

2005
URBAN WATER MANAGEMENT PLAN









Prepared for:

Castaic Lake Water Agency (CLWA)
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company
(Los Angeles County Waterworks District No. 36/Cooperating Agency)

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SUMMARY

SUMMARY

The California Urban Water Planning Act (Act) requires most water utilities to update and submit an Urban Water Management Plan (UWMP) every five years. An UWMP is required in order for a water supplier to be eligible for the California Department of Water Resources (DWR) administered State grants and loans and drought assistance. This document presents the 2005 UWMP (Plan) for the Castaic Lake Water Agency (Agency, CLWA) service area, which includes four local retail water purveyors. This regional Plan builds upon previous documents, specifically CLWA's 2000 UWMP and an amendment to the 2000 Plan. Following a general discussion of Plan preparation and general project rationale, information is provided on water use, water resources, recycled water, water quality, reliability planning, demand management measures (DMMs), best management practices (BMPs), and water shortage contingency planning. This summary chapter presents an overview of each chapter in the Plan.

1.0 INTRODUCTION

CLWA's service area includes the service areas of four local retail water agencies. This regional Plan has been prepared for CLWA and three of the purveyors: CLWA Santa Clarita Water Division (SCWD), Newhall County Water District (NCWD), and Valencia Water Company (VWC). The fourth purveyor, Los Angeles County Waterworks District No. 36 (LACWWD #36), does not prepare a plan because it does not provide water to more than 3,000 customers or supply more than 3,000 acre-feet (af) of water annually – the minimum requirements for plan preparation. However, LACWWD #36 participated in the development of the Plan on an "ad-hoc" basis. Chapter 1 describes the purpose of the Plan, discusses Plan implementation, and provides general information about CLWA, the retail water purveyors, and service area characteristics. In response to new documents by DWR, this Plan also acknowledges the potential effects of global warming as a component of water management planning.

2.0 WATER USE

Chapter 2 describes historic and current water usage and the methodology used to project future demands within CLWA's service area. Water usage is divided into sectors such as residential, industrial, institutional, landscape, agricultural, and other purposes. To undertake this evaluation, existing land use data and new housing construction information were compiled from each of the retail water purveyors and projections prepared by "One Valley One Vision" (OVOV), a joint planning effort by the City of Santa Clarita and Los Angeles County Department of Regional Planning (LACDRP). This information was then compared to historical trends for new water service connections and customer water usage. In addition, weather and water conservation effects on historical water usage were factored into the evaluation.

3.0 WATER RESOURCES

Chapter 3 describes the water resources available to CLWA and the retail water purveyors from 2005 to 2030 – the 25-year period covered by the Plan. Resources include: (1) wholesale (imported) water supplies from the State Water Project (SWP), (2) local groundwater supplies from the Alluvium and Saugus Formation aquifers, and (3) transfers, exchanges, and

groundwater banking programs. Also described are planned water supply projects and programs and the development of desalination. Current and future imported water supplies are discussed, including "Table A" water supplies, CLWA's Flexible Storage Accounts, and reliability issues associated with SWP supplies. CLWA's Groundwater Management Plan (GWMP) is described, and available groundwater supplies are assessed. The adequacy of groundwater supplies and the emergence of perchlorate contamination issues are introduced and discussed in more detail in subsequent chapters. The role of water transfers and groundwater banking is described, and recent and proposed cooperative agreements to maximize local supplies through these progressive water management strategies are also discussed.

4.0 RECYCLED WATER

State water policy identifies water recycling as a beneficial use of water, and recycled water is an important component of water management planning. Chapter 4 describes the existing and future recycled water opportunities available to the CLWA service area. Currently, CLWA serves recycled water to VWC for the Westridge Golf Course and miscellaneous landscape irrigation. This Plan presents estimates of potential supply and demand for 2005 to 2030 in five year increments, as well as CLWA's proposed incentives and optimization plan.

5.0 WATER QUALITY

Chapter 5 describes the water quality of both groundwater and imported water supplies and discusses potential water quality impacts on supply reliability. As mentioned above, perchlorate contamination control is a major issue in CLWA's service area. The contamination is associated with the former Whittaker-Bermite site. Extensive investigations, management plans, and control actions to address this issue have been undertaken and are described in detail in this Plan. It has been determined that the programs underway should restore the impaired wells during 2006.

6.0 RELIABILITY PLANNING

The Act requires urban water suppliers to assess water supply reliability that compares total projected water used with the expected water supply over the next twenty years in five year increments. The Act also requires an assessment for a single dry year and multiple dry years. Chapter 6 presents the reliability assessment for CLWA's service area.

It is the stated goal of CLWA and the retail water purveyors to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions over the next 25 years in combination with conservation of non-essential demand during certain dry years, the Plan successfully achieves this goal.

The organization of the reliability tables presented in this Plan varies from those presented in the 2000 Plan Amendment to follow more closely with the recommended tables provided in the DWR "Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan," dated January 18, 2005.

7.0 WATER DEMAND MANAGEMENT MEASURES AND BEST MANAGEMENT PRACTICES

Establishing goals and choosing water conservation measures is a continuing planning process. Goals are developed, adopted, and then evaluated periodically. Specific conservation measures are phased in and then evaluated for their effectiveness, achievement of desired results, and customer satisfaction. Chapter 7 of this plan summarizes DMMs and BMPs in both the implementation and development stages. CLWA and the retail water purveyors have been aggressively implementing DMM and BMP programs even though implementation is voluntary. Activities include water audits/repairs, public outreach, conservation pricing, residential plumbing retrofit, residential ultra low flush toilet replacement, large landscape conservation, and conservation programs for commercial, industrial, and institutional accounts. CLWA and the retail purveyors continue development and implementation of a comprehensive program.

8.0 WATER SHORTAGE CONTINGENCY PLANNING

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought which limits supplies, an earthquake which damages water delivery or storage facilities, or a toxic spill that affects water quality. Chapter 8.0 of this Plan describes how CLWA and the retail water purveyors plan to respond to such emergencies so that customer needs are met promptly and equitably.

Chapter 1
INTRODUCTION

Chapter 1.0
INTRODUCTION

1.1 OVERVIEW

This volume presents the Urban Water Management Plan 2005 (Plan) for the Castaic Lake Water Agency (Agency, CLWA) service area, which includes four retail water purveyors. This chapter describes the general purpose of the Plan, discusses Plan implementation, and provides general information about CLWA, retail purveyors, and service area characteristics. A list of acronyms and abbreviations is also provided.

1.2 PURPOSE

An Urban Water Management Plan (UWMP) is a planning tool that generally guides the actions of water management agencies. It provides managers and the public with a broad perspective on a number of water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature. For example, the Legislature mandated that a plan include a section which "describes the opportunities for exchanges or water transfers on a short-term or long-term basis." (California Urban Water Planning Act, Article 2, Section 10630(d).) The identification of such opportunities, and the inclusion of those opportunities in a general water service reliability analysis, neither commits a water management agency to pursue a particular water exchange/transfer opportunity, nor precludes a water management agency from exploring exchange/transfer opportunities not identified in the plan. When specific projects are chosen to be implemented, detailed project plans are developed, environmental analysis, if required, is prepared, and financial and operational plans are detailed.

In short, this Plan is a management tool, providing a framework for action, but not functioning as a detailed project development or action. It is important that this Plan be viewed as a long-term, general planning document, rather than as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty, and planning projections may change in response to a number of factors. From this perspective, it is appropriate to look at the Plan as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what is the reasonable probable yield from them?
- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?
- How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?

Using these "framework" questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands. CLWA and the retail water purveyors will explore enhancing basic supplies from traditional sources such as the State Water Project (SWP) as well as other options. These include groundwater extraction, water

exchanges, recycling, desalination, and water banking/conjunctive use. Specific planning efforts will be undertaken in regard to each option, involving detailed evaluations of how each option would fit into the overall supply/demand framework, how each option would impact the environment, and how each option would affect customers. The objective of these more detailed evaluations would be to find the optimum mix of conservation and supply programs that ensure that the needs of the customers are met.

The California Urban Water Management Planning Act (Act) requires preparation of a plan that:

- Accomplishes water supply planning over a 20-year period in five year increments. (CLWA and the purveyors are going beyond the requirements of the Act by developing a plan which spans 25 years.)
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years.
- Implements conservation and efficient use of urban water supplies.

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A.

In short, the Plan answers the question: *Will there be enough water for the Santa Clarita Valley community in future years, and what mix of programs should be explored for making this water available?*

It is the stated goal of CLWA and the retail water purveyors to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions over the next 25 years in combination with conservation of non-essential demand during certain dry years, the Plan successfully achieves this goal.

1.3 IMPLEMENTATION OF THE PLAN

The CLWA service area includes the service areas of four local retail water agencies. This Plan has been prepared for the CLWA and three of the purveyors: CLWA Santa Clarita Water Division (SCWD), Newhall County Water District (NCWD), and Valencia Water Company (VWC). The fourth purveyor, Los Angeles County Waterworks District No. 36 (LACWWD #36), is not required to prepare a Plan because the District does not provide water to more than 3,000 customers or supply more than 3,000 acre-feet (af) of water annually; however, LACWWD #36 participated in the development of the Plan on an "ad-hoc" basis. This subsection provides the cooperative framework within which the Plan will be implemented including agency coordination, public outreach, and resources maximization.

1.3.1 Joint Preparation of the Plan

Water agencies are permitted by the State to work together to develop a cooperative regional plan. This approach has been adopted by the water agencies in the Santa Clarita Valley (Valley), which are jointly sponsoring the current Plan. Water resource specialists with expertise in water resource management were retained to assist the local water agencies in preparing the details of the Plan. Agency coordination for this Plan is summarized in Table 1-1.

Table 1-1
Agency Coordination Summary

	Participated in UWMP Development	Received Copy of Draft	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Notice of Intent to Adopt	Not Involved
Antelope Valley-East Kern Water Agency					✓		
California Department of Water Resources	✓				✓		
Castaic Lake Water Agency	✓	✓	✓	✓	✓		
Castaic Town Council		✓	✓	✓	✓		
City of Santa Clarita Department of Planning and Building Services		✓		✓	✓	✓	
CLWA Santa Clarita Water Division	✓	✓	✓	✓	✓		
LA County Department of Regional Planning		✓			✓	✓	
Los Angeles County Supervisor Mike Antonovich (representatives)				✓	✓		
LA County Waterworks District No. 36	✓	✓	✓	✓	✓		
Metropolitan Water District of Southern California		✓			✓		
Newhall County Water District	✓	✓	✓	✓	✓		
Valencia Water Company	✓	✓	✓	✓	✓		
Ventura County Resource Management Agency		✓			✓	✓	
Westranch Town Council					✓		

1.3.2 Public Outreach

The water agencies have encouraged community participation in water planning. For the current Plan, public sessions were held for review and to solicit input on the Draft Plan before its adoption. Interested groups were informed about the development of the Plan along with the schedule of public activities. Notices of public meetings were published in the local press. Copies of the Draft Plan were made available at the water agencies' offices, local public libraries and sent to the City of Santa Clarita, the County of Los Angeles, and the County of Ventura, as well as interested parties. Water agencies also convened meetings with various interests to gather data concerning planned development and the probable implementation of approved development. Such informed data gathering on important issues is a means of checking the short-term "reality" of official projections and understanding the concerns of various groups.

CLWA contracted with a local public relations firm to coordinate preparation of the Plan with the local community. CLWA notified the cities and counties within its service area of the opportunity to provide input regarding the Plan. Table 1-2 presents a timeline for public participation during the development of the Plan. A copy of the public outreach materials,

including paid advertisements, newsletter covers, website postings, and invitation letters are attached in Appendix B.

Table 1-2
Public Participation Timeline

April 7, 2005	Kick-off Community Workshop	Describe UWMP requirements and process
June 27, 2005	Preliminary Draft UWMP	Preliminary Draft released to solicit input
June 29, 2005	Community Workshop	Review UWMP and solicit input
August 31, 2005	Follow-up Community Workshop	Release Draft UWMP and review contents
September 28, 2005	First CLWA Public Hearing	Review contents of Draft UWMP and take comments
October 26, 2005	Second CLWA Public Hearing	UWMP considered for approval by the CLWA Board and NCWD Board (at a joint meeting)

The components of public participation include:

Local Media

- Paid advertisements in local newspapers
- Meeting(s) with local editorial boards (Daily News and Signal)

Community-based Outreach

- Building Industry Association
- Castaic Town Council
- Chamber of Commerce
- Friends of the Santa Clara River
- Santa Clarita Valley Well Owners Association
- Santa Clarita Organization for Planning the Environment (SCOPE)
- Sierra Club
- Valencia Industrial Association
- Westranch Town Council

Water Agencies Public Participation

- Presentation(s) to NCWD Board – March, May, September, and October
- Presentation(s) to CLWA Board – March, May, July, September, and October

City/County Outreach

- Meeting with City Planning Division – March, May, and July

- Meeting with Los Angeles County Department of Regional Planning – March, May, and July
- Meeting with Supervisor Antonovich representative(s) Millie Jones, Paul Novak – May and July

Public Availability of Documents

- Water Agencies' websites
- City Hall
- Local libraries

1.3.3 Resources Maximization

Several documents were developed to enable CLWA to maximize the use of available resources and minimize use of imported water, including the Groundwater Management Plan (GWMP), Santa Clara River Valley Memorandum of Understanding, Water Supply Reliability Plan Draft Report, and the 2004 Santa Clarita Valley Water Report. Chapter 3 of this Plan describes in detail the water resources available to CLWA and the retail purveyors for the 25-year period covered by the Plan. Additional discussion regarding documents developed to maximize resources is included in Section 3.3.2 and Chapter 6.

1.4 THE WATER AGENCIES OF THE SANTA CLARITA VALLEY

1.4.1 Castaic Lake Water Agency

CLWA was formed in 1962 for the purpose of contracting with the California Department of Water Resources (DWR) to provide a supplemental supply of imported water to the water purveyors in the Valley. CLWA serves an area of 195 square miles in Los Angeles and Ventura Counties.

CLWA is a SWP contractor with an annual contractual Table A Amount of 95,200 af. Table A Amount (formerly referred to as "entitlement") is named for the "Table A" in each SWP contractor's Water Supply Contract. It contains an annual buildup in Table A Amounts of SWP water, from the first year of the Water Supply Contract through a specific year, based on growth projections made before the Water Supply Contract was executed. For most contractors, the maximum annual Table A Amount was reached in 1990. The total of all SWP contractors' maximum Table A Amounts is currently about 4.17 million af.

CLWA's original SWP Water Supply Contract with DWR was amended in 1966 for a maximum annual Table A Amount of 41,500 af. In 1991, CLWA purchased 12,700 af of annual Table A Amount from a Kern County water district and in 1999 purchased 41,000 af of annual Table A Amount from another Kern County water district, for a current total annual Table A Amount of 95,200 af.[1] CLWA wholesales this imported water to each of the local retail water purveyors through an extensive transmission pipeline system.

Though the reliability of SWP water is variable due to weather-related issues and environmental factors, SWP water remains an important supplemental water supply source for the Valley in the long-term. An important element to enhancing the long-term water supply reliability of SWP supplies is the effective use of water banking/conjunctive-use programs, such as those described in this Plan.

1.4.2 Retail Water Purveyors

Four retail purveyors provide water service to most residents of the Valley.

SCWD's service area includes portions of the city of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Canyon Country, Newhall, and Saugus. SCWD supplies water from local groundwater and CLWA imported water.

LACWWD #36's service area includes the Hasley Canyon area in the unincorporated community of Val Verde. During most years, the District obtains its water supply from CLWA.

NCWD's service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Newhall, Canyon Country, Saugus, and Castaic. The District supplies water from local groundwater and CLWA imported water.

VWC's service area includes a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Castaic, Stevenson Ranch, and Valencia. VWC supplies water from local groundwater, CLWA imported water, and recycled water.

The service area for CLWA and the retail water purveyors is shown on Figure 1-1.

[1] CLWA's contract rights to SWP water total 95,200 acre feet per year ('afy"), including a water transfer of 41,000 afy approved in 1999 from Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's Environmental Impact Report ("EIR") prepared in connection with the 41,000 afy water transfer was challenged in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles County Superior Court, Case Number BS056954) ("*Friends*"). That action was dismissed with prejudice (permanently) in February 2005. New challenges to CLWA's environmental review of the transfer were filed in January 2005 (*i.e., Planning and Conservation League v. Castaic Lake Water Agency*, Los Angeles County Superior Court Case Number BS098724). A more detailed discussion of these new challenges and the reasons the challenges will have no impact on the amount of water available to CLWA can be found at Section 3.2.2.

Castaic Lake Water Agency Service Area

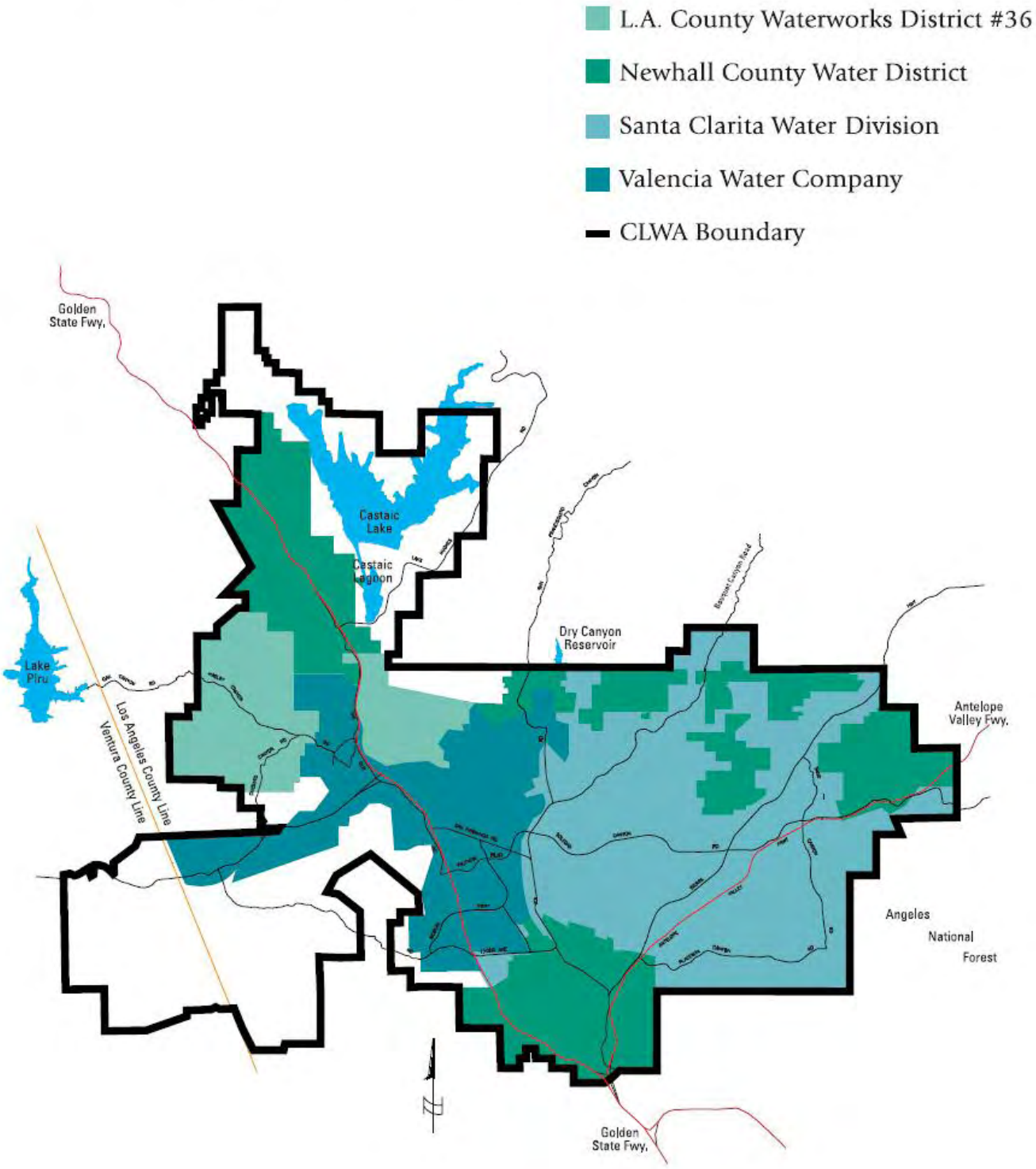


Figure 1-1
Castaic Lake Water Agency Service Area

As of mid-2005, the retail water purveyors served about 65,800 connections, as presented in Table 1-3.

