations with each meter (six for stream temperature using temperature scales on both the conductivity and dissolved oxygen meters). For the turbidimeter, two separate sample vials are tested three times each. All readings are later averaged to produce the final result entered into the database.

After sampling, all results are checked for quality control purposes. Questionable values are re-tested within six hours using a 500 ml sample collected at each location and transported on ice. Questionable results are those that (1) are unusual in light of past measurements at the location, (2) have widely varying multiple measurements, or (3) are expressed in doubtful units (e.g., milli vs. micro, or ppt vs. ppm). The "backup" samples are also used in cases of on-site equipment failure or suspected meter malfunction.

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Appendix S

2005 DPH Drinking Water Source Assessment

For Nye Well No.11

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Drinking Water Source Assessment

Water System

VENTURA WATER DEPARTMENT

Ventura County

Water Source

NYE WELL NO. 11

Assessment Date

September, 2005

Assessment Completed By

Hopkins Groundwater Consultants, Inc.

California Department of Health Services
Drinking Water Field Operations Branch
DHS Santa Barbara District

District No.	**06**
System No.	**5610017**
Source No.	**034**
PS Code	**5610017-034**

Vulnerability Summary

District Name DHS Santa Barbara District **District No.** 06 **County** Ventura

System Name VENTURA WATER DEPARTMENT **System No.** 5610017

Source Name NYE WELL 11 **Source No.** 034 **PS Code** 5610017-034

Completed by Hopkins Groundwater Consultants, Inc. **Date** September, 2005

According to DHS records, this Source is Groundwater. This Assessment was done using the Default Groundwater System Method.

A source water assessment was conducted for the **NYE WELL 11**

of the **VENTURA WATER DEPARTMENT** water system in **September, 2005**.

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Agricultural Drainage
Automobile - Repair shops
Farm machinery repair
Junk/scrap/salvage yards
Machine shops
NPDES/WDR permitted discharges
Recreational area - surface water source
Septic systems - low density [<1/acre]
Sewer collection systems
Utility stations - maintenance areas
Wells - Agricultural/ Irrigation
Historic gas stations

Discussion of Vulnerability

1) The Foster Park Well Field consists of four conventional shallow groundwater wells. Groundwater is conveyed to the Avenue Surface Water Treatment Plant and treated as groundwater under the influence of surface water.
2) Conventional filtration currently used will be replaced with Zenon 1000 UF membranes in 2007.
3) The plant treatment is effective at removing particles such as turbidity, bacteria, viruses, and protozoans.
4) Treatement is not effective at removing inorganic and organic contaminates.
5) A 2005 update to the Ventura River lower watershed sanitary survey is underway.

Vulnerability Summary

District Name	DHS Santa Barbara District	**District No.**	06	**County**	Ventura
System Name	VENTURA WATER DEPARTMENT			**System No.**	5610017
Source Name	NYE WELL 11	**Source No.**	034	**PS Code**	5610017-034
Completed by	Hopkins Groundwater Consultants, Inc.			**Date**	September, 2005

A copy of the complete assessment may be viewed at:

City of San Buenaventura
502 Poli Street
Ventura, CA 93002

You may request a summary of the assessment be sent to you by contacting:

Jim Passanisi
Water Superintendent
805-652-4504

Vulnerability Ranking

District Name DHS Santa Barbara District **District No.** 06 **County** Ventura

System Name VENTURA WATER DEPARTMENT **System No.** 5610017

Source Name NYE WELL 11 **Source No.** 034 **PS Code** 5610017-034

Completed by Hopkins Groundwater Consultants, Inc. **Date** September, 2005

The following PCAs were identified in the assessment and are listed in priority order based on risk to the water supply. Refer to the last page for more information.