Table 1-3
Retail Water Service Connections

Retail Water Purveyor	Connections
CLWA Santa Clarita Water Division (SCWD)	26,784
Los Angeles County Waterworks District No. 36 (LACWWD # 36)	1,311
Newhall County Water District (NCWD)	9,112
Valencia Water Company (VWC)	28,602
Total Connections	**65,809**

1.5 CLIMATE

The climate in CLWA's service area is generally semi-arid and warm. Summers are dry with temperatures as high as 110°F. Winters are somewhat cool with temperatures as low as 20°F. Average rainfall is about 17.64 inches per year in the flat areas and about 27 inches in the mountains. The region is subject to wide variations in annual precipitation and also experiences periodic wildfires. Table 1-4 presents the region's annual average climate data. Standard Monthly Average data was generated from 1996-2005 data. Average Monthly Rainfall data is provided for 1980-2004, and Average Maximum Temperature data is provided for 1971-2000.

Table 1-4
Climate Data for the Santa Clarita Valley

	Jan	Feb	Mar	Apr	May	Jun
Standard Monthly Average ETo[(1)]	2.20	2.45	3.64	4.74	5.31	6.06
Average Rainfall (inches) [(2)]	3.52	4.88	3.13	0.88	0.28	0.06
Average Max. Temperature (Fahrenheit) [(3)]	64.2	66.0	68.7	73.1	79.9	88.0

	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Standard Monthly Average ETo[(1)]	6.75	6.66	5.01	3.95	2.73	2.31	51.81
Average Rainfall (inches)[(2)]	0.03	0.05	0.15	0.88	1.29	2.49	17.64
Average Max. Temperature (Fahrenheit) [(3)]	94.9	94.9	89.4	81.3	69.1	65.2	78.1

Notes:
(1) ETo (evapotranspiration) data provided for Glendale region, http://wwwcimis.water.ca.gov/cimis/welcome.jsp
(2) Average Monthly Rainfall data gathered from long-term average precipitation records from Newhall-Soledad 32c gage during period 1980-2004.
(3) Temperature data provided for Dry Canyon Reservoir region, http://www.wrcc.dri.edu/CLIMATEDATA.html

1.6 Potential Effects of Global Warming

A topic of growing concern for water planners and managers is global warming and the potential impacts it could have on California's future water supplies. DWR's Draft California Water Plan Update 2005 contains the first-ever assessment of such potential impacts in a California Water Plan.

Volume 1, Chapter 4 of the California Water Plan, "Preparing for an Uncertain Future," lists some potential impacts of global warming, based on more than a decade of scientific studies on the subject:

- Could produce hydrologic conditions, variability, and extremes that are different from what current water systems were designed to manage
- May occur too rapidly to allow sufficient time and information to permit managers to respond appropriately
- May require special efforts or plans to protect against surprises or uncertainties

Should global warming increase over time, it may cause a number of changes impacting future water supplies, including changes in Sierra snowpack patterns (the source of the SWP's water supply in Lake Oroville), hydrologic patterns, sea level, rainfall intensity, and statewide water demand. Computer models (such as CALVIN) have been developed to show water planners how California water management might adapt to climate change. DWR has committed to continue to update and refine these models based on ongoing scientific data collection and to incorporate this information into future California Water Plans. As DWR develops more specific assessments of the potential effects of climate change on SWP delivery reliability and water demands, CLWA and the purveyors can update their plans accordingly.

1.7 OTHER DEMOGRAPHIC FACTORS

Water service is provided to residential, commercial, industrial, institutional, recreational, and agricultural customers and for environmental and other uses, such as fire protection and pipeline cleaning.

Recently, the Valley area (along with most of California) has experienced significant increases in both single family and multi-family residential construction, as well as in commercial and industrial construction. As the local population has increased, the demand for water has also increased.

1.8 LIST OF ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this report.

AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
Act	California Urban Water Management Planning Act
af	acre-feet
afy	acre-feet per year
Agency	Castaic Lake Water Agency
AWWARF	American Water Works Association Research Foundation
Basin	Santa Clara River Valley Groundwater Basin, East Subbasin
BMPs	Best Management Practices

CCF	One Hundred Cubic Feet
CCR	Consumer Confidence Report
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CLWA	Castaic Lake Water Agency
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
DBP	Disinfection by-products
Delta	Sacramento-San Joaquin Delta
DHS	California Department of Health Services
DMM	Demand Management Measures
DOF	Department of Finance
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	Electrical conductivity
Edison	Southern California Edison
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
GWMP	Groundwater Management Plan
KCWA	Kern County Water Agency
LACDRP	Los Angeles County Department of Regional Planning
LACSD	Sanitation Districts of Los Angeles County
LACWWD #36	Los Angeles County Waterworks District # 36
M&I	Municipal and Industrial
Metropolitan	Metropolitan Water District of Southern California
mgd	million gallons per day
mg/L	milligrams per liter
MOU	Memorandum of Understanding
NCWD	Newhall County Water District
NPDES	National Pollutant Discharge Elimination System
OVOV	One Valley One Vision
Plan	Urban Water Management Plan 2005
PUC	California Public Utilities Commission
RAP	Remedial Action Plan
RO	Reverse Osmosis
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments

SCLLC	Santa Clarita LLC
SCOPE	Santa Clarita Organization for Planning the Environment
SCWC	Santa Clarita Water Company
SCWD	Santa Clarita Water Division
Semitropic	Semitropic Water Storage District
SWP	State Water Project
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
umhos/cm	Micromhos per centimeter
UWCD	United Water Conservation District
UWMP	Urban Water Management Plan
Valley	Santa Clarita Valley
VWC	Valencia Water Company
WRP	Waste Water Reclamation Plant

Chapter 2
WATER USE

Chapter 2.0
WATER USE

2.1 OVERVIEW

This chapter describes historic and current water usage and the methodology used to project future demands within CLWA's service area. Water usage is divided into sectors such as residential, industrial, institutional, landscape, agricultural, and other purposes. To undertake this evaluation, existing land use data and new housing construction information were compiled from each of the retail water purveyors and projections prepared by "One Valley One Vision" (OVOV), a joint planning effort by the City of Santa Clarita and Los Angeles County Department of Regional Planning (LACDRP). This information was then compared to historical trends for new water service connections and customer water usage information. In addition, weather and water conservation effects on historical water usage were factored into the evaluation.

The methodology used to project future demands within CLWA's service area included three steps: (1) obtain projected demands to 2030 from each water purveyor, (2) compare projections based on historical records to the totals developed by the purveyors, and (3) compare these results with the OVOV Plan for consistency with the General Plan.

This approach allowed the comparison of three different sources of data and projections to be evaluated. Several factors can affect demand projections, including:

- Land use revisions
- New regulations
- Consumer choice
- Economic conditions
- Transportation needs
- Highway construction
- Environmental factors
- Conservation programs
- Plumbing codes

The foregoing factors affect the amount of water needed, as well as the timing of when it is needed. Past experience in the Valley has indicated that the economy is the biggest factor in determining water demand projections. During an economic recession, there is a major downturn in development and a subsequent slowing of the projected demand for water. The projections in this Plan do not attempt to forecast recessions or droughts. Likewise, no speculation is made about future plumbing codes or other regulatory changes. However, the projections do include water conservation, which is projected to reduce overall water demand by 10 percent. There have been, and continue to be, major efforts statewide to conserve water, which have been successful.

2.2 HISTORIC WATER USE

Predicting future water supply requires accurate historic water use patterns and water usage records. Both the economy and entitlement process (compliance with the California Environmental Quality Act [CEQA]) are key factors impacting growth in population and demand. Figure 2-1 illustrates the steady increase in Valley water demand since 1980.

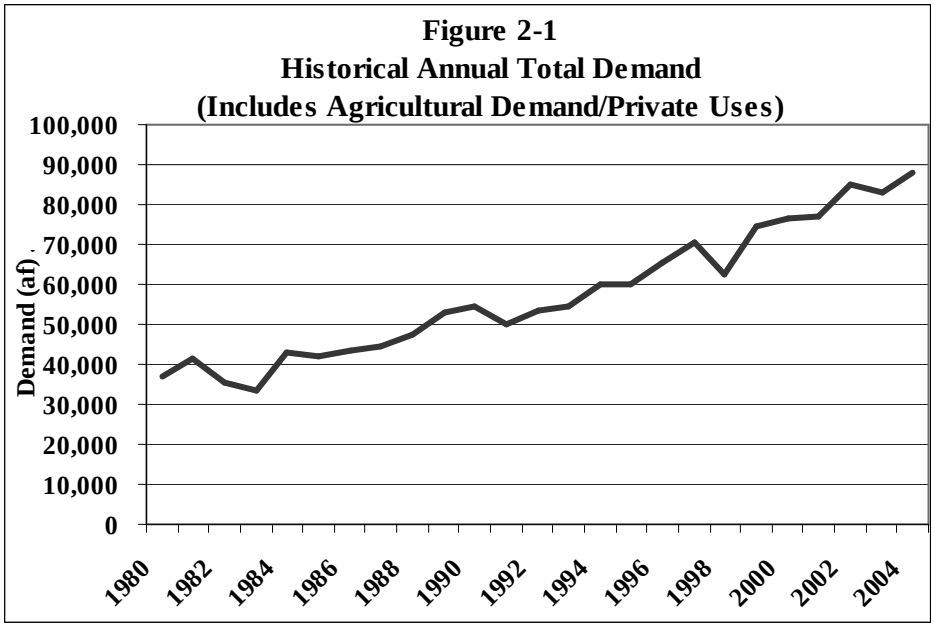


Table 2-1 presents the historical accounts and deliveries by retail purveyor since 1990. The type of customer accounts included in the table are single family homes, multi-family homes, commercial, industrial, institutional/government, and landscape.

Table 2-1
Historical Accounts and Deliveries by Retail Purveyor

Purveyor		1990	1992	1994	1996	1998	2000	2002	2004
CLWA	No. Accounts	18,550	19,000	19,400	19,650	20,300	21,970	24,175	26,161
SCWD	Deliveries (af)	18,503	17,551	19,911	22,006	20,319	25,280	28,434	29,191
LACWWD	No. Accounts	706	736	752	768	774	972	1,200	1,300
#36	Deliveries (af)	513	456	500	533	578	758	1,071	1,302
NCWD	No. Accounts	6,039	6,230	6,373	6,475	6,726	7,434	7,941	8,970
	Deliveries (af)	7,813	7,973	7,754	8,916	8,782	9,623	9,869	10,555
VWC	No. Accounts	13,965	14,520	15,359	17,009	19,389	21,661	24,453	27,238
	Deliveries (af)	16,572	15,338	17,390	19,721	19,874	25,190	28,360	30,682
Total	No. Accounts	39,260	40,486	41,884	43,902	47,189	52,037	57,769	63,669
	Deliveries (af)	43,401	41,318	45,555	51,176	49,553	60,851	67,734	71,730
	af/Account	1.11	1.02	1.09	1.17	1.05	1.17	1.17	1.13

2.3 PROJECTED WATER USE

2.3.1 Purveyor Projections

Each of the four retail water purveyors provided projected water demands based on the projects that are under evaluation, are in the planning process, or the result of its own water planning efforts for its service area. The purveyors maintain historical data, as well as work closely with property owners and developers in their service areas, to ensure they have an adequate water supply and the necessary infrastructure to provide water service.

Since there are only four purveyors in the service area, there is close coordination and exchange of data. SCWD's engineering department continually updates expected demands and infrastructure needs. NCWD prepared a "Water Supply Assessment" in 2004 that is the basis for NCWD's projected demand. VWC is a California Public Utilities Commission (PUC)-regulated water supplier and is required to regularly provide its service plan for rate increases and service area changes. Table 2-2 summarizes the purveyors' projected water demands through 2030.

Table 2-2
Projected Water Demands

Purveyor	Demand (af)						Annual Increase
	2005	2010	2015	2020	2025	2030	
CLWA SCWD	30,400	35,000	39,100	43,100	47,100	51,100	2.1%
LACWWD #36	1,300	1,600	1,800	2,000	2,400	2,800	3.1%
NCWD	11,800	14,400	16,000	17,700	19,300	21,000	2.4%
VWC	30,200	35,100	40,200	43,700	50,600	54,400	2.4%
Total Purveyor	**73,700**	**86,100**	**97,100**	**106,500**	**119,400**	**129,300**	2.2%
Agricultural/Private Uses	15,600	13,950	12,300	10,650	9,000	9,000	--
Total (w/o conservation)	**89,300**	**100,050**	**109,400**	**117,150**	**128,400**	**138,300**	**--**
Conservation (1)	(7,370)	(8,610)	(9,710)	(10,650)	(11,940)	(12,930)	--
Total (w/conservation)	81,930	91,440	99,690	106,500	116,460	125,370	1.3%

Notes:
(1) Assumes 10 percent reduction on urban portion of demand resulting from conservation best management practices (see Chapter 7).

Tables 2-3 through 2-6 present the past, current, and projected water deliveries by customer type for the CLWA SCWD, LACWWD #36, NCWD, and VWC, respectively.

Table 2-3
Past, Current, and Projected Water Deliveries (by customer type)
CLWA Santa Clarita Water Division

Year		Water Use Sectors	Single Family	Multi-Family	Comm-ercial	Industrial	Institutional/ Government	Landscape	Total
2000	metered	No. of accounts	16,906	3,784	537	48	83	612	21,970
		Deliveries (af)	15,966	2,669	930	1,096	893	3,726	25,280
2005	metered	No. of accounts	20,550	4,800	650	50	125	700	26,875
		Deliveries (af)	19,139	3,386	1,126	1,142	1,345	4,262	30,400
2010	metered	No. of accounts	23,575	5,800	750	60	175	800	31,160
		Deliveries (af)	21,486	4,091	1,299	1,370	1,883	4,871	35,000
2015	metered	No. of accounts	25,715	6,800	850	70	225	900	34,560
		Deliveries (af)	23,333	4,796	1,472	1,598	2,421	5,480	39,100
2020	metered	No. of accounts	27,855	7,800	950	80	275	1,000	37,960
		Deliveries (af)	25,080	5,501	1,645	1,826	2,959	6,089	43,100
2025	metered	No. of accounts	29,995	8,800	1,050	90	325	1,100	41,360
		Deliveries (af)	26,827	6,206	1,818	2,054	3,497	6,698	47,100
2030	metered	No. of accounts	32,135	9,800	1,150	100	375	1,200	44,760
		Deliveries (af)	28,574	6,911	1,991	2,282	4,035	7,307	51,100

Table 2-4
Past, Current, and Projected Water Deliveries (by customer type)
Los Angeles County Waterworks District No. 36

Year		Water Use Sectors	Single Family	Multi-Family	Comm-ercial	Const/ Industrial	Institutional/ Government	Landscape	Total
2000	metered	No. of accounts	948	5	0	10	5	4	972
		Deliveries (af)	643	29	0	54	20	12	758
2005	metered	No. of accounts	1,275	5	0	10	5	5	1,300
		Deliveries (af)	1,185	29	0	54	20	12	1,300
2010	metered	No. of accounts	1,575	5	0	10	5	4	1,600
		Deliveries (af)	1,480	30	0	56	21	12	1,600
2015	metered	No. of accounts	1,774	5	0	11	5	4	1,800
		Deliveries (af)	1,676	31	0	58	22	13	1,800
2020	metered	No. of accounts	1,973	6	0	11	6	4	2,000
		Deliveries (af)	1,872	32	0	60	22	13	2,000
2025	metered	No. of accounts	2,372	6	0	11	6	5	2,400
		Deliveries (af)	2,268	33	0	62	23	14	2,400
2030	metered	No. of accounts	2,772	6	0	12	6	5	2,800
		Deliveries (af)	2,665	34	0	63	23	14	2,800

Table 2-5
Past, Current, and Projected Water Deliveries (by customer type)
Newhall County Water District

Year		Water Use Sectors	Single Family	Multi-Family	Commercial	Construction/ Industrial	Institutional/ Government	Landscape	Total
2000	metered	No. of accounts	6,608	293	377	11	18	127	7,434
		Deliveries (af)	5,556	1,537	872	411	119	1,128	9,623
2005	metered	No. of accounts	8,047	293	399	35	59	232	9,065
		Deliveries (af)	7,243	1,969	891	207	133	1,357	11,800
2010	metered	No. of accounts	9,735	425	425	60	75	300	11,020
		Deliveries (af)	8,750	2,485	999	250	176	1,740	14,400
2015	metered	No. of accounts	10,730	450	450	85	90	425	12,230
		Deliveries (af)	9,475	2,595	1,038	315	212	2,365	16,000
2020	metered	No. of accounts	11,865	475	475	110	105	550	13,580
		Deliveries (af)	10,385	2,750	1,066	375	234	2,890	17,700
2025	metered	No. of accounts	12,620	500	500	135	120	675	14,550
		Deliveries (af)	11,000	2,900	1,114	425	261	3,600	19,300
2030	metered	No. of accounts	14,050	525	525	160	135	800	16,195
		Deliveries (af)	12,275	3,000	1,140	500	285	3,800	21,000

Table 2-6
Past, Current, and Projected Water Deliveries (by customer type)
Valencia Water Company

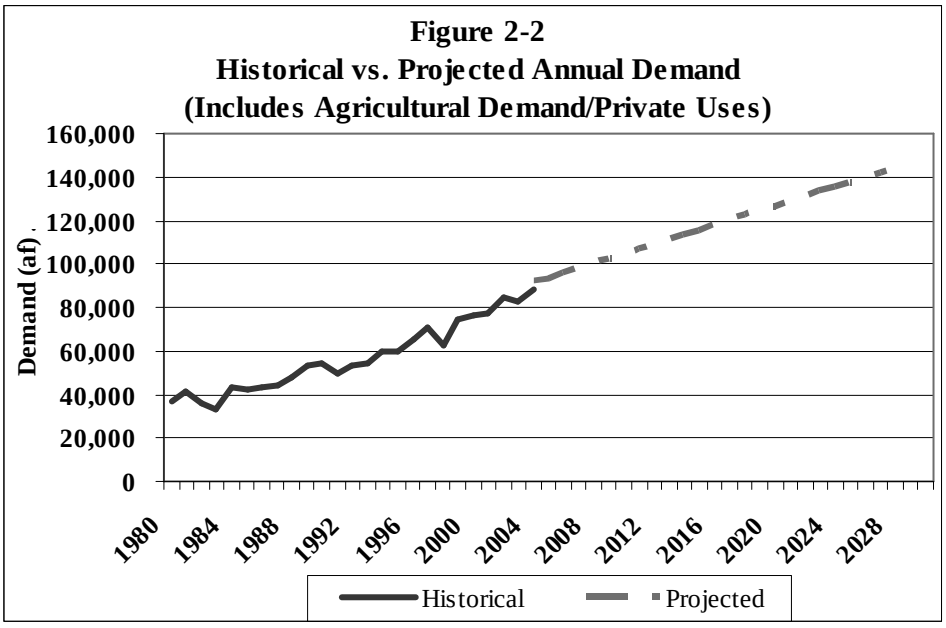
Year		Water Use Sectors	Single Family	Multi-Family	Comm-ercial	Industrial	Institutional/ Government	Landscape	Total
2000	metered	No. of accounts	19,805	191	876	382	406	1	21,661
		Deliveries (af)	12,112	1,373	5,798	1,759	3,711	437	25,190
2005	metered	No. of accounts	25,067	364	1,307	452	505	3	27,698
		Deliveries (af)	14,526	1,646	6,949	2,108	4,448	523	30,200
2010	metered	No. of accounts	29,405	2,035	1,615	558	624	3	34,240
		Deliveries (af)	17,147	2,186	8,611	2,399	4,465	292	35,100
2015	metered	No. of accounts	30,724	8,176	1,998	690	772	3	42,363
		Deliveries (af)	17,998	4,151	9,882	2,753	5,124	292	40,200
2020	metered	No. of accounts	31,234	13,203	2,282	788	882	3	48,392
		Deliveries (af)	18,326	5,760	10,752	2,995	5,575	292	43,700
2025	metered	No. of accounts	36,384	14,341	2,605	900	1,007	3	55,240
		Deliveries (af)	21,803	6,124	12,454	3,469	6,458	292	50,600
2030	metered	No. of accounts	39,484	14,391	2,767	956	1,069	3	58,670
		Deliveries (af)	23,909	6,140	13,388	3,729	6,942	292	54,400