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	5	15
A	Automobile - Repair shops (H)		5	5	5	15
A	Farm machinery repair (H)		5	5	5	15
A	Junk/scrap/salvage yards (H)		5	5	5	15
A	Machine shops (H)		5	5	5	15
A	NPDES/WDR permitted discharges (H)		5	5	5	15
A	Recreational area - surface water source (H)		5	5	5	15
A	Septic systems - low density [<1/acre] (H in Zone A, otherwise L)		5	5	5	15
A	Sewer collection systems (H in Zone A, otherwise L)		5	5	5	15
A	Utility stations - maintenance areas (H)		5	5	5	15
A	Wells - Agricultural/ Irrigation (H)		5	5	5	15
B5	Historic gas stations (VH)		7	3	5	15
A	Construction/demolition staging areas (M)		3	5	5	13
A	Fertilizer/Pesticide/Herbicide Application (M)		3	5	5	13
A	Hardware/lumber/parts stores (M)		3	5	5	13
A	Housing - high density [>1 house/0.5 acres] (M)		3	5	5	13
A	Parking lots/malls [>50 spaces] (M)		3	5	5	13
A	Parks (M)		3	5	5	13
A	Storm Drain Discharge Points (M)		3	5	5	13
A	Transportation corridors - Freeways/state highways (M)		3	5	5	13
A	Transportation corridors - Historic railroad right-of-ways (M)		3	5	5	13
A	Transportation corridors - Road Right-of-ways [herbicide use areas] (M)		3	5	5	13
A	Wells - Water supply (M)		3	5	5	13
B5	Automobile - Repair shops (H)		5	3	5	13
B5	Farm machinery repair (H)		5	3	5	13
B5	Junk/scrap/salvage yards (H)		5	3	5	13
B5	Machine shops (H)		5	3	5	13

*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Vulnerability Ranking

District Name DHS Santa Barbara District **District No.** 06 **County** Ventura

System Name VENTURA WATER DEPARTMENT **System No.** 5610017

Source Name NYE WELL 11 **Source No.** 034 **PS Code** 5610017-034

Completed by Hopkins Groundwater Consultants, Inc. **Date** September, 2005

The following PCAs were identified in the assessment and are listed in priority order based on risk to the water supply. Refer to the last page for more information.

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
B5	NPDES/WDR permitted discharges (H)		5	3	5	13
B5	Recreational area - surface water source (H)		5	3	5	13
B5	Utility stations - maintenance areas (H)		5	3	5	13
B5	Wells - Agricultural/ Irrigation (H)		5	3	5	13
B10	Historic gas stations (VH)		7	1	5	13
A	Historic waste dumps/landfills (VH)		7	0	5	12
B5	Historic waste dumps/landfills (VH)		7	0	5	12
B5	Injection wells/dry wells/ sumps (VH)		7	0	5	12
B10	Historic waste dumps/landfills (VH)		7	0	5	12
B10	Injection wells/dry wells/ sumps (VH)		7	0	5	12
A	Campgrounds/Recreational areas (L)		1	5	5	11
A	Crops, nonirrigated [e.g., Christmas trees, grains, grass seeds, hay, pasture] [includes drip-irrigated crops] (L)		1	5	5	11
A	Rental Yards (L)		1	5	5	11
A	Surface water - streams/lakes/rivers (L)		1	5	5	11
A	Transportation corridors - Roads/Streets (L)		1	5	5	11
A	Wells - monitoring, test holes (L)		1	5	5	11
B5	Agricultural Drainage (H in Zone A, otherwise M)		3	3	5	11
B5	Construction/demolition staging areas (M)		3	3	5	11
B5	Fertilizer/Pesticide/Herbicide Application (M)		3	3	5	11
B5	Housing - high density [>1 house/0.5 acres] (M)		3	3	5	11
B5	Other Animal operations (H in Zone A, otherwise M)		3	3	5	11
B5	Parks (M)		3	3	5	11
B5	Storm Drain Discharge Points (M)		3	3	5	11
B5	Transportation corridors - Freeways/state highways (M)		3	3	5	11
B5	Transportation corridors - Historic railroad right-of-ways (M)		3	3	5	11
B5	Transportation corridors - Road Right-of-ways [herbicide use areas] (M)		3	3	5	11
B5	Wells - Water supply (M)		3	3	5	11

*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Vulnerability Ranking

District Name DHS Santa Barbara District **District No.** 06 **County** Ventura

System Name VENTURA WATER DEPARTMENT **System No.** 5610017

Source Name NYE WELL 11 **Source No.** 034 **PS Code** 5610017-034

Completed by Hopkins Groundwater Consultants, Inc. **Date** September, 2005

The following PCAs were identified in the assessment and are listed in priority order based on risk to the water supply. Refer to the last page for more information.

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
B10	Farm machinery repair (H)		5	1	5	11
B10	Machine shops (H)		5	1	5	11
B10	NPDES/WDR permitted discharges (H)		5	1	5	11
B10	Recreational area - surface water source (H)		5	1	5	11
B10	Utility stations - maintenance areas (H)		5	1	5	11
B10	Wells - Agricultural/ Irrigation (H)		5	1	5	11
A	Chemical/petroleum pipelines (H)		5	0	5	10
A	Illegal activities/unauthorized dumping (H)		5	0	5	10
B5	Chemical/petroleum pipelines (H)		5	0	5	10
B5	Illegal activities/unauthorized dumping (H)		5	0	5	10
B5	Underground storage tanks - Non-regulated tanks [tanks smaller than regulatory limit] (H)		5	0	5	10
B5	Underground storage tanks - Not yet upgraded or registered tanks (H)		5	0	5	10
B10	Chemical/petroleum pipelines (H)		5	0	5	10
B10	Illegal activities/unauthorized dumping (H)		5	0	5	10
B10	Underground storage tanks - Non-regulated tanks [tanks smaller than regulatory limit] (H)		5	0	5	10
B10	Underground storage tanks - Not yet upgraded or registered tanks (H)		5	0	5	10
B5	Campgrounds/Recreational areas (L)		1	3	5	9
B5	Crops, nonirrigated [e.g., Christmas trees, grains, grass seeds, hay, pasture] [includes drip-irrigated crops] (L)		1	3	5	9
B5	Septic systems - low density [<1/acre] (H in Zone A, otherwise L)		1	3	5	9
B5	Sewer collection systems (H in Zone A, otherwise L)		1	3	5	9
B5	Surface water - streams/lakes/rivers (L)		1	3	5	9
B5	Transportation corridors - Roads/Streets (L)		1	3	5	9
B10	Agricultural Drainage (H in Zone A, otherwise M)		3	1	5	9
B10	Construction/demolition staging areas (M)		3	1	5	9
B10	Contractor or government agency equipment storage yards (M)		3	1	5	9
B10	Fertilizer/Pesticide/Herbicide Application (M)		3	1	5	9

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Vulnerability Ranking

District Name DHS Santa Barbara District **District No.** 06 **County** Ventura

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The following PCAs were identified in the assessment and are listed in priority order based on risk to the water supply. Refer to the last page for more information.

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
B10	Housing - high density [>1 house/0.5 acres] (M)		3	1	5	9
B10	Other Animal operations (H in Zone A, otherwise M)		3	1	5	9
B10	Parks (M)		3	1	5	9
B10	Storm Drain Discharge Points (M)		3	1	5	9
B10	Transportation corridors - Freeways/state highways (M)		3	1	5	9
B10	Transportation corridors - Historic railroad right-of-ways (M)		3	1	5	9
B10	Transportation corridors - Road Right-of-ways [herbicide use areas] (M)		3	1	5	9
B10	Wells - Water supply (M)		3	1	5	9
A	Crops, irrigated [Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable] (M)		3	0	5	8
B5	Above ground storage tanks (M)		3	0	5	8
B5	Crops, irrigated [Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable] (M)		3	0	5	8
B10	Above ground storage tanks (M)		3	0	5	8
B10	Crops, irrigated [Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable] (M)		3	0	5	8

*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Explanation of Source Water Assessments and Definition of Terms

A source water assessment was recently completed for this drinking water source. The assessment identifies the vulnerability of the drinking water supply to contamination from typical human activities. The assessments are intended to facilitate and provide the basic information necessary for a local community to develop a program to protect the drinking water supply.

A summary of the complete assessment is provided here. For more information, contact the agency or individual that prepared the assessment (shown in summary). You may also contact the local Department of Health Services Drinking Water Field Operations Branch district office (http://www.dhs.ca.gov/ps/ddwem/technical/dwp/districtofficesmap.pdf). Additional information about assessments can be found at: http://www.dhs.ca.gov/ps/ddwem/dwsap/FAQ.htm

Terms used in this summary:

Source Water Assessment: An assessment is an evaluation of a drinking water source to determine the "possible contaminating activities" (PCAs) to which the source is most vulnerable. The assessment includes: a delineation of protection zones around the source; an inventory of the types of PCAs within the source protection zones; and an analysis to determine the PCAs to which the source is most vulnerable. The information is compiled into a report that includes a map, calculations, checklists, and a summary of the findings.