2.3.2 Projections Based On Historical Use

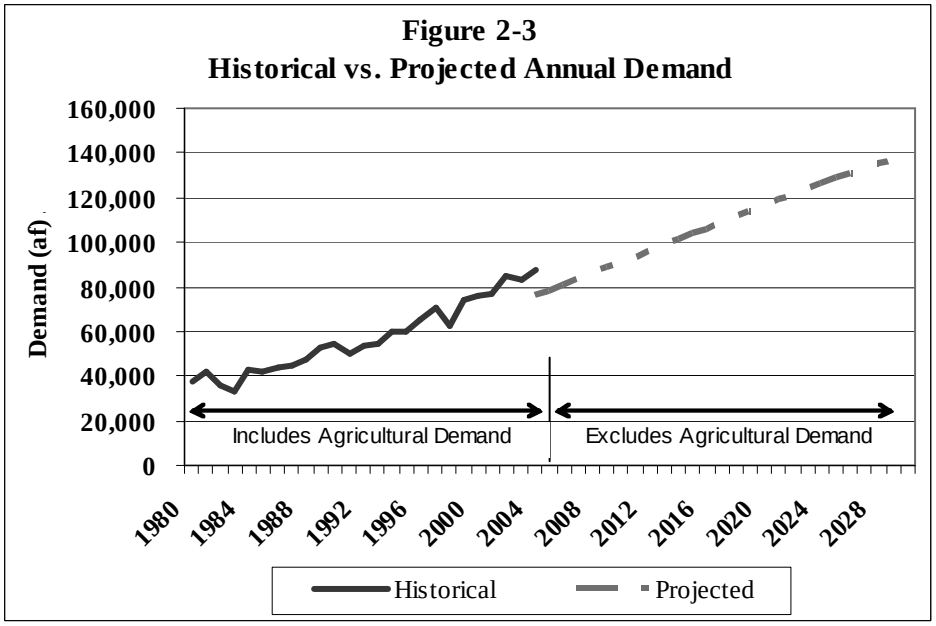
Another methodology to forecast demand involves projecting historical water use into the future. Mathematical methods are used to perform this projection. A correlation factor to the historical data of 1.0 would be considered the most exact. The ideal method results in a correlation of 0.9 or greater. For this Plan, a Linear Regression method was used to project demands, which resulted in a coefficient of correlation of 0.95.

2.3.2.1 Linear Regression Method

The Linear Regression method examines the historical growth in water demand and projects forward using linear regression. Figure 2-2 displays the growth in water demand since 1980 for the CLWA service area with a linear progression through the year 2030. Growth in demand has been relatively constant with some downturns that reflect either weather patterns or economic trends. The demand includes agricultural as well and municipal and industrial (M&I) uses.



On Figure 2-3, agricultural demand is removed to show M&I use only. As shown on Figure 2-3, results from the linear regression (after extracting the projected agricultural demands provided in Table 2-2) indicate a total 2030 demand of 137,100 af. This demand figure is comparable to the 129,300 af submitted by the purveyors (a six percent difference), as shown in Table 2-2.



2.3.2.2 Comparison to City and County Planning

The next step involved comparison of the purveyor-projected growth in water demand with the growth projections provided by local land use planning agencies. Table 2-7 is the result of the joint OVOV planning effort by the City of Santa Clarita and LACDRP.

Table 2-7
Adjusted Santa Clarita Valleywide General Plan [(1)(2)]
(SCAG 2004 RTP, Projections: Years 2000 to 2030)

Jurisdiction	2000 [(3)]	2005	2010	2015	2020	2025	2030	Change	Average Annual Growth
City of Santa Clarita									
Population	151,088	171,290	196,680	210,280	222,290	232,830	242,620	91,532	1.6%
Households	50,787	55,614	62,837	67,832	72,883	77,868	82,806	32,019	1.6%
Employment	51,380	59,640	68,820	73,240	77,490	81,460	85,190	33,810	1.7%
Jobs/Household ratio	*1.01*	*1.07*	*1.10*	*1.08*	*1.06*	*1.05*	*1.03*	0.02	
Persons per Household	*2.97*	*3.08*	*3.13*	*3.10*	*3.05*	*2.99*	*2.93*	(0.04)	
SCV Unincorporated Area									
Population	61,523	78,053	105,094	125,850	146,401	166,557	185,589	124,066	3.7%
Households	17,973	20,645	28,108	34,609	41,154	47,941	54,630	36,657	3.8%
Employment (estimated)	10,790	13,900	18,830	23,190	27,980	33,080	38,240	27,450	4.3%
Jobs/Household ratio	*0.60*	*0.67*	*0.67*	*0.67*	*0.68*	*0.69*	*0.70*	0.10	
Persons per Household	*3.42*	*3.78*	*3.74*	*3.64*	*3.56*	*3.47*	*3.40*	(0.03)	
SCV Planning Area[(4)]									
Population	212,611	249,343	301,774	336,130	368,691	399,387	428,209	215,598	2.4%
Households	68,760	76,259	90,945	102,441	114,037	125,809	137,436	68,676	2.3%
Employment	62,170	73,540	87,650	96,430	105,470	114,540	123,430	61,260	2.3%
Jobs/Household ratio	*0.90*	*0.96*	*0.96*	*0.94*	*0.92*	*0.91*	*0.90*	(0.01)	
Persons per Household	*3.09*	*3.27*	*3.32*	*3.28*	*3.23*	*3.17*	*3.12*	0.02	

Notes:
(1) Source: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, 2004 Regional Transportation Plan (RTP).
(2) The SCAG population and household projections are used as control totals for the entire "One Valley One Vision" (OVOV) planning area while the allocation between the City and unincorporated areas is based on 2000-2003 Department of Finance (DOF) population and household trend data. The 1998-2003 Employment Development Department data is used to calibrate the 2005 base year for employment. However, the employment totals for the unincorporated area are allowed to exceed the SCAG RTP 2004 forecast based on local information from the County of Los Angeles Planning staff.
(3) 2000 Population and Household data is based on DOF estimates benchmarked to the 2000 U.S. Census Figures.
(4) The Santa Clarita Valley Planning Area estimates are the sum of the City and unincorporated area.
(5) On May 11, 2005, the OVOV Team agreed to use these adjusted RTP data for the OVOV General Plan Update.

The OVOV task force used the data provided by Southern California Association of Governments' (SCAG's) Regional Transportation Plan (RTP), the State Department of Finance (DOF), and the Employment Development Department. This joint effort was undertaken to ensure compatibility of planning efforts since the Valley is considered a realistic planning area with both City and County jurisdictions.

The annual rate of growth was examined to determine if the projected water demand was in accordance with the purveyors' projected growth shown in Table 2-2.

In Table 2-7, the OVOV projections indicate a 1.6 percent annual growth rate of population and households for the City of Santa Clarita, and 3.7 to 3.8 percent annual growth rates for the Valley Unincorporated Area. This results in a combined growth rate of 2.3 to 2.4 percent, which is

comparable to the purveyors' projected annual growth rate in water demand of 2.2 percent shown in Table 2-2.

Table 2-8 summarizes the projected Valley water use per household in af and in gallons per capita per day (gpcd). The data developed in this table is derived from the total annual demand projections provided in Table 2-2 divided by the projected annual populations and by the projected annual households provided in Table 2-7. Since the forecasted growth is based on households and population, it is not possible to obtain a direct match to number of service connections and water use per connection. However, based on 2005 population and water demand, the current estimated water use is 264 gpcd. The projected water use in 2030 of 270 gpcd remains very close to the 2005 water use of 264 gpcd, thus demonstrating that water demand and projected growth track closely. The term "household" is a term used by OVOV and does not equate to a single family residence.

Table 2-8
Projected Household Water Use

Projected Water Use	2005	2010	2015	2020	2025	2030
Water Use (af/household) (1)	0.97	0.95	0.95	0.93	0.95	0.94
Water Use (gpcd) (2)	264	255	258	258	267	270

Notes:

(1) Based on dividing the total annual demand projections provided in Table 2-2 by the projected annual households provided in Table 2-7.

(2) Based on dividing the total annual demand projections (converted from af to gpd) provided in Table 2-2 by the projected annual populations provided in Table 2-7.

An additional analysis was conducted by using actual 2004 water use (in gpcd) and multiplying that by the projected population from the OVOV population forecast (Table 2-7). 2004 actual water use was determined by taking the "2004 Santa Clarita Valley Water Report" M&I water use for 2004 and dividing that by the 2004 population. This resulted in an actual water use of 269 gpcd, which compares closely to the values presented in Table 2-8. Table 2-9 presents a summary of the comparison between the purveyors and OVOV demand projections. The projected demand by the purveyors varies from -0.20 percent to 5.62 percent of the water demand determined based on the OVOV population projections. This demonstrates that the purveyors' projections track closely with the anticipated growth projected by OVOV.

Table 2-9
Comparison of Purveyor and OVOV Demand Projections

Projection	Demand (af)					
	2005	2010	2015	2020	2025	2030
Purveyor (1)	73,700	86,100	97,100	106,500	119,400	129,300
OVOV (2)	75,136	90,936	101,288	111,100	120,350	129,035
Difference	1,436	4,836	4,188	4,600	950	(264)
Percent Difference	1.95%	5.62%	4.31%	4.32%	0.80%	-0.20%

Notes:

(1) Demand projections based on total puveyor projections provided in Table 2-2.

(2) Demand projections based on 269 gpcd multiplied by OVOV population projections provided in Table 2-7.

The data provided in Tables 2-3 through 2-6 indicates total estimated 2005 Valley water use to be (in af/connection) 1.13 for all connection types and 0.77 for a single family connection. These findings were compared with a study conducted by the American Water Works Association Research Foundation (AWWARF), Residential End Uses of Water (1999). This study compared residential water demand for several cities in the western United States. For comparison, the average annual water use (in af/connection) for a single family connection in Las Virgenes Municipal Water District and the City of San Diego are 0.87 and 0.47, respectively, which compare with the Valley water use of 0.77.

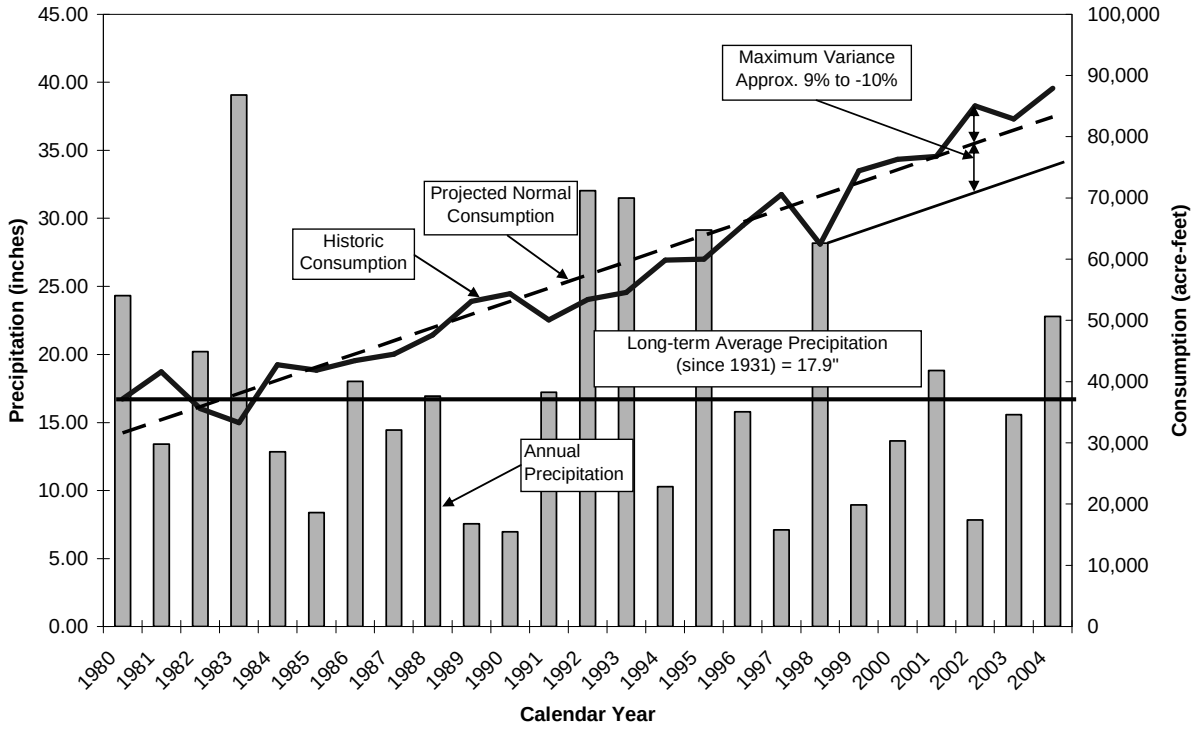
2.4 OTHER FACTORS AFFECTING WATER USAGE

Two major factors that affect water usage are weather and water conservation. Historically, when the weather is hot and dry, water usage increases. The amount of increase varies according to the number of consecutive years of hot, dry weather and the conservation activities imposed. During cool-wet years, historical water usage has decreased to reflect less water usage for external landscaping. Water conservation measures employed within the CLWA's and purveyors' service areas have a direct long-term effect on water usage. Both of these factors are discussed below in detail.

2.4.1 Weather Effects on Water Usage

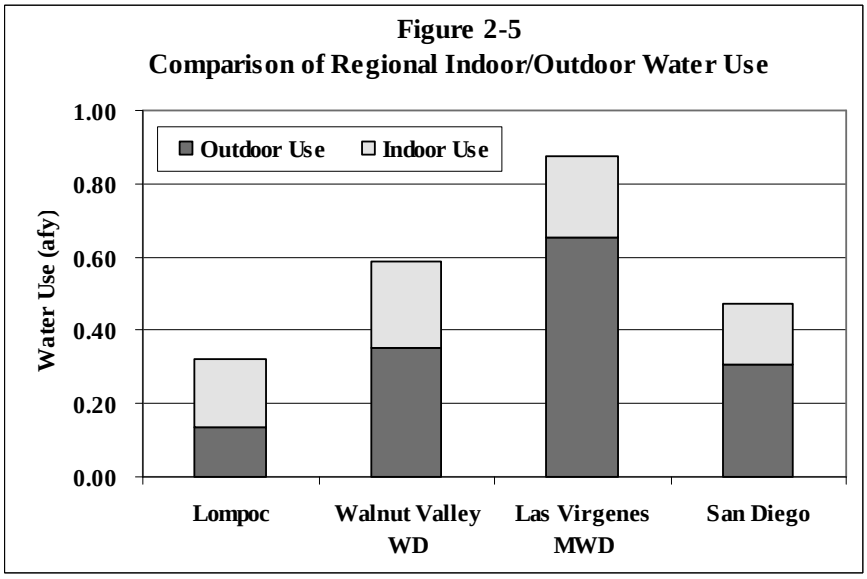
Historically, about 605 to 1,110 gallons of water are consumed daily for urban uses for every household in the CLWA's and purveyors' service areas. Most of this range in water use is due to seasonal weather variations. As presented on Figure 2-4, the historical water use from 1980 to 2004 fluctuated principally due to weather, with the maximum variance around the projected normal of approximately 9 percent higher use in hot, dry years to approximately 10 percent lower use in cool, wet years.

Figure 2-4
Weather Effects on Water Usage



The same AWWARF study described in Section 2.3.2.2 compared residential indoor and outdoor water use for several cities in the western United States. A comparison of the water use for four California locations is presented on Figure 2-5. As shown on the figure, indoor water use tracks closely among each of the four locations. However, outdoor use (landscaping), varies significantly among the locations. CLWA and the retail purveyors' water use correlates most closely with the data provided for Las Virgenes MWD.

Figure 2-5
Comparison of Regional Indoor/Outdoor Water Use



2.4.2 Conservation Effects on Water Usage

In recent years, water conservation has become an increasingly important factor in water supply planning in California. The California plumbing code has instituted requirements for new construction that mandate the installation of ultra low-flow toilets and low-flow showerheads. CLWA and the purveyors have developed water conservation measures that include public information and education programs. CLWA funds a toilet replacement program and, through its connection fee program, has provided financial incentives to developers for good water management practices.

During the 1987-1992 drought period, overall water requirements due to the effects of hot, dry weather were projected to increase by approximately 10 percent. As a result of extraordinary conservation measures enacted during the period, the overall water requirements actually decreased by more than 10 percent.

Residential, commercial, and industrial usage can be expected to decrease as a result of the implementation of more aggressive water conservation practices. As previously discussed, the greatest opportunity for conservation is in developing greater efficiency and reduction in landscape irrigation. The irrigation demand can represent as much as 50 percent of the water demand for residential customers depending upon lot size and amount of irrigated turf and plants. It is assumed that conservation will result in a long-term 10 percent reduction of demand.

Chapter 3
WATER RESOURCES

Chapter 3.0
WATER RESOURCES

3.1 OVERVIEW

This section describes the water resources available to CLWA and the purveyors for the 25-year period covered by the Plan. These are summarized in Table 3-1 and discussed in more detail below. Both currently available and planned supplies are discussed.

Table 3-1
Summary of Current and Planned Water Supplies and Banking Programs(1)

Water Supply Sources	Supply (af)					
	2005	2010	2015	2020	2025	2030
Existing Supplies						
Wholesale (Imported)	*70,380*	*73,660*	*75,560*	*76,080*	*77,980*	*77,980*
SWP Table A Supply (2)	65,700	67,600	69,500	71,400	73,300	73,300
Flexible Storage Account (CLWA) (3)	4,680	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County) (3) (4)	0	1,380	1,380	0	0	0
Local Supplies						
Groundwater	*40,000*	*46,000*	*46,000*	*46,000*	*46,000*	*46,000*
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000	35,000
Saugus Formation	5,000	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	112,080	121,360	123,260	123,780	125,680	125,680
Existing Banking Programs (3)						
Semitropic Water Bank (5)	50,870	50,870	0	0	0	0
Total Existing Banking Programs	50,870	50,870	0	0	0	0
Planned Supplies						
Local Supplies						
Groundwater	*0*	*10,000*	*10,000*	*20,000*	*20,000*	*20,000*
Restored wells (Saugus Formation)	0	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	0	10,000	10,000	10,000
Recycled Water (6)	0	0	1,600	6,300	11,000	15,700
Transfers						
Buena Vista-Rosedale (7)	0	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	0	21,000	22,600	37,300	42,000	46,700
Planned Banking Programs (3)						
Rosedale-Rio Bravo	0	20,000	20,000	20,000	20,000	20,000
Additional Planned Banking	0	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	0	20,000	40,000	40,000	40,000	40,000

Notes:

(1) The values shown under "Existing Supplies" and "Planned Supplies" are supplies projected to be available in average/normal years. The values shown under "Existing Banking Programs" and "Planned Banking Programs" are either total amounts currently in storage, or the maximum capacity of program withdrawals.