Possible Contaminating Activity (PCA): A PCA is a current or historic human activity that is an actual or potential origin of contamination for a drinking water source. PCAs include activities that use, store, produce or dispose of chemicals that have the potential to contaminate drinking water supplies. There are 110 types of PCAs in the California DWSAP program.

PCA Risk Ranking: Each type of PCA is assigned a risk ranking (Very High, High, Moderate, or Low). The risk ranking is based on the contaminant(s) typically associated with that PCA, the likelihood of release from that type of facility based on historical experience, and the mobility of the contaminant(s).

PCA Inventory: The PCA inventory is a review using local knowledge, databases, and on-site evaluations to identify the occurrence and approximate location of PCAs in the source water zones. The inventory for the basic DWSAP assessments is a presence-absence review. If a type of PCA occurs in a zone, a "Yes" is noted in the inventory for that zone, regardless of whether there is one or many of that type of facility within the zone. If a PCA has been associated with a contaminant detected in the water supply, a notation is made in the PCA inventory.

Source Water Zones or Areas: These are areas located around and typically adjacent to a drinking water source that have been identified as initial protection areas.

For **groundwater sources,** there are typically three concentric circular zones around a source (Zones A, B5 and B10). The sizes of the are determined based on characteristics of the source. PCAs located in the inner Zone A are considered more of a risk to the water supply than PCAs located in the middle Zone B5. Similarly, PCAs located in Zone B5 are considered more of a risk than PCAs located in the outer Zone B10.

For **surface water sources,** the watershed is defined as the overall protection area, and as an option, zones are defined closer to the source. Two types of zones are typically established. Zone A is the area within and near the surface water body and its tributaries. Zone B is an area within 2,500 feet of the intake, not including areas in Zone A. For surface water sources, PCAs located in Zone A are considered a greater threat than PCAs located in Zone B. PCAs located on the watershed outside of the zones are considered to be of less risk to the water supply. If zones have not been defined, PCAs are considered to be of equal risk regardless of location on the watershed.

Physical Barrier Effectiveness (PBE): The PBE for a source is an evaluation of the ability of the source and the surrounding area to prevent the movement of contaminants into the source. The PBE is based on the construction and operation features of the source, and the characteristics of the surrounding area. A source is assigned a PBE of Low, Moderate or High, where High indicates that the physical barriers of the source and site are very effective in preventing the movement of contaminants. By design, typical groundwater sources will have Moderate PBE, while typical surface water sources will have Low PBE. This is due to the greater exposure of surface water sources to contamination.

Vulnerability Ranking: The vulnerability ranking is a summary of the PCAs identified in the assessment prioritized by the risk that they pose to the water supply. The prioritization is based on the risk associated with a PCA, the zone in which it occurs, and the PBE of the source.
In the vulnerability ranking, points are assigned as follows:

PCA risk ranking	Very High = 7	High = 5	Moderate = 3	Low = 1	Unknown in any zone = 0
Zone (Groundwater)	A = 5	B5 = 3	B10 = 1		
Zone (Surface water with zones)	A = 5	B = 3	Watershed = 1		
Zone (Surface water without zones)	Watershed = 5				
Physical Barrier Effectiveness	Low = 5	Moderate = 3	High = 1		

The points for each type of PCA in each zone are totaled to give a vulnerability score, and the PCAs are ranked in order from the highest score to the lowest score. PCAs associated with detected contaminants are ranked at the top, regardless of vulnerability score. By definition, groundwater sources are not considered vulnerable to PCAs with scores less than 8, and surface water sources are not considered vulnerable to PCAs with scores less than 11. It should be noted that the vulnerability ranking scores do not have a direct quantitative value. Rather, the points are used only to relatively rank the types of PCAs for an individual source.

Note: Some of the summaries do not include a vulnerability ranking. If the assessment was done on paper and the details were not entered into the database, the vulnerability ranking is not available here. In addition, alternate methods of determining vulnerability were allowed in some cases, and the vulnerability ranking is not in the database.

Vulnerability Summary: The source is considered most vulnerable to the PCAs with the highest score, and to PCAs associated with detected contaminants. These PCAs are noted in the vulnerability summary. Further details or discussion may be provided in the vulnerability discussion.

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Appendix T

2005 DPH Drinking Water Source Assessment

For Saticoy County Yard Well

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Drinking Water Source Assessment

Water System

VENTURA WATER DEPARTMENT

Ventura County

Water Source

SATICOY COUNTY YARD WELL

Assessment Date

April, 2005

Assessment Completed By

Hopkins Groundwater Consultants, Inc.

California Department of Health Services
Drinking Water Field Operations Branch
DHS Santa Barbara District

District No.	**06**
System No.	**5610017**
Source No.	**033**
PS Code	**5610017-033**

Vulnerability Summary

District Name DHS Santa Barbara District **District No.** 06 **County** Ventura

System Name VENTURA WATER DEPARTMENT **System No.** 5610017

Source Name SATICOY COUNTY YARD WELL **Source No.** 033 **PS Code** 5610017-033

Completed by Hopkins Groundwater Consultants, Inc. **Date** April, 2005

According to DHS records, this Source is Groundwater. This Assessment was done using the Default Groundwater System Method.

A source water assessment was conducted for the **SATICOY COUNTY YARD WELL**

of the **VENTURA WATER DEPARTMENT** water system in **April, 2005**.

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Automobile - Gas stations

Discussion of Vulnerability

The Saticoy County Yard Well (source well) is part of a new Ventura County Public Works Facility, which is being constructed approximately 700 feet northwest of the new source well. Project architects reported the Ventua County Watershed Protection District (VCWPD) required 40-millimeter high density polyurethane sheeting be installed under all maintenance buildings and fuel facilities. The fuel facilities will also be equipped with auto shut-offs and monitoring equipment. The VCWPD reported only one existing water well in the vicinity that is currently not active and is considered abandoned. There is no construction documentation of the abandoned well, however wells in the vicinity of this well have historically been shallow completions.

The source well is located within the Oxnard Forebay basin, its principle source of recharge is the Santa Clara River to the northeast. The source well is constructed with a 280 foot sanitary seal, and produces from a lower aquifer system which should isolate the source well from possible contamination from any existing or future LUFT sites, urban and agricultural uses.

A copy of the complete assessment may be viewed at:

City of San Buenaventura
501 Poli Street
Ventura, CA 93002

You may request a summary of the assessment be sent to you by contacting:

Jim Passanisi
Water Superintendent
805-652-4504

Vulnerability Ranking

District Name DHS Santa Barbara District **District No.** 06 **County** Ventura

System Name VENTURA WATER DEPARTMENT **System No.** 5610017

Source Name SATICOY COUNTY YARD WELL **Source No.** 033 **PS Code** 5610017-033

Completed by Hopkins Groundwater Consultants, Inc. **Date** April, 2005

The following PCAs were identified in the assessment and are listed in priority order based on risk to the water supply. Refer to the last page for more information.

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Automobile - Gas stations (VH)		7	5	1	13
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Automobile - Body shops (H)		5	5	1	11
A	Automobile - Repair shops (H)		5	5	1	11
A	Fleet/truck/bus terminals (H)		5	5	1	11
A	Sewer collection systems (H in Zone A, otherwise L)		5	5	1	11
A	Wells - Agricultural/ Irrigation (H)		5	5	1	11
B5	Historic gas stations (VH)		7	3	1	11
B5	Known Contaminant Plumes (VH)		7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)		7	3	1	11
A	Automobile - Car washes (M)		3	5	1	9
A	Contractor or government agency equipment storage yards (M)		3	5	1	9
A	Crops, irrigated [Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable] (M)		3	5	1	9
A	Fertilizer/Pesticide/Herbicide Application (M)		3	5	1	9
A	Parking lots/malls [>50 spaces] (M)		3	5	1	9
A	Storm Drain Discharge Points (M)		3	5	1	9
A	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways [herbicide use areas] (M)		3	5	1	9
A	Wells - Water supply (M)		3	5	1	9
B5	Automobile - Body shops (H)		5	3	1	9
B5	Automobile - Repair shops (H)		5	3	1	9
B5	Junk/scrap/salvage yards (H)		5	3	1	9
B5	Utility stations - maintenance areas (H)		5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9
B10	Underground storage tanks - Confirmed leaking tanks (VH)		7	1	1	9

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