(2) SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available, taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005).

(3) Supplies shown are total amounts that can be withdrawn, and would typically be used only during dry years.

(4) Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).

(5) Supplies shown are the total amount currently in storage, and would typically be used only during dry years. Once the current storage amount is withdrawn, this supply would no longer be available and in any event, is not available after 2013.

(6) Recycled water supplies based on projections provided in Chapter 4, Recycled Water.

(7) CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 afy of this supply which, if approved, would leave the remaining 7,000 afy available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

The term "dry" is used throughout this chapter and in subsequent chapters concerning water resources and reliability as a measure of supply availability. As used in this Plan, dry years are those years when supplies are the lowest, which occurs primarily when precipitation is lower than the long-term average precipitation. The impact of low precipitation in a given year on a particular supply may differ based on how low the precipitation is, or whether the year follows a high-precipitation year or another low-precipitation year. For the SWP, a low-precipitation year may or may not affect supplies, depending on how much water is in SWP storage at the beginning of the year. Also, dry conditions can differ geographically. For example, a dry year can be local to the Valley area (thereby affecting local groundwater replenishment and production), local to northern California (thereby affecting SWP water deliveries), or statewide (thereby affecting both local groundwater and the SWP). When the term "dry" is used in this Plan, statewide drought conditions are assumed, affecting both local groundwater and SWP supplies at the same time.

3.2 WHOLESALE (IMPORTED) WATER SUPPLIES

3.2.1 Imported Water Supplies

Imported water supplies consist primarily of SWP supplies, which were first delivered to CLWA in 1980. In addition, CLWA has access to water from Flexible Storage Accounts in Castaic Lake, which are planned for dry-year use, but are not strictly limited as such. CLWA wholesales these imported supplies to each of the local retail water purveyors.

The SWP is the largest state-built, multi-purpose water project in the country. It was authorized by the California State Legislature in 1959, with the construction of most initial facilities completed by 1973. Today, the SWP includes 28 dams and reservoirs, 26 pumping and generating plants, and approximately 660 miles of aqueducts. The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Storage released from Oroville Dam on the Feather River flows down natural river channels to the Sacramento-San Joaquin River Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct. The California Aqueduct conveys water along the west side of the San Joaquin Valley to Edmonston Pumping Plant, where water is pumped over the Tehachapi Mountains and the aqueduct then divides into the East and West Branches. CLWA takes delivery of its SWP water at Castaic Lake, a terminal reservoir of the West Branch. From Castaic Lake, CLWA delivers its SWP supplies to the local retail water purveyors through an extensive transmission pipeline system.

In the early 1960s, DWR began entering into individual SWP Water Supply Contracts with urban and agricultural public water supply agencies located throughout northern, central, and southern California for SWP water supplies. CLWA is one of 29 water agencies (commonly referred to as “contractors”) that have an SWP Water Supply Contract with DWR. Each SWP contractor’s SWP Water Supply Contract contains a “Table A,” which lists the maximum amount of water an agency may request each year throughout the life of the contract. Table A is used in determining each contractor’s proportionate share, or “allocation,” of the total SWP water supply DWR determines to be available each year. The total planned annual delivery capability of the SWP and the sum of all contractors’ maximum Table A amounts was originally

4.23 million af. The initial SWP storage facilities were designed to meet contractors' water demands in the early years of the SWP, with the construction of additional storage facilities planned as demands increased. However, essentially no additional SWP storage facilities have been constructed since the early 1970s. SWP conveyance facilities were generally designed and have been constructed to deliver maximum Table A amounts to all contractors. After the permanent retirement of some Table A amount by two agricultural contractors in 1996, the maximum Table A amounts of all SWP contractors now totals about 4.17 million af. Currently, CLWA's annual Table A Amount is 95,200 af.[1,2]

While Table A identifies the maximum annual amount of water an SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each year is dependent on a number of factors and can vary significantly from year to year. The primary factors affecting SWP supply availability include hydrology, the amount of water in SWP storage at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by SWP contractors. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time, which increases the competition for limited SWP dry-year supplies.

Consistent with other urban SWP contractors, SWP deliveries to CLWA have increased as its requests for SWP water have increased. Tables 3-2 and 3-3 present historical total SWP deliveries to CLWA municipal purveyors and CLWA SWP demand projections provided to DWR (CLWA's wholesale supplier), respectively.

Table 3-2
Historical Total SWP Deliveries to Purveyors(1)

Year	Deliveries (af)	Year	Deliveries (af)
1980	1,125	1993	13,393
1981	5,816	1994	14,389
1982	9,659	1995	16,996
1983	9,185	1996	18,093
1984	10,996	1997	22,148
1985	11,823	1998	20,254
1986	13,759	1999	27,282
1987	16,285	2000	32,579
1988	19,033	2001	35,369
1989	21,618	2002	41,768
1990	21,613	2003	44,419
1991	7,968	2004	47,205
1992	13,911		

Notes:
(1) Includes CLWA SCWD, LACWWD 36, NCWD, and VWC.

[1] CLWA's original SWP Water Supply Contract with DWR was amended in 1966 for a maximum annual Table A Amount of 41,500 af. In 1991, CLWA purchased 12,700 af of annual Table A Amount from a Kern County water district, and in 1999 purchased an additional 41,000 af of annual Table A Amount from another Kern County water district, for a current total annual Table A Amount of 95,200 af.
[2] See Section 3.2.2.

Table 3-3
CLWA Demand Projections Provided to Wholesale Supplier (DWR) (af)

Wholesaler (Supply Source)	2010	2015	2020	2025	2030
DWR (SWP)	95,200	95,200	95,200	95,200	95,200

In an effort to assess the impacts of these varying conditions on SWP supply reliability, DWR issued its "State Water Project Delivery Reliability Report" in May 2003. The report assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. DWR is in the process of updating this report and, on May 25, 2005, provided updated delivery reliability estimates to the SWP contractors in its "Excerpts from the Working Draft of 2005 State Water Project Delivery Reliability." In this update, DWR provided a recommended set of analyses for SWP contractors to use in preparing their 2005 UWMPs.[3] These updated analyses indicate that the SWP, using existing facilities operated under current regulatory and operational constraints, and with all contractors requesting delivery of their full Table A Amounts in most years, could deliver 77 percent of total Table A Amounts on a long-term average basis. These most recent analyses also project that SWP deliveries during multiple-year dry periods could average about 25 to 40 percent of total Table A Amounts and could possibly be as low as 5 percent during an unusually dry single year. During wetter years, or more than 25 percent of the time, 100 percent of full Table A Amounts is projected to be available.

The SWP supplies projected to be available for delivery to CLWA were determined based on the total SWP delivery percentages identified by DWR in its updated analyses. Table 3-4 shows SWP supplies projected to be available to CLWA in average/normal years (based on the average delivery over the study's historic hydrologic period from 1922-1994), i.e., long-term average basis. Table 3-5 summarizes estimated SWP supply availability in a single dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple dry year period (based on a repeat of the worst-case historic four-year drought of 1931-1934). Reliability and dry-year planning of water supplies are further described in Chapter 6, Reliability Planning.

[3]As part of the Monterey Settlement Agreement, DWR is to prepare an assessment every two years of SWP delivery reliability, which SWP contractors are to use in their water planning efforts. DWR has completed an update of its analysis of SWP delivery reliability and is currently updating this report. While DWR continues its drafting of the remainder of the report, it issued this updated reliability data to the SWP contractors early, so that they could use the most up-to-date SWP reliability data in preparation of their UWMPs. For this reason, DWR issued, in a Notice to Contractors, excerpts from its working draft of this report (available at www.swpao.water.ca.gov/pdfs/05-08.pdf). It is unlikely that the reliability data in DWR's final version of this updated report will differ from the draft.

Table 3-4
Wholesaler Identified and Quantified Existing and Planned Sources of Water Available to CLWA for Average/Normal Years (1)

Wholesaler (Supply Source)	2010	2015	2020	2025	2030
DWR (SWP)					
Table A Supply (af)	67,600	69,500	71,400	73,300	73,300
% of Table A Amount	71%	73%	75%	77%	77%

Notes:

(1) The percentages of Table A Amount projected to be available are taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005). Supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by these percentages.

Table 3-5
Wholesale Supply Reliability (1)

Wholesaler	Single Dry Year (2)	Multiple Dry Years (3)
DWR (SWP Supply)		
2005		
Table A Supply (af)	3,800	30,500
% of Table A Amount	4%	32%
2025/2030		
Table A Supply (af)	4,800	31,400
% of Table A Amount	5%	33%

Notes:

(1) The percentages of Table A Amount projected to be available are taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005). Supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by these percentages.

(2) Based on the worst case historic single dry year of 1977.

(3) Supplies shown are annual averages over four consecutive dry years, based on the worst case historic four-year dry period of 1931-1934.

As part of its Water Supply Contract with DWR, CLWA has access to a portion of the storage capacity of Castaic Lake. This Flexible Storage Account allows CLWA to borrow up to 4,684 af of the storage in Castaic Lake. Any of this amount that CLWA borrows must be replaced by CLWA within five years of its withdrawal. CLWA manages this storage by keeping the account full in normal and wet years and then delivering that stored amount (or a portion of it) during dry periods. The account is refilled during the next year that adequate SWP supplies are available to CLWA to do so. CLWA has recently negotiated with Ventura County water agencies to obtain the use of their Flexible Storage Account. This will allow CLWA access to another 1,376 af of storage in Castaic Lake. CLWA access to this additional storage will be available on a year-to-year basis for ten years, beginning in 2006.

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water may periodically be available, including “Article 21” water, Turnback Pool water, and DWR dry-year purchases. Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when

excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. The Turnback Pool is a program where contractors with allocated Table A supplies in excess of their needs in a given year may turn back that excess supply for purchase by other contractors who need additional supplies that year. The Turnback Pool can make water available in all types of hydrologic years, although generally less excess water is turned back in dry years. As urban contractor demands increase in the future, the amount of water turned back and available for purchase will likely diminish. In critical dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies. Because the availability of these supplies is somewhat uncertain, they are not included as supplies in this UWMP. However, CLWA's access to these supplies when they are available may enable it to improve the reliability of its SWP supplies beyond the values used throughout this report.

3.2.2 Litigation Effects on Availability of Imported Water

Of CLWA's 95,2000 af annual Table A Amount, 41,000 afy was permanently transferred to CLWA in 1999 by Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's Environmental Impact Report ("EIR") prepared in connection with the 41,000 afy water transfer was challenged in Friends of the Santa Clara River v. Castaic Lake Water Agency (Los Angeles County Superior Court, Case Number BS056954) ("Friends"). On appeal, the Court of Appeal, Second Appellate District held that since the 41,000 afy EIR tiered off the Monterey Agreement EIR that was later decertified, CLWA would also have to decertify its EIR as well and prepare a revised EIR. As amplified in detail in the following sentences, Friends was dismissed with prejudice (permanently) in February 2005. CLWA has not been enjoined from using any water that is part of the 41,000 afy transfer.

Under the jurisdiction of the Los Angeles County Superior Court in Friends, CLWA prepared and circulated a revised Draft EIR for the transfer, received and responded to public comments regarding the revised Draft EIR, and held two separate public hearings concerning the revised Draft EIR. CLWA approved the revised EIR for the transfer on December 22, 2004 and lodged the revised EIR with the Los Angeles Superior Court as part of its Return to the Preemptory Writ of Mandate in Friends. Thereafter, Friends was dismissed with prejudice (permanently). In January 2005, two new challenges to CLWA's environmental review for the transfer were filed in the Ventura County Superior Court by the Planning and Conservation League and by the California Water Impact Network; these cases have been consolidated and transferred to Los Angeles County Superior Court.

These pending challenges to the EIR for the transfer do not affect the reliability of the transfer amount, and it is still appropriate to include the transfer amount as part of CLWA's 95,200 AFY Table A amount, for the following reasons. First, the transfer was completed in 1999, and DWR has allocated and annually delivered the water in accordance with the completed transfer. Second, the Court of Appeal held that the only defect in the 1999 EIR was that it tiered off the

Monterey Agreement EIR, which was later decertified. This defect has now been remedied by the preparation of a revised EIR that did not tier off the Monterey Agreement EIR. Third, the Monterey Amendments settlement agreement expressly authorizes the operation of the SWP in accordance with the Monterey Amendments, which authorized the transfer. Fourth, the Court of Appeal refused to enjoin the transfer, and instead required preparation of a revised EIR. Fifth, the transfer contracts remain in full force and effect, and no court has ever questioned their validity or enjoined the use of this portion of CLWA's Table A amount. It is, therefore, reasonable to conclude that if a court finds the revised EIR legally deficient, that court, like all others before it, will again refuse to enjoin the transfer, and will instead require further revisions to the EIR. Therefore, the pending challenges litigation should have no impact upon the amount of water available to CLWA as a result of the transfer.

3.3 GROUNDWATER

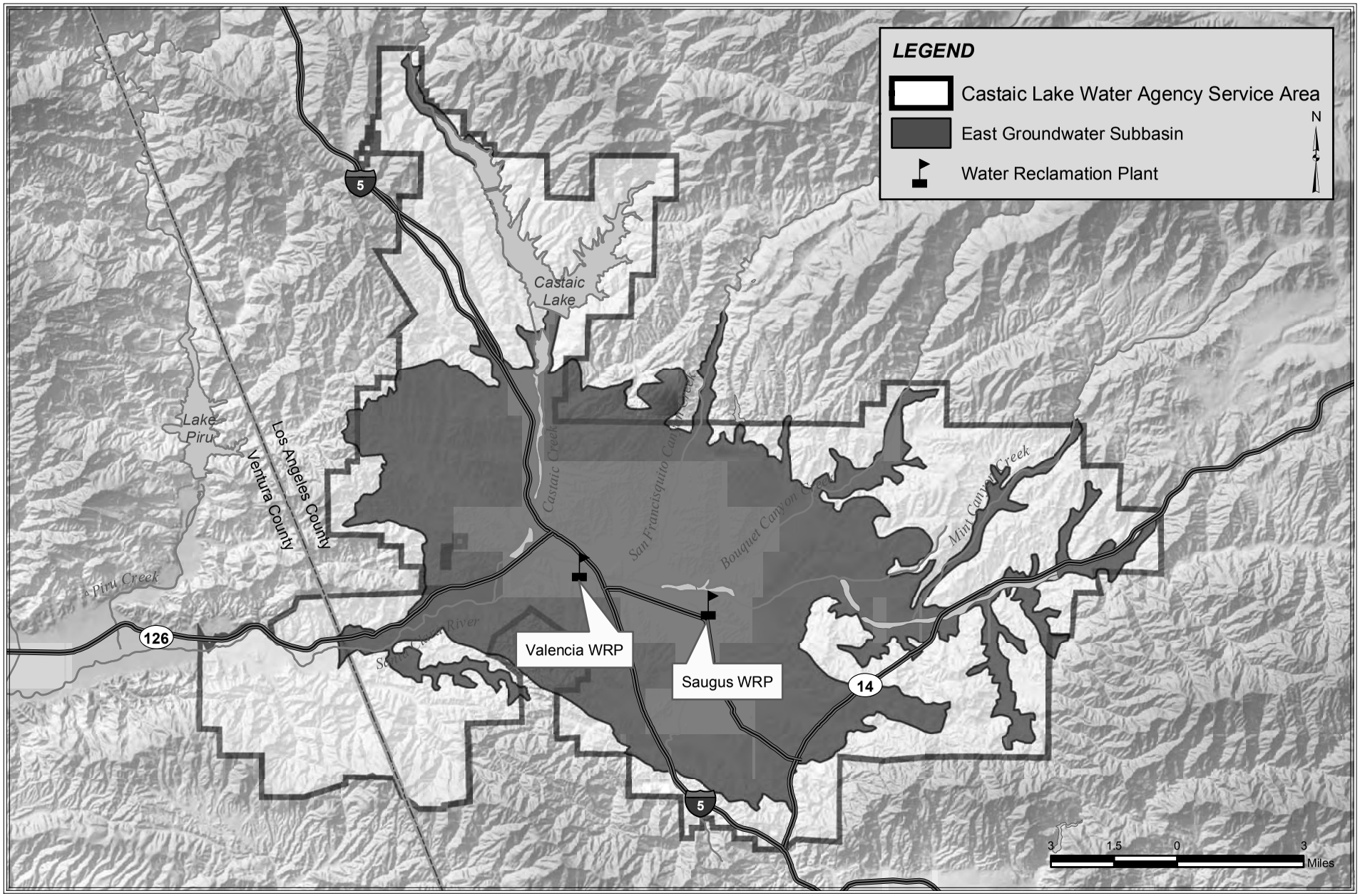
This section presents information about CLWA's and the purveyor's groundwater supplies, including a summary of the adopted GWMP.

3.3.1 Santa Clara River Groundwater Basin – East Subbasin

The sole source of local groundwater for urban water supply in the Valley is the groundwater Basin identified in the DWR Bulletin 118, 2003 Update as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin) (Basin No. 4-4.07). The Basin is comprised of two aquifer systems, the Alluvium and the Saugus Formation. The Alluvium generally underlies the Santa Clara River and its several tributaries, and the Saugus Formation underlies practically the entire Upper Santa Clara River area. There are also some scattered outcrops of Terrace deposits in the Basin that likely contain limited amounts of groundwater. Since these deposits are located in limited areas situated at elevations above the regional water table and are also of limited thickness, they are of no practical significance as aquifers and consequently have not been developed for any significant water supply. Figure 3-1 illustrates the mapped extent of the Santa Clara River Valley East Subbasin in DWR Bulletin 118 (2003), which approximately coincides with the outer extent of the Alluvium and Saugus Formation. The service area for CLWA and the purveyors is also shown on Figure 3-1.

3.3.2 Adopted Groundwater Management Plan

As part of legislation authorizing CLWA to provide retail water service to individual municipal customers, Assembly Bill (AB) 134 (2001) included a requirement that CLWA prepare a groundwater management plan in accordance with the provisions of Water Code Section 10753, which was originally enacted by AB 3030. The general contents of CLWA's groundwater management plan were outlined in 2002, and a detailed plan was drafted and adopted in 2003 to satisfy the requirements of AB 134. The plan both complements and formalizes a number of existing water supply and water resource planning and management activities in CLWA's service area, which effectively encompasses the East Subbasin of the Santa Clara River Valley Groundwater Basin.



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Figure 3-1
Santa Clara River Valley
East Groundwater Subbasin

CLWA adopted the GWMP on December 10, 2003. The GWMP contains four management objectives, or goals, for the Basin including (1) development of an integrated surface water, groundwater, and recycled water supply to meet existing and projected demands for municipal, agricultural, and other water uses; (2) assessment of groundwater basin conditions to determine a range of operational yield values that use local groundwater conjunctively with supplemental SWP supplies and recycled water to avoid groundwater overdraft; (3) preservation of groundwater quality, including active characterization and resolution of any groundwater contamination problems; and (4) preservation of interrelated surface water resources, which includes managing groundwater to not adversely impact surface and groundwater discharges or quality to downstream basin(s).

Prior to preparation and adoption of the GWMP, a local Memorandum of Understanding (MOU) process among CLWA, the purveyors, and United Water Conservation District (UWCD) in neighboring Ventura County had produced the beginning of local groundwater management, now embodied in the GWMP. In 2001, out of a willingness to seek opportunities to work together and develop programs that mutually benefit the region as well as their individual communities, those agencies prepared and executed the MOU. The agreement is a collaborative and integrated approach to several of the aspects of water resource management included in the GWMP. UWCD manages surface water and groundwater resources in seven groundwater basins, all located in Ventura County, downstream of the East Subbasin of the Santa Clara River Valley (Basin). UWCD is a partner in cooperative management efforts to accomplish the objectives (goals) for the Basin, particularly as they relate to preservation of surface water resources that flow through the respective basins. As a result of the MOU, the cooperating agencies have undertaken the following measures: integrated their database management efforts, developed and utilized a numerical groundwater flow model for analysis of groundwater basin yield and containment of groundwater contamination, and continued to monitor and report on the status of Basin conditions, as well as on geologic and hydrologic aspects of the overall stream-aquifer system.

The adopted GWMP includes 14 elements intended to accomplish the Basin management objectives listed above. In summary, the plan elements include:

- Monitoring of groundwater levels, quality, production and subsidence
- Monitoring and management of surface water flows and quality
- Determination of Basin yield and avoidance of overdraft
- Development of regular and dry-year emergency water supply
- Continuation of conjunctive use operations
- Long-term salinity management
- Integration of recycled water
- Identification and mitigation of soil and groundwater contamination, including involvement with other local agencies in investigation, cleanup, and closure
- Development and continuation of local, state and federal agency relationships
- Groundwater management reports

- Continuation of public education and water conservation programs
- Identification and management of recharge areas and wellhead protection areas
- Identification of well construction, abandonment, and destruction policies
- Provisions to update the groundwater management plan

Work on a number of the GWMP elements had been ongoing for some time prior to the formal adoption of the GWMP and continues on an ongoing basis. The results of some of that work are reflected in this Plan.

3.3.2.1 Available Groundwater Supplies

The groundwater component of overall water supply in the Valley derives from a groundwater operating plan developed over the last 20 years to meet water requirements (municipal, agricultural, small domestic) while maintaining the Basin in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). This operating plan also addresses groundwater contamination issues in the Basin, all consistent with both the MOU and the GWMP described above. The groundwater operating plan is based on the concept that pumping can vary from year to year to allow increased groundwater use in dry periods and increased recharge during wet periods and to collectively assure that the groundwater Basin is adequately replenished through various wet/dry cycles. As described in the MOU and subsequently formalized in the GWMP, the operating yield concept has been quantified as ranges of annual pumping volumes.

The ongoing work of the MOU has produced two formal reports. The first report, dated April 2004, documents the construction and calibration of the groundwater flow model for the Valley. The second report, dated August 2005, presents the modeling analysis of the purveyors' groundwater operating plan, described below. The primary conclusion of the modeling analysis is that the groundwater operating plan will not cause detrimental short or long term effects to the groundwater and surface water resources in the Valley and is therefore, sustainable[4]. The analysis of sustainability for groundwater and interrelated surface water is described in Appendix C.

The groundwater operating plan, summarized in Table 3-6, is as follows:

> **Alluvium** – Pumping from the Alluvial Aquifer in a given year is governed by local hydrologic conditions in the eastern Santa Clara River watershed. Pumping ranges between 30,000 and 40,000 afy during normal and above-normal rainfall years. However, due to hydrogeologic constraints in the eastern part of the Basin, pumping is reduced to between 30,000 and 35,000 afy during locally dry years.
>
> **Saugus Formation** – Pumping from the Saugus Formation in a given year is tied directly to the availability of other water supplies, particularly from the SWP. During average-year conditions within the SWP system, Saugus pumping ranges between 7,500 and 15,000 afy. Planned dry-year pumping from the Saugus Formation ranges between

[4] From "Analysis of Groundwater Basin Yield, Upper Santa Clara River Basin, Eastern Subbasin, Los Angeles County, California," prepared by CH2M Hill and Luhdorff and Scalmanini Consulting Engineers, August 2005.

15,000 and 25,000 afy during a drought year and can increase to between 21,000 and 25,000 afy if SWP deliveries are reduced for two consecutive years and between 21,000 and 35,000 afy if SWP deliveries are reduced for three consecutive years. Such high pumping would be followed by periods of reduced (average-year) pumping, at rates between 7,500 and 15,000 afy, to further enhance the effectiveness of natural recharge processes that would recover water levels and groundwater storage volumes after the higher pumping during dry years.

Table 3-6
Groundwater Operating Plan for the Santa Clarita Valley

Aquifer	Groundwater Production (af)			
	Normal Years	Dry Year 1	Dry Year 2	Dry Year 3
Alluvium	30,000 to 40,000	30,000 to 35,000	30,000 to 35,000	30,000 to 35,000
Saugus	7,500 to 15,000	15,000 to 25,000	21,000 to 25,000	21,000 to 35,000
Total	**37,500 to 55,000**	**45,000 to 60,000**	**51,000 to 60,000**	**51,000 to 70,000**

Within the groundwater operating plan, three factors affect the availability of groundwater supplies: sufficient source capacity (wells and pumps); sustainability of the groundwater resource to meet pumping demand on a renewable basis; and protection of groundwater sources (wells) from known contamination, or provisions for treatment in the event of contamination. The first two factors are briefly discussed as follows, and more completely addressed in Appendix C. Protection of groundwater sources and provisions for treatment in the event of contamination are developed further in Chapter 5.

For reference to the Groundwater Operating Plan, recent historical and projected groundwater pumping by the retail water purveyors is summarized in Tables 3-7 and 3-8, respectively.

Table 3-7
Historical Groundwater Production by the Retail Water Purveyors[1]

Basin Name	Groundwater Pumped (af) [2]				
	2000	2001	2002	2003	2004
Santa Clara River Valley East Subbasin					
CLWA Santa Clarita Water Division	*11,529*	*9,896*	*9,513*	*6,424*	*7,146*
Alluvium	11,529	9,896	9,513	6,424	7,146
Saugus Formation	0	0	0	0	0
LA County Waterworks District 36	*0*	*0*	*0*	*0*	*380*
Alluvium	0	0	0	0	380
Saugus Formation	0	0	0	0	0
Newhall County Water District	*3,694*	*4,073*	*4,376*	*3,779*	*5,321*
Alluvium	1,508	1,641	981	1,266	1,582
Saugus Formation	2,186	2,432	3,395	2,513	3,739
Valencia Water Company	*13,186*	*11,353*	*12,568*	*12,775*	*11,824*
Alluvium	12,179	10,518	11,603	11,707	9,862
Saugus Formation	1,007	835	965	1,068	1,962
Total	*28,409*	*25,322*	*26,457*	*22,978*	*24,671*
Alluvium	25,216	22,055	22,097	19,397	18,970
Saugus Formation	3,193	3,267	4,360	3,581	5,701
% of Total Municipal Water Supply	**47%**	**42%**	**39%**	**34%**	**34%**

Notes:

(1) From 2004 Santa Clarita Valley Water Report (May 2005).

(2) Pumping for municipal and industrial uses only. Does not include pumping for agricultural and miscellaneous uses.

Table 3-8
Projected Groundwater Production (Normal Year)

Basin Name	Range of Groundwater Pumping (af) [1][2][3]				
	2010	2015	2020	2025	2030
Santa Clara River Valley East Subbasin					
CLWA Santa Clarita Water Division					
Alluvium	6,000-14,000	6,000-14,000	6,000-14,000	6,000-14,000	6,000-14,000
Saugus Formation	3,000	3,000	3,000	3,000	3,000
LA County Waterworks District 36					
Alluvium	0	0	0	0	0
Saugus Formation	500-1,000	500-1,000	500-1,000	500-1,000	500-1,000
Newhall County Water District					
Alluvium	1,500-3,000	1,500-3,000	1,500-3,000	1,500-3,000	1,500-3,000
Saugus Formation	3,000-6,000	3,000-6,000	3,000-6,000	3,000-6,000	3,000-6,000
Valencia Water Company					
Alluvium	12,000-20,000	12,000-20,000	12,000-20,000	12,000-20,000	12,000-20,000
Saugus Formation	2,500-5,000	2,500-5,000	2,500-5,000	2,500-5,000	2,500-5,000

Notes:

(1) The range of groundwater production capability for each purveyor varies based on a number of factors which include each purveyor's capacity to produce groundwater, the location of its wells within the Alluvium and Saugus Formation, local hydrology, availability of imported water supplies and water demands.

(2) To ensure sustainability, the purveyors have committed that the annual use of groundwater pumped collectively in any given year will not exceed the purveyors' operating plan as described in the Basin Yield Study and reported annually in the SCV Water Report. As noted in the discussion of the purveyors' operating plan for groundwater in Table 3-6 of this Plan, the "normal" year quantities of groundwater pumped from the Alluvium and Saugus Formation are 30,000 to 40,000 afy and 7,500 to 15,000 afy, respectively.

(3) Groundwater pumping shown for purveyor municipal and industrial uses only.

The groundwater operating plan recognizes ongoing Alluvial pumping for both municipal and agricultural water supply, as well as other small private domestic and related pumping. During preparation of this Plan, the Santa Clarita Valley Well Owners' Association submitted some limited information about the nature and magnitude of private well pumping. This included a detailed estimate of private well pumping in the San Francisquito Canyon portion of the Basin: a total of 85 afy by 73 individual private pumpers, or nearly 1.2 afy per private well pumper. As a result of that input, it is now better recognized that total private pumping is likely well within the 500 afy estimates of small private well pumping in recent annual Water Reports, or about 1 percent of typical Alluvial Aquifer pumping by the purveyors and other known private well owners, e.g. agricultural pumpers, combined. Thus, while the small private wells are not explicitly modeled in the Basin yield analysis described herein because their locations and operations are not known, their operation creates a pumping stress that is essentially negligible at the scale of the regional model. Ultimately, the intent to maintain overall pumping within the operating plan, including private pumping, will result in sustainable groundwater conditions to support the combination of municipal (purveyor), agricultural, and small private groundwater use on an ongoing basis.

3.3.2.1.1 Alluvium

Based on a combination of historical operating experience and recent groundwater modeling analysis, the Alluvial Aquifer can supply groundwater on a long-term sustainable basis in the overall range of 30,000 to 40,000 afy, with a probable reduction in dry years to a range of 30,000 to 35,000 afy. Both of those ranges include about 15,000 afy of Alluvial pumping for current agricultural water uses and an estimated pumping of up to about 500 afy by small private pumpers. The dry year reduction is a result of practical constraints in the eastern part of the Basin, where lowered groundwater levels in dry periods have the effect of reducing pumping capacities in that shallower portion of the aquifer.

Adequacy of Supply

For municipal water supply, with existing wells and pumps, the three retail water purveyors with Alluvial wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells (not contaminated by perchlorate) of 36,120 gpm, which translates into a current full-time Alluvial source capacity of approximately 58,000 afy. Alluvial pumping capacity from all the active municipal supply wells is summarized in Table 3-9. The locations of the various municipal Alluvial wells throughout the Basin are illustrated on Figure 3-2. These capacities do not include one Alluvial Aquifer well that has been temporarily inactivated due to perchlorate contamination: the SCWD Stadium well, which represents another 800 gpm of pumping capacity, or full-time source capacity of about 1,290 afy.

In terms of adequacy and availability, the combined active Alluvial groundwater source capacity of municipal wells is approximatley 58,000 afy. This is more than sufficient to meet the municipal, or urban, component of groundwater supply from the Alluvium, which is currently 20,000 to 25,000 afy of the total planned Alluvial pumping of 30,000 to 40,000 afy. (The balance of Alluvial pumping in the operating plan is for agricultural and other, including small private, pumping.)

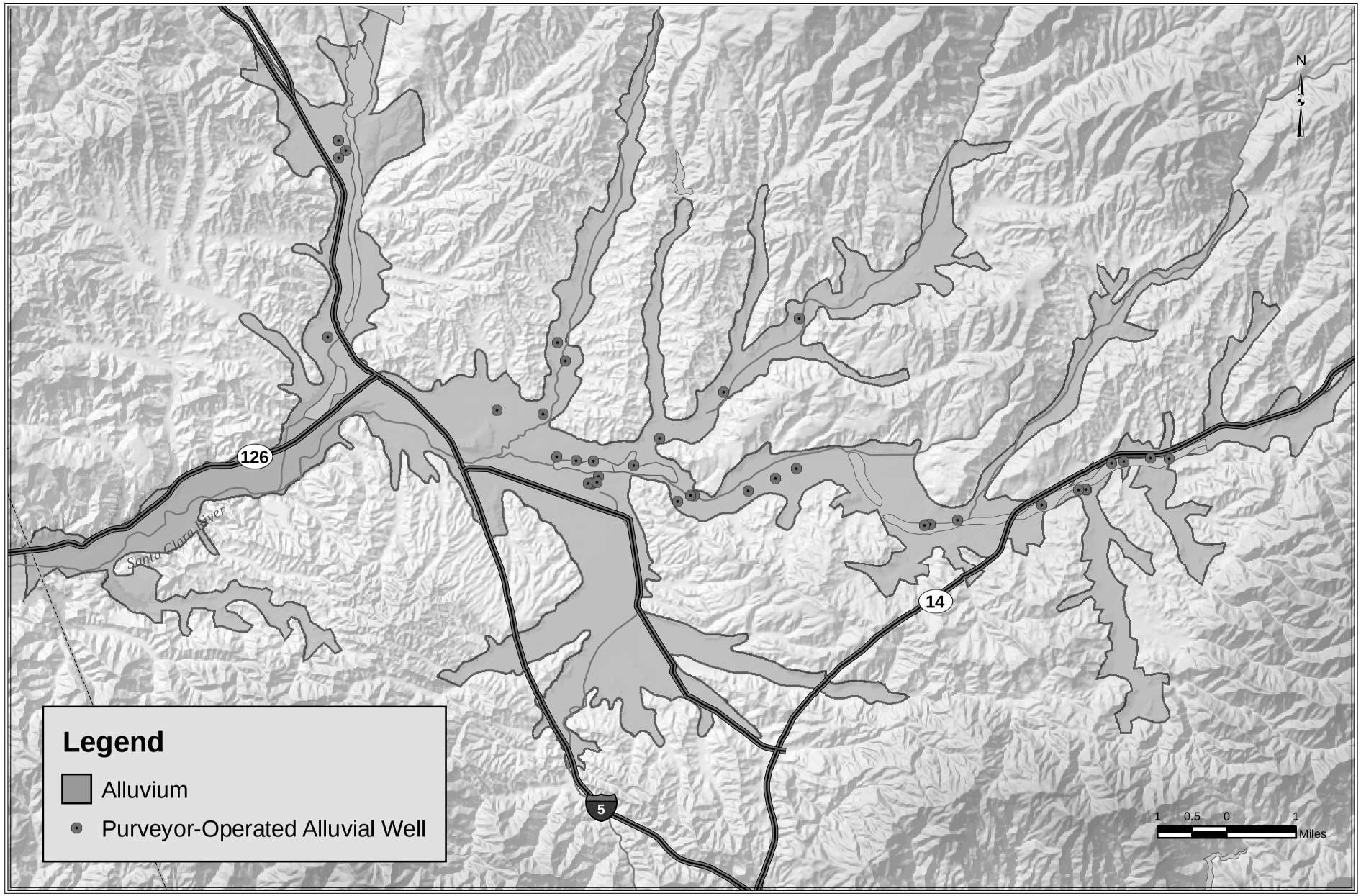
Sustainability

Until recently, the long-term renewability of Alluvial groundwater was empirically determined from approximately 60 years of recorded experience. Generally, it consists of long-term stability in groundwater levels and storage, with some dry period fluctuations in the eastern part of the Basin, over a historical range of total Alluvial pumpage from as low as about 20,000 afy to as high as about 43,000 afy. Those empirical observations have now been complemented by the development and application of a numerical groundwater flow model, which has been used to predict aquifer response to the planned operating ranges of pumping. The numerical groundwater flow model has also been used to analyze the control of perchlorate contaminant migration under selected pumping conditions that would restore, with treatment, pumping capacity inactivated due to perchlorate contamination detected in some wells in the Basin. The latter use of the model is described in Chapter 5, which addresses the Saugus Formation and the overall approach to the perchlorate contamination issue.

Table 3-9
Active Municipal Groundwater Source Capacity—Alluvial Aquifer Wells

Wells	Pump Capacity (gpm)	Max Annual Capacity (af)	Normal Year Production [1] (af)	Dry-Year Production (af)
Newhall CWD				
Castaic 1	600	960	385	345
Castaic 2	425	680	166	125
Castaic 4	270	430	100	45
Pinetree 1	300	480	164	N/A
Pinetree 3	550	880	545	525
Pinetree 4	500	800	300	N/A
NCWD Subtotal	2,645	4,230	1,660	1,040
Santa Clarita WD				
Clark	600	960	782	700
Guida	1,000	1,610	1,320	1,230
Honby	950	1,530	696	870
Lost Canyon 2	850	1,370	741	640
Lost Canyon 2A	825	1,330	1,034	590
Mitchell 5B	700	1,120	557	N/A
N. Oaks Central	1,000	1,610	822	1,640
N. Oaks East	950	1,530	1,234	485
N. Oaks West	1,400	2,250	898	N/A
Sand Canyon	750	1,200	930	195
Sierra	1,500	2,410	846	N/A
SCWD Subtotal	10,525	16,920	9,860	6,350
Valencia WC				
Well D	1,050	1,690	690	690
Well E-15	1,400	2,260	N/A	N/A
Well N	1,250	2,010	620	620
Well N7	2,500	4,030	1,160	1,160
Well N8	2,500	4,030	1,160	1,160
Well Q2	1,200	1,930	985	985
Well S6	2,000	3,220	865	865
Well S7	2,000	3,220	865	865
Well S8	2,000	3,220	865	865
Well T2	800	1,290	460	460
Well T4	700	1,120	460	460
Well U4	1,000	1,610	935	935
Well U6	1,250	2,010	825	825
Well W9	800	1,290	600	600
Well W10	1,500	2,410	865	865
Well W11	1,000	1,610	350	350
VWC Subtotal	22,950	36,950	11,705	11,705
Total Purveyors	**36,120**	**58,100** [2]	**23,225** [2]	**19,095** [2]

Notes:
(1) Based on recent annual pumping.
(2) Currently active wells only; capacity will slightly increase by restoration of contaminated wells.



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Figure 3-2
Municipal Alluvial Well Locations
Santa Clara River Valley, East Groundwater Subbasin

To examine the yield of the Alluvium or, the sustainability of the Alluvium on a renewable basis, the groundwater flow model was used to examine the long-term projected response of the aquifer to pumping for municipal and agricultural uses in the 30,000 to 40,000 afy range under average/normal and wet conditions, and in the 30,000 to 35,000 afy range under locally dry conditions. To examine the response of the entire aquifer system, the model also incorporated pumping from the Saugus Formation in accordance with the normal (7,500-15,000 afy) and dry year (15,000-35,000 afy) operating plan for that aquifer. The model was run over a 78-year hydrologic period, which was selected from actual historical precipitation to examine a number of hydrologic conditions expected to affect both groundwater pumping and groundwater recharge. The selected 78-year simulation period was assembled from an assumed recurrence of 1980 to 2003 conditions, followed by an assumed recurrence of 1950 to 2003 conditions. The 78-year period was analyzed to define both local hydrologic conditions (normal and dry), which affect the rate of pumping from the Alluvium, and hydrologic conditions that affect SWP operations, which in turn affect the rate of pumping from the Saugus. The resultant simulated pumping cycles included the distribution of pumping for each of the existing Alluvial Aquifer wells, for normal and dry years respectively, as shown in Table 3-9.

Simulated Alluvial Aquifer response to the range of hydrologic conditions and pumping stresses is essentially a long-term repeat of the historical conditions that have resulted from similar pumping over the last several decades. The resultant response consists of: (1) generally constant groundwater levels in the middle to western portion of the Alluvium and fluctuating groundwater levels in the eastern portion as a function of wet and dry hydrologic conditions, (2) variations in recharge that directly correlate with wet and dry hydrologic conditions, and (3) no long-term decline in groundwater levels or storage. The Alluvial Aquifer is considered a sustainable water supply source to meet the Alluvial portion of the operating plan for the groundwater Basin. This is based on the combination of actual experience with Alluvial Aquifer pumping at capacities similar to those planned for the future and the resultant sustainability (recharge) of groundwater levels and storage, and further based on modeled projections of aquifer response to planned pumping rates that also show no depletion of groundwater.

3.3.2.1.2 Saugus Formation

Based on historical operating experience and extensive recent testing and groundwater modeling analysis, the Saugus Formation can supply water on a long-term sustainable basis in a normal range of 7,500 to 15,000 afy, with intermittent increases to 25,000 to 35,000 af in dry years. The dry-year increases, based on limited historical observation and modeled projections, demonstrate that a small amount of the large groundwater storage in the Saugus Formation can be pumped over a relatively short (dry) period. This would be followed by recharge (replenishment) of that storage during a subsequent normal-to-wet period when pumping would be reduced.

Adequacy of Supply

For municipal water supply with existing wells, the three retail water purveyors with Saugus wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells (not contaminated by perchlorate) of 14,900 gpm, which translates into a full-time Saugus source capacity of 24,000 afy. Saugus pumping capacity from all the active municipal supply wells is summarized in Table 3-10; the locations of the various active municipal Saugus wells are illustrated on Figure 3-3. These capacities do not include the four Saugus wells contaminated by

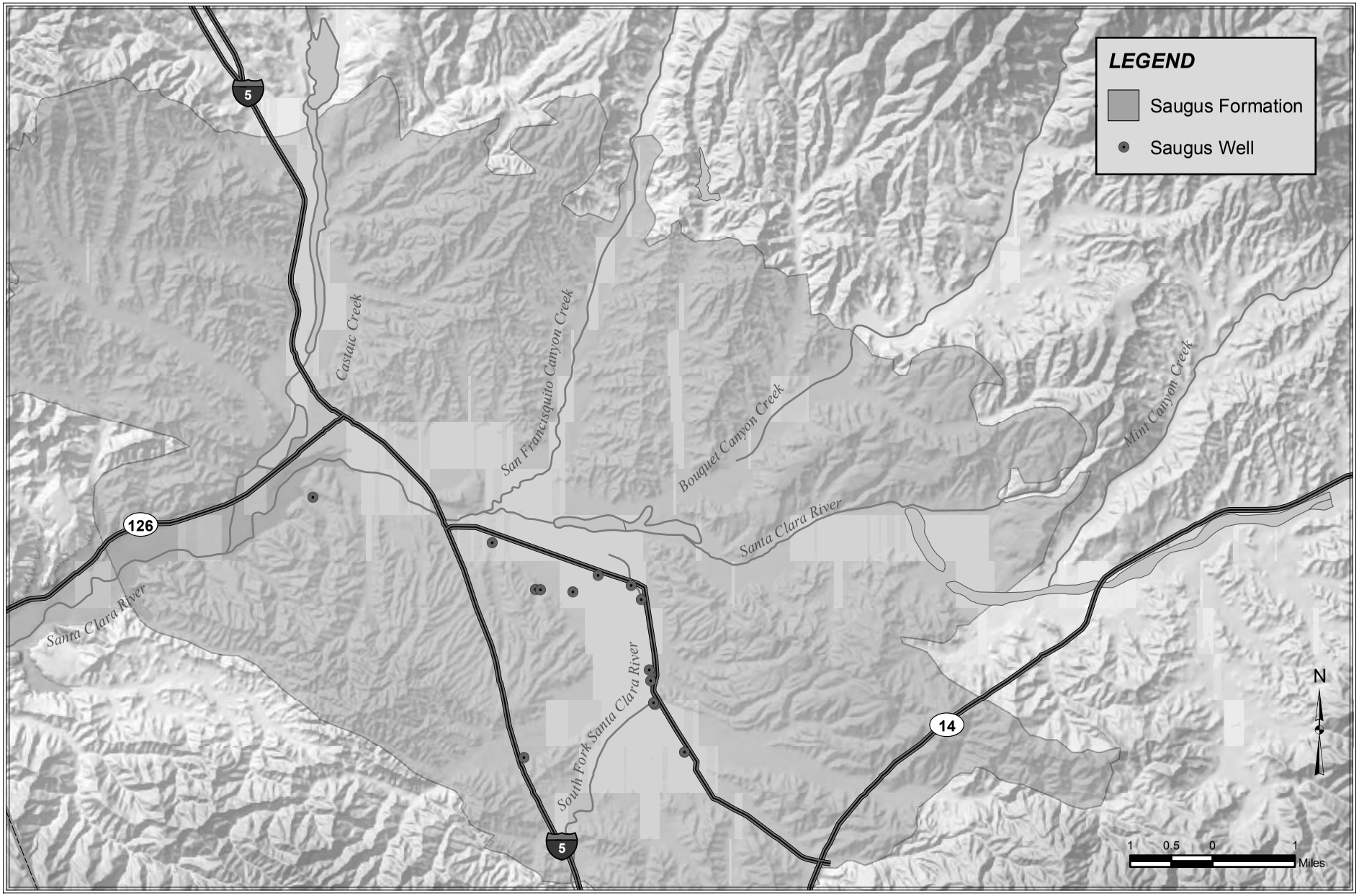
perchlorate, although they indirectly reflect the capacity of one of the contaminated wells, VWC's Well 157, which has been sealed and abandoned, and replaced by VWC's Well 206 in a non-impacted part of the Basin. The four contaminated wells, one owned by NCWD and two owned by SCWD, in addition to the VWC well, represent a total of 7,900 gpm of pumping capacity (or full-time source capacity of about 12,700 afy) inactivated due to perchlorate contamination.

Table 3-10
Active Municipal Groundwater Source Capacity—Saugus Formation Wells

Wells	Pump Capacity (gpm)	Max Annual Capacity (af)	Normal Year Production [(1)] (af)	Dry-Year Production (af)
Newhall CWD				
12	2,300	3,700	1,315	2,044
13	2,500	4,030	1,315	2,044
NCWD Subtotal	4,800	7,730	2,630	4,088
Valencia WC				
159	500	800	50	50
160	2,000	3,220	1,000	1,330
201	2,400	3,870	100	3,577
205	2,700	4,350	1,000	3,827
206	2,500	4,030	1,175	3,500
VWC Subtotal	10,100	16,270	3,325	12,284
Total Purveyors	**14,900**	**24,000** [(2)]	**5,955** [(2)]	**16,372** [(2)]

Notes:
(1) Based on recent annual pumping.
(2) Currently active wells only; additional capacity to meet dry-year operating plan would be met by restoration of contaminated wells and new well construction.

In terms of adequacy and availability, the combined active Saugus groundwater source capacity of municipal wells of 24,000 afy, is more than sufficient to meet the planned use of Saugus groundwater in normal years of 7,500 to 15,000 afy. During the currently scheduled two-year time frame for restoration of impacted Saugus capacity (as discussed further in Chapter 5), this currently active capacity is more than sufficient to meet water demands, in combination with other sources, if both of the next two years are dry. At that time, the combination of currently active capacity and restored impacted capacity, through a combination of treatment at two of the impacted wells and replacement well construction, will provide sufficient total Saugus capacity to meet the planned use of Saugus groundwater during multiple dry-years of 35,000 af, if that third year is also a dry year.



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Figure 3-3
Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin

Sustainability

Until recently, the long-term sustainability of Saugus groundwater was empirically determined from limited historical experience. The historical record shows fairly low annual pumping in most years, with one four-year period of increased pumping up to about 15,000 afy that produced no long-term depletion of the substantial groundwater storage in the Saugus. Those empirical observations have now been complemented by the development and application of the numerical groundwater flow model, which has been used to examine aquifer response to the operating plan for pumping from both the Alluvium and the Saugus and also to examine the effectiveness of pumping for both contaminant extraction and control of contaminant migration within the Saugus Formation. The latter aspects of Saugus pumping are discussed in Chapter 5.

To examine the yield of the Saugus Formation or, its sustainability on a renewable basis, the groundwater flow model was used to examine long-term projected response to pumping from both the Alluvium and the Saugus over the 78-year period of hydrologic conditions using alternating wet and dry periods as have historically occurred. The pumping simulated in the model was in accordance with the operating plan for the Basin. For the Saugus, simulated pumpage included the planned restoration of recent historic pumping from the perchlorate-impacted wells. In addition to assessing the overall recharge of the Saugus, that pumping was analyzed to assess the effectiveness of controlling the migration of perchlorate by extracting and treating contaminated water close to the source of contamination.

Simulated Saugus Formation response to the ranges of pumping under assumed recurrent historical hydrologic conditions is consistent with actual experience under smaller pumping rates. The response consists of (1) short-term declines in groundwater levels and storage near pumped wells during dry-period pumping, (2) rapid recovery of groundwater levels and storage after cessation of dry-period pumping, and (3) no long-term decreases or depletion of groundwater levels or storage. The combination of actual experience with Saugus pumping and recharge up to about 15,000 afy, now complemented by modeled projections of aquifer response that show long-term utility of the Saugus at 7,500 to 15,000 afy in normal years and rapid recovery from higher pumping rates during intermittent dry periods, shows that the Saugus Formation can be considered a sustainable water supply source to meet the Saugus portion of the operating plan for the groundwater Basin.

3.3.3 Potential Supply Inconsistency

A small group of wells that have been impacted by perchlorate represent a temporary loss of well capacity within CLWA's service area. Of the six wells that were initially removed from active water supply service upon the detection of perchlorate, four wells with a combined capacity of 10,000 af remain out of service, as discussed further in Chapter 5. However, CLWA and the purveyors have developed an implementation plan that would restore this well capacity. The implementation plan includes a combination of treatment facilities and replacement wells. Treatment facilities for several of the impacted wells will be operational in 2006 and the production restoration (replacement) wells will be operational by 2010. Additional information on the treatment technology and schedule for restoration of the impacted wells is provided in Chapter 5. Additional information concerning water quality issues and replacement capacity is also provided in Chapter 5.

3.4 TRANSFERS, EXCHANGES, AND GROUNDWATER BANKING PROGRAMS

Additional water supplies can be purchased from other water agencies and sources, and CLWA is currently exploring opportunities. An important element to enhancing the long-term reliability of the total mix of supplies currently available to meet the needs of the Valley is the use of transfers, exchanges, and groundwater banking programs, such as those described below.

3.4.1 Transfers and Exchanges

An opportunity available to CLWA to increase water supplies is to participate in voluntary water transfer programs. Since the drought of 1987-1992, the concept of water transfer has evolved into a viable supplemental source to improve supply reliability. The initial concept for water transfers was codified into law in 1986 when the California Legislature adopted the "Katz" Law (California Water Code, Sections 1810-1814) and the Costa-Isenberg Water Transfer Law of 1986 (California Water Code, Sections 470, 475, 480-483). These laws help define parameters for water transfers and set up a variety of approaches through which water or water rights can be transferred among individuals or agencies.

Up to 27 million af of water are delivered for agricultural use every year. Over half of this water use is in the Central Valley, and much of it is delivered by, or adjacent to, SWP and Central Valley Project (CVP) conveyance facilities. This proximity to existing water conveyance facilities could allow for the voluntary transfer of water to many urban areas, including CLWA, via the SWP. Such water transfers can involve water sales, conjunctive use and groundwater substitution, and water sharing and usually occur as a form of spot, option, or core transfers agreement. The costs of a water transfer would vary depending on the type, term, and location of the transfer. The most likely voluntary water transfer programs would probably involve the Sacramento or southern San Joaquin Valley areas.

One of the most important aspects of any resource planning process is flexibility. A flexible strategy minimizes unnecessary or redundant investments (or stranded costs). The voluntary purchase of water between willing sellers and buyers can be an effective means of achieving flexibility. However, not all water transfers have the same effectiveness in meeting resource needs. Through the resource planning process and ultimate implementation, several different types of water transfers could be undertaken.

3.4.1.1 Core Transfers

Core transfers are agreements to purchase a defined quantity of water every year. These transfers have the benefit of more certainty in costs and supply, but in some years can be surplus to imported water (available in most years) that is already paid for.

3.4.1.2 Spot Market Transfers

Spot market transfers involve water purchased only during the time of need (usually a drought). Payments for these transfers occur only when water is actually requested and delivered, but there is usually greater uncertainty in terms of costs and availability of supply. Examples of such transfers were the Governor's Drought Water Banks of 1991 and 1992. An additional risk of spot

market transfers is that the purchases may be subject to institutional limits or restricted access (e.g., requiring the purchasing agency to institute rationing before it is eligible to participate in the program).

3.4.1.3 Option Contracts

Option contracts are agreements that specify the amount of water needed and the frequency or probability that the supply will be called upon (an option). Typically, a relatively low up-front option payment is required and, if the option is actually called upon, a subsequent payment would be made for the amount called. These transfers have the best characteristics of both core and spot transfers. With option contracts, the potential for redundant supply is minimized, as are the risks associated with cost and supply availability.

3.4.1.4 Future Market Transfers

The most viable types of water transfers are core and option transfers and, as such, represent CLWA's long-term strategy. The costs for these types of transfers have been estimated to be about $60 to $110 per af (equivalent to $1,100 to $2,000 per af for Table A Amount) for core transfers and $250 per af for option transfers. Although the option transfer costs might seem high, the equivalent average annual cost is much less - about $65 to $112 per af. Average annual option transfer costs are much lower due to the variable likelihood that the transfers will be needed. Currently, CLWA is proceeding with environmental compliance to acquire a core transfer of an additional 11,000 afy of surface water from the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District, both located in Kern County.

3.4.2 Groundwater Banking Programs

With recent developments in conjunctive use and groundwater banking, significant opportunities exist to improve water supply reliability for CLWA. Conjunctive use is the coordinated operation of multiple water supplies to achieve improved supply reliability. Most conjunctive use concepts are based on storing groundwater supplies in times of surplus for use during dry periods and drought when surface water supplies would likely be reduced.

Groundwater banking programs involve storing available SWP surface water supplies during wet years in groundwater basins in, for example, the San Joaquin Valley. Water would be stored either directly by surface spreading or injection, or indirectly by supplying surface water to farmers for their use in lieu of their intended groundwater pumping. During water shortages, the stored water could be pumped out and conveyed through the California Aqueduct to CLWA as the banking partner, or used by the farmers in exchange for their surface water allocations, which would be delivered to CLWA as the banking partner through the California Aqueduct. Several conjunctive use and groundwater banking opportunities are available to CLWA.

In 2003, CLWA produced a Draft Water Supply Reliability Plan. The plan outlines primary elements that CLWA should include in its water supply mix to obtain maximum overall supply reliability enhancement. These elements include both conjunctive use and groundwater banking programs, as well as water acquisitions. The Plan also contains a recommended implementation plan and schedule.

The reliability plan recommends that CLWA obtain total banking storage capacity of 50,000 af, with pumpback capacity of 20,000 af per year, by 2005. For the long-term, CLWA should obtain a total of 183,000 af of storage capacity, with total pumpback capacity of 70,000 af per year by 2050. Table 3-11, taken from the 2003 Draft Water Supply Reliability Report, presents an implementation schedule recommended for both storage and pumpback capacity beginning in 2005 and incrementally increasing through 2050.

Table 3-11
Recommended Schedule for Water Banking Capacity(1)

Year	Total Pumpback (afy)	Total Storage (afy)
2005	20,000	50,000
2010	20,000	50,000
2020	40,000	100,000
2030	60,000	150,000
2040	70,000	183,000
2050	70,000	183,000

Notes:
(1) Reference "Draft Report – CLWA Water Supply Reliability Plan", Kennedy/Jenks Consultants, 2003.

3.4.2.1 Semitropic Water Banking

Semitropic Water Storage District (Semitropic) provides SWP water to farmers for irrigation. Semitropic is located in the San Joaquin Valley in the northern part of Kern County immediately east of the California Aqueduct. Using its available groundwater storage capacity (approximately one million af), Semitropic has developed a groundwater banking program, which it operates by taking available SWP supplies in wet years and returning the water in dry years. As part of this dry-year return, Semitropic can leave its SWP water in the Aqueduct for delivery to a banking partner and increase its groundwater production for its farmers. Semitropic constructed facilities so that groundwater can be pumped into a Semitropic canal and, through reverse pumping plants, be delivered to the California Aqueduct. Semitropic currently has six banking partners: the Metropolitan Water District of Southern California (Metropolitan), Santa Clara Valley Water District, Alameda County Water District, Alameda County Flood Control and Water Conservation District Zone 7, Vidler Water Company, and The Newhall Land and Farming Company. The total amount of storage under contract is approximately 1 million af.

In 2002, CLWA stored an available portion of its Table A Amount (24,000 af) in an account in Semitropic's program.[5] In 2004, 32,522 af of available 2003 Table A Amount water was stored in a second Semitropic account.[6] In accordance with the terms of CLWA's storage agreements with Semitropic, 90 percent of the banked amount, or a total of 50,870 af, is recoverable through 2013 to meet CLWA water demands when needed. Each account has a term of ten years for the

[5] CLWA's approval of this project and of its negative declaration was challenged under the California Environmental Quality Act ("CEQA") in the Ventura County Superior Court (i.e., California Water Network v. Castaic Lake Water Agency [Ventura County Superior Court Case No. CIV 215327]). Finding that CLWA's approval of this project and of its negative declaration did not violate CEQA, the trial entered judgment in favor of CLWA. Petitioners have, however, filed an appeal with the California Court of Appeal, Second Appellate District, Division 6 Court of Appeal Case No. B177978.
[6] No legal challenge was made to CLWA's approval of this project or to the negative declaration for this project.

water to be withdrawn and delivered to CLWA.[7] Current operational planning includes use of the water stored in Semitropic for dry-year supply. Accordingly, it is reflected in the available supplies delineated in this section, and it is also reflected in contributing to short-term (prior to 2013) reliability in Chapter 6.

3.4.2.2 Rosedale-Rio Bravo Water Storage District Water Banking

Also located in Kern County, immediately adjacent to the Kern Water Bank, Rosedale-Rio Bravo Water Storage District has completed environmental documentation for a Water Banking and Exchange Program. The initial offering from the program is storage and pumpback capacity of 20,000 afy, with up to 100,000 af of storage capacity. This banking program would meet the total pumpback and exceed the total storage capacity in 2010 recommended in the implementation schedule provided in the 2003 Draft Water Supply Reliability Report. This program is available for subscription and, in 2004, CLWA signed an MOU with Rosedale-Rio Bravo to begin preliminary non-binding negotiations on the possible terms for participation in the program. Such terms would define a project that would then be subject to subsequent environmental analysis. In April 2005, CLWA and Rosedale-Rio Bravo executed a deposit agreement for the exclusive right to negotiate, and CLWA approved an EIR in October 2005. This project is a water management program to improve the reliability of CLWA's existing dry-year supplies; it is not, and should not be considered, an annual supply that could support growth. CLWA anticipates that, upon completion of CEQA documentation, this program will be operational by 2006.

3.4.2.3 Other Opportunities

The Draft Water Supply Reliability Plan recommends water banking storage and pumpback capacity both north and south of CLWA's service area, the latter of which would provide an emergency supply in case of catastrophic outage along the California Aqueduct. With short-term storage now existing in the Semitropic program and negotiations underway with Rosedale-Rio Bravo, CLWA is assessing southern water banking opportunities. These include potential programs with the Chino Basin Watermaster (with whom CLWA signed an MOU in 2003), Calleguas Municipal Water District, and San Gorgonio Pass Water Agency.

Groundwater banking and conjunctive-use programs enhance the reliability of both the existing and future supplies. Table 3-12 summarizes CLWA's future reliability enhancement programs.

Table 3-12
Future Reliability Enhancement Programs

Project Name	Year Available	Proposed Quantities (af)		
		Average/ Normal Year	Single Dry Year	Multiple Dry Years (1)
Rosedale-Rio Bravo Water Banking Program	2006	0	20,000	20,000
Additional Planned Banking Programs	2014	0	20,000	20,000

Notes:
(1) Supplies shown are maximum withdrawal capacity for each of four consecutive dry years.

[7] Thereafter, the remaining amount of project water is forfeited from the account.

3.5 PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

The 2003 Draft Water Supply Reliability Plan also discusses the potential for acquiring additional water supplies to meet future demands (the plan refers to these as "water transfer opportunities"). Table 3-13 summarizes CLWA's transfer and exchange opportunities.

Table 3-13
Transfer and Exchange Opportunities

Source Transfer Agency	Transfer/ Exchange	Year Available	Short/Long Term	Proposed Quantity (afy)
Buena Vista-Rosedale (1)	Transfer	2006	Long Term	11,000

Notes:
(1) CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 afy of this supply which, if approved, would leave the remaining 7,000 afy available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

Buena Vista Water Storage District/Rosedale-Rio Bravo Water Storage District Water Storage and Recovery Program

These two districts, both located in Kern County, have joined together to develop a program that provides both a firm water supply and a water banking component. Both districts are member agencies of the Kern County Water Agency (KCWA), an SWP contractor, and both districts have contracts with KCWA for SWP Table A Amounts. Environmental documentation has been completed for this program, which envisions a single partner purchasing a firm annual water supply, which can then be banked in years when it is not needed for withdrawal and delivery in later years. The supply is based on existing long-standing Kern River water rights, which would be delivered by exchange of SWP Table A Amount. In 2004, CLWA signed an MOU with both districts to begin preliminary non-binding negotiations on the possible terms for participation in the program. Such terms would define a project subject to subsequent environmental analysis. The initial offering from the program is up to 11,000 afy of firm supply. In December 2004, CLWA, Buena Vista, and Rosedale-Rio Bravo executed a deposit agreement for the exclusive right to negotiate, and CLWA started preparing an EIR. CLWA anticipates that, upon completion of CEQA documentation, this program will be operational during 2006.

3.6 DEVELOPMENT OF DESALINATION

The California UWMP Act requires a discussion of potential opportunities for use of desalinated water (Water Code Section 10631[i]). CLWA has explored such opportunities, and they are described in the following section, including opportunities for desalination of brackish water, groundwater, and seawater. However, at this time, none of these opportunities is practical or economically feasible for CLWA, and CLWA has no current plans to pursue them. Therefore, desalinated supplies are not included in the supply summaries in this Plan (e.g., Tables 3-1, 6-2, 6-3, and 6-4).

3.6.1 Opportunities for Brackish Water and/or Groundwater Desalination

As discussed in Chapter 5, the two sources of groundwater in the Valley are water drawn from the Alluvial Aquifer and from the Saugus Formation. Neither of these supplies can be considered brackish in nature, and desalination is not required.

However, CLWA and the retail water purveyors could team up with other SWP contractors and provide financial assistance in construction of other regional groundwater desalination facilities in exchange for SWP supplies. The desalinated water would be supplied to users in communities near the desalination plant, and a similar amount of SWP supplies would be exchanged and allocated to CLWA from the SWP contractor. A list summarizing the groundwater desalination plans of other SWP contractors is not available; however, CLWA would begin this planning effort should the need arise.

In addition, should an opportunity emerge with a local agency other than an SWP contractor, an exchange of SWP deliveries would most likely involve a third party, such as Metropolitan. Most local groundwater desalination facilities would be projects implemented by retailers of SWP contractors and, if an exchange program was implemented, would involve coordination and wheeling of water through the contractor's facilities to CLWA.

3.6.2 Opportunities for Seawater Desalination

Because the Valley is not in a coastal area, it is neither practical nor economically feasible for CLWA and its purveyors to implement a seawater desalination program. However, similar to the brackish water and groundwater desalination opportunities described above, CLWA and the purveyors could provide financial assistance to other SWP contractors in the construction of their seawater desalination facilities in exchange for SWP supplies.

CLWA and the purveyors have been following the existing and proposed seawater desalination projects along California's coast. In March 2004, the California Coastal Commission released the "Seawater Desalination and the California Coastal Act." This Act provides a summary and status of the existing and proposed seawater desalination plants along California's coast. Tables 3-14 and 3-15 provide a summary of several of California's existing and proposed municipal/domestic seawater desalination facilities, respectively.

As shown in the tables, most of the existing and proposed seawater desalination facilities are/would be operated by agencies that are not SWP contractors. However, in these cases as described above, an exchange for SWP deliveries would most likely involve a third party (SWP contractor), the local water agency (retailer), and CLWA.

Table 3-14
Existing Seawater Desalination Facilities Along the California Coast[1]

Operator/Location	Maximum Capacity (gpd/afy[2])	Status
City of Morro Bay	830,000/930	Intermittent Use
City of Santa Barbara	N/A	Inactive
Marina Coast Water District	300,000/335	Active

Notes:
(1) Reference "Seawater Desalination and the California Coastal Act," California Coastal Commission, March 2004.
(2) gpd = gallons per day; afy = acre-feet per year

Although not listed in Table 3-15, the Bay Area Regional Desalination Partnership, made up of four agencies collaborating on a Regional Desalination Project in the San Francisco Bay Area, is working to develop desalination as a water supply for the region. This partnership, comprised of San Francisco Public Utilities Commission, Santa Clara Valley Water District, East Bay Municipal Utilities District, and Contra Costa Water District, is in the process of planning regional seawater/brackish water desalination facilities. This regional desalination project is an example of the type of project that CLWA could participate in on an exchange basis.

Table 3-15
Proposed Seawater Desalination Facilities Along the California Coast[1]

Operator/Location	Maximum Capacity (gpd/afy[2])	Status
Cambria Community Services District	500,000/560	Planning
City of Santa Cruz	2,500,000/2,800	Planning
Marina Coast Water District/Fort Ord	2,680,000/3,000	Planning
Long Beach	10,000,000/11,000	Planning
Los Angeles Dept. of Water & Power	10,000,000/11,000	Planning
Monterey Peninsula Water Mgmt. District/Sand City	7,500,000/8,400	Planning
Cal-Am/Moss Landing Power Plant	9,000,000/10,000	Planning
Municipal Water District of Orange County/Dana Point	27,000,000/30,000	Planning
Poseidon Resources/Huntington Beach	50,000,000/55,000	Draft EIR Complete
San Diego County Water Authority/San Onofre	TBD	Planning
San Diego County Water Authority/South County	50,000,000/55,000	Planning
San Diego County Water authority/Poseidon/Carlsbad	50,000,000/55,000	Planning
West Basin Municipal Water District	20,000,000/22,000	Planning

Notes:
(1) Reference "Seawater Desalination and the California Coastal Act," California Coastal Commission, March 2004.
(2) gpd = gallons per day; afy = acre-feet per year

Chapter 4
WATER RECYCLING

Chapter 4.0
RECYCLED WATER

4.1 OVERVIEW

This section of the Plan describes the existing and future recycled water opportunities available to the CLWA service area. The description includes estimates of potential supply and demand for 2005 to 2030 in five year increments, as well as CLWA's proposed incentives and optimization plan.

4.2 RECYCLED WATER MASTER PLAN

The four retail water purveyors provide water to M&I customers. In normal years, approximately 60 percent of the M&I demand within CLWA's service area is met with imported water. However, the reliability of the imported SWP supply is variable (due to its dependence on current year hydrology in northern California and prior year storage in SWP reservoirs). When sufficient imported water is not available, the balance is met with local groundwater provided by the purveyors.

It is anticipated that water demands will continue to increase. Accordingly, additional reliable sources of water are necessary to meet projected water demands. CLWA recognizes that recycled water is an important and reliable source of additional water. Recycled water would enhance reliability in that it would provide an additional source of supply and allow for more effective utilization of CLWA's water supplies. A Draft Reclaimed Water System Master Plan for the CLWA service area was completed in 1993, and a Draft Recycled Water Master Plan update was completed in 2002. Table 4-1 provides a list of the agencies that participated in the Recycled Water Master Plan update.

Table 4-1
Participating Agencies

Participating Agencies	Role in Plan Development
Castaic Lake Water Agency	Wholesale water provider
Newhall County Water District	Retail water purveyor
Santa Clarita Water Division	Retail water purveyor
Valencia Water Company	Retail water purveyor
Los Angeles County Waterworks District 36	Retail water purveyor
Los Angeles County Sanitation District 26	Recycled water supplier
Los Angeles County Sanitation District 32	Recycled water supplier
Berry Petroleum	Potential recycled water supplier

The Sanitation Districts of Los Angeles County (LACSD) own and operate two water reclamation plants (WRPs): Saugus WRP and Valencia WRP, within the CLWA service area. The water is treated to tertiary levels and discharged to the Santa Clara River. The Newhall Ranch development is also planning to construct a water recycling facility, and non-potable

water from this source may be incorporated into the CLWA's recycled water system. Additionally, Berry Petroleum has expressed interest in treating oilfield produced water from the Placerita Oilfield for sale to CLWA for non-potable uses. Oilfield produced water is a by-product of petroleum extraction, however, and would only be available on a short-term basis. By utilizing the effluent from the WRPs and oilfield produced water for irrigation and other non-potable purposes, CLWA can more efficiently allocate its potable water and increase the overall reliability of water supplies in the Valley.

4.3 POTENTIAL SOURCES OF RECYCLED WASTEWATER

LACSD provides wastewater collection, treatment, and disposal services to residents of two sanitation districts in the Valley: District Nos. 26 and 32, which serve the eastern and western portions of the Valley, respectively. The majority of the two districts' service areas lies within the City of Santa Clarita.

4.3.1 Existing and Planned Wastewater Treatment Facilities

4.3.1.1 Existing Facilities

LACSD's Saugus and Valencia WRPs operated independently until 1980, at which time the two plants were linked by a bypass interceptor. The interceptor was installed to transfer a portion of flows received at the Saugus WRP to the Valencia WRP. In order to improve operating efficiencies and because a shortage of space at the Saugus WRP limits future expansion of wastewater facilities in District No. 26, a joint powers agreement was enacted in 1984, creating the Santa Clarita Valley Joint Sewerage System. Through use of wastewater and sludge connecting lines, future expansions of treatment works, including sludge handling and disposal operations, will be provided at the larger Valencia WRP.

The primary sources of wastewater to the Saugus and Valencia WRPs are domestic. Both plants are tertiary treatment facilities and produce high quality effluent. Historically, the effluent from the two WRPs has been discharged to the Santa Clara River. The Saugus WRP effluent outfall is located approximately 400 feet downstream (west) of Bouquet Canyon Road. Effluent from the Valencia WRP is discharged to the Santa Clara River at a point approximately 2,000 feet downstream (west) of The Old Road Bridge.

Together, the Valencia and Saugus WRPs have a design capacity of 28.1 million gallons per day (mgd). In fiscal year 2002-2003 (FY 02/03), they produced an average of 18.33 mgd, none of which was used for recycled water purposes.

Located within District No. 26, the Saugus WRP, completed in 1962, is southeast of the intersection of Bouquet Canyon Road and Soledad Canyon Road. Two subsequent expansions and flow equalization facilities brought its current design capacity to 6.5 mgd. The treatment process was brought up to a tertiary level with the addition of dual-media pressure filters in 1987. However, no future expansions are possible due to space limitations at the site. In FY 02/03, the Saugus WRP produced an average effluent flow of 5.28 mgd (5,914 afy). Use of recycled water from this facility is permitted under Regional Water Quality Control Board (RWQCB) Order No. 87-49; however, LACSD staff has expressed concern about diverting these discharges due to potential impacts to downstream habitat. Until more detailed habitat

investigations are conducted, it is assumed that only recycled water from the Valencia WRP will be used.

The Valencia WRP is located within District No. 32 and is on The Old Road near Magic Mountain Amusement Park. The Valencia WRP was completed in 1967. The existing capacity is 21.6 mgd following three subsequent expansions: construction of a 4.4 million gallon flow equalization tank in February 1995, the Stage 4 expansion completed in June 1996, and the Joint Sewerage System Phase I expansion of 9 mgd in 2002. In FY 02/03, the Valencia WRP produced an average effluent flow of 13.05 mgd (14,628 afy). Use of recycled water from the Valencia WRP is permitted under RWQCB Order No. 87-48. On July 24, 1996, CLWA executed an agreement with LACSD to purchase up to 1,700 afy of recycled water from the Valencia WRP. In 2002, CLWA constructed the facilities to utilize this supply and initiated deliveries in 2003 to the Westridge Golf Course.

Recycled water from Valencia WRP has been used in the past by the City of Santa Clarita for landscape irrigation and by Pacific Pipeline and Oberg Construction for construction applications, delivered via tanker truck. In April 2000, a contract was signed with TransCoast Financial for use of up to 20,000 gallons per day (gpd) for dust control at a nearby composting facility. When recycled water is requested, it is transported via tanker truck.

4.3.2 Planned Improvements and Expansions

To accommodate anticipated growth in the Valley and to ensure compliance with discharge requirements from the RWQCB, LACSD has begun an expansion of the Valencia WRP as part of the 2015 Joint Sewerage System Facilities Plan. The ultimate capacity of the WRP is planned to be 27.6 mgd. The Phase I expansion (9 mgd increase) was completed in 2002. Phase 2 is expected to be completed in 2010 and involves an additional 6 mgd increase. No expansion is planned at the Saugus WRP. Thus, the ultimate total capacity for both WRPs is 34.1 mgd (38,200 afy). Table 4-2 provides the projected wastewater flow for the combined Valencia and Saugus WRP planning area.

Table 4-2
Wastewater Collection and Capacity

Type of Wastewater	Capacity (af)						
	2002	2005	2010	2015	2020	2025	2030
Wastewater Collected and Treated in Service Area	20,542	31,500	38,200	38,200	38,200	38,200	38,200
Quantity that Meets Recycled Water Standard	20,542	31,500	38,200	38,200	38,200	38,200	38,200

Note:
(1) Information collected from LACSD and Draft 2002 Recycled Water Master Plan.

4.3.3 Water Rights

The ability of CLWA to use recycled water is constrained by its rights to use the water available. While there are few regulatory limitations on the use of oilfield produced water, the use of wastewater effluent is limited by various state water laws, codes, and court decisions. These

regulatory limitations are described in greater detail in the 2002 Draft Recycled Water Master Plan.

CLWA has been approved to use 1,700 afy, but the ultimate recycled water use is governed by the availability of native versus foreign water as shown in Table 4-3. According to the Water Code Section 1211, downstream water rights holders are protected if the source of return flow is "native water." Native water is water that under natural conditions would contribute to a given stream or other body of water (i.e., surface water or percolating groundwater). Thus, if the source of water is "foreign" (e.g., imported or SWP water), downstream water rights holders are not protected under the code. Groundwater extracted from and used in the Valley and then discharged to the Santa Clara River as wastewater effluent may be considered a "native water" to the river; whereas, SWP water imported into and used in the Valley and then discharged to the Santa Clara River as wastewater effluent may be considered a "foreign water." Furthermore, while existing discharges may have a permanent public use (i.e., habitat), only the "foreign water" percentage within the effluent flows can be diverted for recycling purposes.

In 2005, the Valley's potable water supply is projected to consist of approximately 36 percent groundwater (native water) and 64 percent imported water (foreign water). Projected potable water demand for the year 2030 is approximately 112,500 af, 65 percent derived from foreign water and 35 percent derived from native sources. The projected recycled water component would consist of approximately 65 percent (72,800 af foreign / 112,500 total) of projected wastewater generation. Therefore, CLWA's future recycled water system is limited to the foreign water portion of wastewater. This volume is determined by multiplying the percentage of foreign water by the wastewater flow. As shown in Table 4-3, the future foreign water portion of wastewater is 24,830 afy (65 percent times 38,200 afy). It is important to note that these percentages are of potable water demand (i.e., they do not include the use of recycled water in the calculation) and as such are not percentages of total water demand. Although the foreign water percentage of potable water demand only increases by one percent from 2005 to 2030, actual use of foreign water increases by approximately 58 percent.

Table 4-3
Use of Native Water vs. Foreign Water

	Native Water Demand (afy)	Foreign Water Demand (afy)[(1)]	Recycled Water Demand (afy)	Potable Water Demand Total (afy)	Wastewater Flow[(2)] (afy)	Foreign Water Percentage of Potable Water Demand	Foreign Water Portion of Wastewater (afy)
Projected (2005)	25,500	46,100	800	71,600	31,500	64%	20,100
Future (2030)	39,700	72,800	17,391	112,500	38,200	65%	24,830

Note:
(1) Foreign water includes SWP water, water transfers, and desalination.
(2) From Table 4-2.

In order to maintain native water rights, and assuming the ultimate capacities and recycled water demand (as discussed in Section 4.3), the existing and planned methods of wastewater effluent discharge and use are as summarized in Table 4-4.

Table 4-4
Disposal of Wastewater (non-recycled)

Method of Disposal	Treatment Level	Wastewater Discharge and Use (af)					
		2005	2010	2015	2020	2025	2030
Discharge to Santa Clara River	Disinfected, tertiary	30,700	36,600	34,900	30,200	25,500	20,800
Recycled Water Users	Disinfected Tertiary	800	1,600	3,300	8,000	12,700	17,400
Total		**31,500**	**38,200**	**38,200**	**38,200**	**38,200**	**38,200**

4.3.4 Other Potential Sources of Recycled Water

4.3.4.1 Newhall Ranch Water Reclamation Plant

A third Valley reclamation plant is proposed as part of the Newhall Ranch project. This proposed facility would be located near the western edge of the development project along the south side of State Route 126. The plant will be constructed in stages, with an ultimate capacity of 7.7 mgd. Effluent from the proposed water reclamation plant would be used to meet non-potable water demand within the development area. According to the Newhall Ranch Draft Additional Analyses, this plant is projected to produce 5,344 afy on average. During the dry months, all of the recycled water would be used for non-potable uses within Newhall Ranch, supplemented by additional recycled water from CLWA. During the wet winter months when demands are low, the Newhall Ranch WRP would on average have approximately 286 afy excess recycled water. In order for the WRP to be non-discharging (i.e., have production equal demand), this recycled water would be transferred into CLWA's recycled water system for use and/or storage. Any excess demand would need a National Pollutant Discharge Elimination System (NPDES) permit prior to discharge. NPDES permits could place stricter regulatory limitation on the effluent, which may increase treatment costs. Furthermore, the discharge could be subject to additional environmental review prior to approval.

4.3.4.2 Oilfield Produced Water

Oilfield produced water is a by-product of oil production generated when oil is extracted from the oil reservoir. It is generally of poor quality and unsuitable for potable, industrial, or irrigation use without treatment. Because of the poor water quality, reinjection has often been the most cost-effective disposal option.

Treatment processes can produce potable quality water; yet, because of the poor initial water quality and the organic constituents, it is often more appropriate for treated oilfield produced water to be used for irrigation or industrial purposes to offset potable water demand. Pilot studies performed at the Placerita Oilfield have indicated that, even with reverse osmosis (RO) treatment, some organic compounds such as naphthalene, 2-butanone, and ethylbenzene, can be detected in the RO effluent.

The economics of oil production are market-driven and are different from those of drinking water supplies. As oil prices rise or drop, oilfields go into and out of production depending on the costs of production. Also, oilfields are eventually depleted of supply and abandoned. Therefore, while oilfield produced water should be considered as long-term, it is not a completely firm supply and is not permanent.

Studies of the potential reuse of treated oilfield produced water from the Placerita Oilfield have indicated that approximately 44,000 barrels per day (1.8 mgd) of treated oilfield produced water may be available. For irrigation reuse, the produced water would need to be cooled and treated to remove hardness, silica, total dissolved solids (TDS), boron, ammonia, and total organic carbon (TOC).

4.3.5 Summary of Available Source Water Flows

As discussed previously, the non-potable water system has four potential sources of water. The flows projected to be available are shown in Table 4-5. For planning purposes, only recycled water from LACSD is considered available to meet the projected recycled water demands due to the level of evaluation still needed on the alternative sources.

Table 4-5
Summary of Available Source Water Flows

Source	Current Capacity (mgd)	Projected Capacity (mgd)	Projected to be Available for Non-Potable Use (afy)
LACSD Total	28.1	34.1	19,995
Valencia WRP	*21.6*	*27.6*	*19,995*
Saugus WRP	*6.5*	*6.5*	*0*
Oilfield Produced Water	0	1.8	1,980
Newhall Ranch WRP	0	7.7	5,344
Total			**27,319**

4.4 RECYCLED WATER DEMAND

In this section, current recycled water use is discussed, and potential recycled water users within CLWA's service area are identified as determined from the 2002 Draft Recycled Water Master Plan. For each potential user, estimates are provided for annual demand, peak monthly demand, peak daily demand, and the hourly distribution of water demand during peak months. The requirements for potential users to convert their existing water potable systems to recycled water are also discussed.

4.4.1 Current Use

Currently, Recycled water is served to landscape irrigation customers, including the Westridge Golf Course. Table 4-6 provides a summary of existing recycled water use.

Table 4-6
Actual Recycled Water Uses

Type of Use	Treatment Level	Actual 2004 Use (af)
Landscape	Disinfected tertiary	448
Total		**448**

4.4.2 Potential Users

Potential recycled water users were identified through a number of sources including:

- 1993 Recycled Water Master Plan
- Water consumption records for LACWD No. 36, NCWD, SCWD, and VWC
- Land use maps
- General Plans and Specific Plans for the City of Santa Clarita and County of Los Angeles
- Discussions with City, County, water purveyor, and land developer staff
- "Windshield" survey of CLWA service area
- Draft 2002 Recycled Water Master Plan

In order to be considered as a potential recycled water user, the user had to be located within CLWA's service area and have a potential non-potable water demand of at least 4 afy. A total potential demand for existing and future recycled water users is 34,500 afy as identified in the Draft 2002 Recycled Water Master Plan for 2015. As this volume is already greater than the anticipated source of recycled water supply, additional future recycled users were not identified at this time. However, CLWA may reevaluate the list of recycled users after 2015 to consider future users not included in the Draft Master Plan. Table 4-7 provides a summary of the demands by user type.

Table 4-7
Potential Recycled Water Uses

Type of Use	Treatment Level	Potential Use (af)				
		2010	2015	2020	2025	2030
Landscape	Disinfected tertiary	34,500	34,500	34,500	34,500	34,500
Total		**34,500**	**34,500**	**34,500**	**34,500**	**34,500**

The initial list of potential recycled water users was reduced by evaluating the potential users that would be most expensive to serve until potential uses were approximately 17,000 afy. The unit cost to serve each user was calculated using the capital costs for pipelines, reservoirs, and pump stations as well as operational costs for pumping. The areas retained for recycled water service have costs per af ranging from $120 to $5,000. Areas eliminated from service had costs as high as $13,000/af. However, only two of the proposed phases in the Draft Master Plan had costs above $1,000 per af. The resulting proposed recycled water service area encompasses a large portion of CLWA's western service area.

4.4.3 Potential Recycled Water Demand

Potential annual recycled water demands were estimated from historical water use records for existing users and the proposed irrigated area and expected water use per acre for future users. Demands for recycled water are seasonal, with the highest demands occurring during the hot, dry summer months when irrigation requirements are greatest.

The total potential annual recycled water demand that is cost effective to serve is approximately 17,400 afy. Implementation of the recycled water system is expected to occur over the next 25 years. Table 4-8 summarizes the projected future use by user type.

Table 4-8
Projected Potential Future Use of Recycled Water in Service Area

Type of Use	Projected Use (af)				
	2010	2015	2020	2025	2030
Landscape	1,600	3,300	8,000	12,700	17,400
Total	1,600	3,300	8,000	12,700	17,400

4.4.4 Recycled Water Comparison

CLWA's 2000 UWMP projected a total recycled water demand of 19,612 afy by the year 2010. Although it did not specifically state a projected 2005 demand, CLWA had approval for 1,700 afy of recycled water use and was in the process of constructing the necessary facilities to deliver this amount at the time the 2000 UWMP was written. Approximately 448 afy was served in 2004 to landscape irrigation customers, including the Westridge Golf Course. Current demand is lower than originally predicted due to delays in the necessary environmental documentation and funding availability to expand the recycled water distribution system. Table 4-9 provides a comparison of the 2000 projected demand versus the actual 2004 demand.

Table 4-9
Recycled Water Uses - 2000 Projection Compared with 2004 Actual

User Type	2000 Projection for 2005 (af)	2004 Actual Use (af)
Landscape	1,700	448
Total	**1,700**	**448**

4.5 METHODS TO ENCOURAGE RECYCLED WATER USE

In order to provide an incentive to recycled water users, it was recommended in the Draft 2002 Recycled Water Master Plan that the CLWA issue a monthly rebate directly to each recycled water user. However, CLWA is currently considering utilizing a two-fold approach to encourage recycled water use. CLWA plans on making recycled water available at a reduced rate and to work with the City of Santa Clarita and Los Angeles County to adopt a Recycled Water Ordinance, mandating recycled use for certain applications. A Draft Ordinance is currently

being developed and is anticipated to be ready for review in late 2005. The recycled water incentives are summarized in Table 4-10.

Table 4-10
Methods To Encourage Recycled Water Use

Actions	Use Projected to Result From This Action [(1)] (af)				
	2010	2015	2020	2025	2030
Reduced Rate/Recycled Water Ordinance	800	1,600	3,980	6,340	8,700
Total	800	1,600	3,980	6,340	8,700

Note:
(1) Estimated as the projected use due to future customers and assuming future customer use is half of projected recycled water demand for the given years.

CLWA may consider providing financial assistance to retail water providers to offset the costs of extending the recycled water conveyance system or to existing customers to cover a portion of or all of the costs to convert their potable water system to receive recycled water.

4.6 OPTIMIZATION PLAN

Production from the WRPs is not anticipated to be adequate to meet the total demands of the system. However, as potable water demands increase and, consequently, recycled water production increases, the water available to meet system demands would also increase. Therefore, it is recommended that construction of the recycled water system be phased to utilize the increases in plant production.

Oilfield produced water would also not be available immediately, nor would it be available as a permanent source of supply. Instead, this alternative water source would be used as an interim supply when the field is in operation and inadequate recycled water is available from Valencia WRP. Oilfield produced water is anticipated to be available as a long-term supply, available for approximately the next 20 years. The phasing considers when this water source would be available. A detailed discussion of the recommended phasing plan is provided in the Draft Master Plan.

Phasing implementation of the recycled water system is recommended for the following reasons:

- A number of the potential recycled water users are future users that do not yet need recycled water.
- The current flow of the Valencia WRP is not adequate to meet the total demands of the recycled water users.
- Capital requirements would be spread over CLWA's current planning period through 2030.
- Oilfield produced water is not immediately (nor permanently) available.
- Demand is increasing due to development of Newhall Ranch

The recycled water system is divided into implementation phases based primarily on service zone boundaries.

In general, the following factors were considered in developing a phasing plan:

- Ease or willingness of customers to connect to recycled water
- Retrofit costs
- Regulatory requirements
- Community impacts and development requirements
- Water utility involvement/cooperation
- Funding availability
- Reliability and operational costs considerations
- System flexibility

The implementation phases are prioritized based on the status of the users (existing or future), the anticipated construction schedule of future users, and the proximity of the users to the non-potable water source (e.g., Valencia WRP, Placerita Oilfield).

Chapter 5
WATER QUALITY

Chapter 5.0
WATER QUALITY

5.1 OVERVIEW

The quality of any natural water is dynamic in nature. This is true for the SWP and the local groundwater of the Basin. During periods of intense rainfall or snowmelt, routes of surface water movement are changed; new constituents are mobilized and enter the water while other constituents are diluted or eliminated. The quality of water changes over the course of a year. These same basic principles apply to groundwater. Depending on water depth, groundwater will pass through different layers of rock and sediment and leach different materials from those strata. Water depth is a function of local rainfall and snowmelt. During periods of drought, the mineral content of groundwater increases. Water quality is not a static feature of water, and these dynamic variables must be recognized.

Water quality regulations also change. This is the result of the discovery of new contaminants, changing understanding of the health effects of previously known as well as new contaminants, development of new analytical technology, and the introduction of new treatment technology. All water purveyors are subject to drinking water standards set by the Federal Environmental Protection Agency (EPA) and the California Department of Health Services (DHS). Additionally, investor-owned water utilities, such as VWC, are also subject to water quality regulation by the PUC. CLWA provides surface water from the SWP while local retail water purveyors combine local groundwater with treated SWP water from CLWA for delivery to their customers. (LACWWD #36 is an exception and during most years receives water from SWP.) An annual Consumer Confidence Report (CCR) is provided to all Valley residents who receive water from CLWA and one of the four retail water purveyors. That report includes detailed information about the results of quality testing of the water supplied during the preceding year (CCR, 2005).

The quality of water received by individual customers will vary depending on whether they receive SWP water, groundwater, or a blend. Some will receive only SWP water at all times, while others will receive only groundwater. Others may receive water from one well at one time, water from another well at a different time, different blends of well and SWP water at other times, and only SWP water at yet other times. These times may vary over the course of a day, a week, or a year.

This section provides a general description of the water quality of both imported water and groundwater supplies. A discussion of potential water quality impacts on the reliability of these supplies is also provided.

5.2 IMPORTED WATER QUALITY

CLWA provides SWP water to the Valley. The source of SWP water is rain and snow of the Sierra Nevada, Cascade, and Coastal mountain ranges. This water travels to the Delta through a series of rivers and various SWP structures. There it is pumped into a series of canals and reservoirs, which provides water to urban and agricultural users throughout the San Francisco

Bay Area and central and southern California. The most southern reservoir on the West Branch of the SWP California Aqueduct is Castaic Lake. CLWA receives water from Castaic Lake and distributes it to the purveyors following treatment.

Perhaps the most important difference in quality between surface water and groundwater is the presence of microbes in surface water. Surface water is exposed to a variety of microbial contaminants while groundwater in general is not. As a result, there are considerably more water quality regulations for surface water providers. CLWA has two surface water treatment plants, the Rio Vista Water Treatment Plant and the Earl Schmidt Water Filtration Plant, whose function is to ensure the safety of the water by eliminating microbial contaminants. Both of these plants have a multi-barrier strategy. The first barrier is the application of ozone, a powerful disinfectant, which has the ability to kill a broad range of microbes. The second barrier is the addition of chemicals to remove particles from the water, which can hide and protect microbes. Removing particles improves the anti-microbial action of the disinfectants. The water is then passed through two sets of filters, and chloramines are then added to the water. Chloramines are similar to chlorine and prevent the growth of bacteria in the distribution system, which delivers water from the treatment plants to the retail water purveyors.

An important property of SWP water is the chemical make up caused by its passage through the Delta. The Delta is basically a very large marsh (or estuary) with large masses of plants and peat soils. These contribute organic materials (TOC) to the water. Salt water can also move into the Delta from San Francisco Bay and the Pacific Ocean. This brings in salts, notably bromide and chloride. None of these chemicals are harmful in and of themselves; however, when bromide and TOC react with disinfectants such as ozone, chlorine, or chloramines, a reaction occurs forming substances known as disinfection by-products (DBPs). A variety of health-based concerns are associated with DBPs (CCR, 2005).

Another important property of SWP water is the mineral content. SWP water is generally low in dissolved minerals, such as calcium, magnesium, sodium, potassium, iron, manganese, nitrate, and sulfate. Most of these minerals do not have health based concerns, but “hard” water (water high in calcium, magnesium, and iron) can cause a number of problems for consumers, such as the formation of white crusts in plumbing fixtures, water spots, damage to water heaters, and excess use of soaps. Nitrate is the main exception, as it has significant health effects for infants; however, the nitrate content of SWP water is very low. Also of significance is the chloride content. Although not a human health risk, chloride can have a negative impact on agricultural activities and regulatory compliance for local sanitation agencies. The chloride content of SWP water varies widely from well over 100 milligrams per liter (mg/L) to below 40 mg/L, depending on Delta conditions.

All surface waters can have taste and odor problems caused by the growth of algae in reservoirs, such as Castaic Lake. Under certain conditions, algae can grow in large mats, which then die, releasing foul smelling chemicals. Although harmless, the taste and odor causing chemicals can generally be very unpleasant for consumers.

5.3 GROUNDWATER QUALITY

The Basin has two sources of groundwater. Most local wells draw water from the Alluvial Aquifer. A smaller portion of the Valley's water supply is drawn from the Saugus Formation, a much deeper aquifer than the Alluvial Aquifer. The quality components of these aquifers differ with changing rainfall conditions. The two aquifers' water quality changes at different rates and much more slowly than surface water.

Local groundwater generally does not have microbial water quality problems. Parasites, bacteria, and viruses are filtered out as the water percolates through the soil, sand, and rock on its way to the aquifer. Even so, disinfectants are added to local groundwater when it is pumped by wells to protect public health. Local groundwater has very little TOC and generally has very low concentrations of bromide, minimizing potential for DPB formation. Taste and odor problems from algae are not an issue with groundwater.

The mineral content of local groundwater is very different from SWP water. The groundwater is very "hard," that is, it has high concentrations of calcium and magnesium (approximately 250-600 mg/L, as developed in the CLWA et al 2005 Annual Water Quality Report). Groundwater may also contain higher concentrations of nitrates and chlorides when compared to SWP water. However, all groundwater meets or exceeds drinking water standards.

The following sections describe the groundwater quality of the Alluvium and Saugus Formation.

5.3.1 Groundwater Quality – Alluvium

Groundwater quality is a key factor in assessing the Alluvial Aquifer as a municipal and agricultural water supply. In terms of the aquifer system, there is no convenient long-term record of water quality, i.e., water quality data in one or more single wells that spans several decades and continues to the present. Thus, in order to examine a long-term record of water quality in the Alluvium, individual records have been integrated from several wells completed in the same aquifer materials and in close proximity to each other to examine historical trends in general mineral groundwater quality throughout the Basin. Based on these records of groundwater quality, wells within the Alluvium have experienced historical fluctuations in general mineral content, as indicated by specific conductance (or electrical conductivity [EC]), which correlates with fluctuations of individual constituents that contribute to EC. The historic water quality data indicates that, on a long-term basis, there has not been a notable trend and, specifically, there has not been a decline in water quality within the Alluvium.

Specific conductance within the Alluvium exhibits a westward gradient, corresponding with the direction of groundwater flow in the Alluvium. EC is lowest in the easternmost portion of the Basin and highest in the west. Water quality in the Alluvium generally exhibits an inverse correlation with precipitation and streamflow, with a stronger correlation in the easternmost portion of the Basin, where groundwater levels fluctuate the most. Wet periods have produced substantial recharge of higher quality (low EC) water, and dry periods have resulted in declines in groundwater levels, with a corresponding increase in EC (and individual contributing constituents) in the deeper parts of the Alluvium.

Specific conductance throughout the Alluvium is currently below the Secondary (aesthetic) Upper Maximum Contaminant Level of 1,600 micromhos per centimeter (umhos/cm). The presence of long-term consistent water quality patterns, although intermittently affected by wet and dry cycles, supports the conclusion that the Alluvial aquifer is a viable ongoing water supply source in terms of groundwater quality.

The most notable groundwater quality issue in the Alluvium is perchlorate contamination. In 2002, one Alluvial well located near the former Whittaker-Bermite facility was inactivated for municipal water supply due to detection of perchlorate slightly below the Notification Level. In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. In response, VWC removed the well from active service and commissioned an analysis and report assessing the impact of, and response to, the perchlorate contamination of that well. Sections 5.4 and 5.5 present additional information on the results of the Q2 analysis and report and VWC's response plan for Well Q2 to pursue permitting and installation of wellhead treatment, which resulted in returning the well to water supply service in October 2005.

5.3.2 Groundwater Quality – Saugus Formation

Similar to the Alluvium, groundwater quality in the Saugus Formation is a key factor in assessing that aquifer as a municipal and agricultural water supply. As with groundwater level data, long-term Saugus groundwater quality data is not sufficiently extensive (few wells) to permit any basin-wide analysis or assessment of pumping-related impacts on quality. As with the Alluvium, EC has been chosen as an indicator of overall water quality, and records have been combined to produce a long-term depiction of water quality. Water quality in the Saugus Formation has not historically exhibited the precipitation-related fluctuations seen in the Alluvium. Based on the historical record over the last 50 years, groundwater quality in the Saugus has exhibited a slight overall increase in EC. More recently, several wells within the Saugus Formation have exhibited an additional increase in EC similar to that seen in the Alluvium. In 2004, monthly data collected by VWC for two Saugus wells shows that the overall level of EC remained fairly stable during the year. Levels of EC in the Saugus Formation remain below the Secondary (aesthetic) Upper Maximum Contaminant Level for EC. Groundwater quality within the Saugus will continue to be monitored to ensure that degradation that presents concern relative to the long-term viability of the Saugus as an agricultural or municipal water supply does not occur.

As with the Alluvium, the most notable groundwater quality issue in the Saugus Formation is prechlorate contamination. Perchlorate was originally detected in four Saugus wells operated by the retail water purveyors in the eastern part of the Saugus Formation in 1997, near the former Whittaker-Bermite facility. Since then, the four Saugus municipal supply wells have been out of water supply service due to the presence of perchlorate. While the inactivation of those wells does not limit the ability of the purveyors to meet water requirements, there is an ongoing effort to restore impacted pumping capacity and contain potential perchlorate migration in the Saugus Formation by 2006 as discussed in Sections 5.4 and 5.5.

The local retail water purveyors continue to test for perchlorate in active water supply wells near the Whittaker-Bermite site, and there has been no additional detection of perchlorate in any other municipal Saugus well. Details are provided below on the various aspects of ongoing

perchlorate-related work, including investigation of the extent of contamination, development of an interrelated program for control and extraction of perchlorate by restoring impacted capacity (wells), treatment technology and its planned application for restoration of impacted wells, regulatory aspects of utilizing impacted wells with treatment for domestic water supply, and the current state of planning and implementation of perchlorate control and clean-up, including restoration of contaminated municipal water supply as part of that control and clean-up.

5.4 AQUIFER PROTECTION

As introduced in Chapter 3, three factors affect the availability of groundwater: sufficient source capacity (wells and pumps); sustainability of the groundwater resource to meet pumping demand on a renewable basis; and protection of groundwater sources (wells) from known contamination, or provisions for treatment in the event of contamination. The first two of those factors are addressed in Chapter 3. The third factor, the impact and resolution of contamination, is being addressed in the Valley's two aquifers as follows.

5.4.1 Alluvium

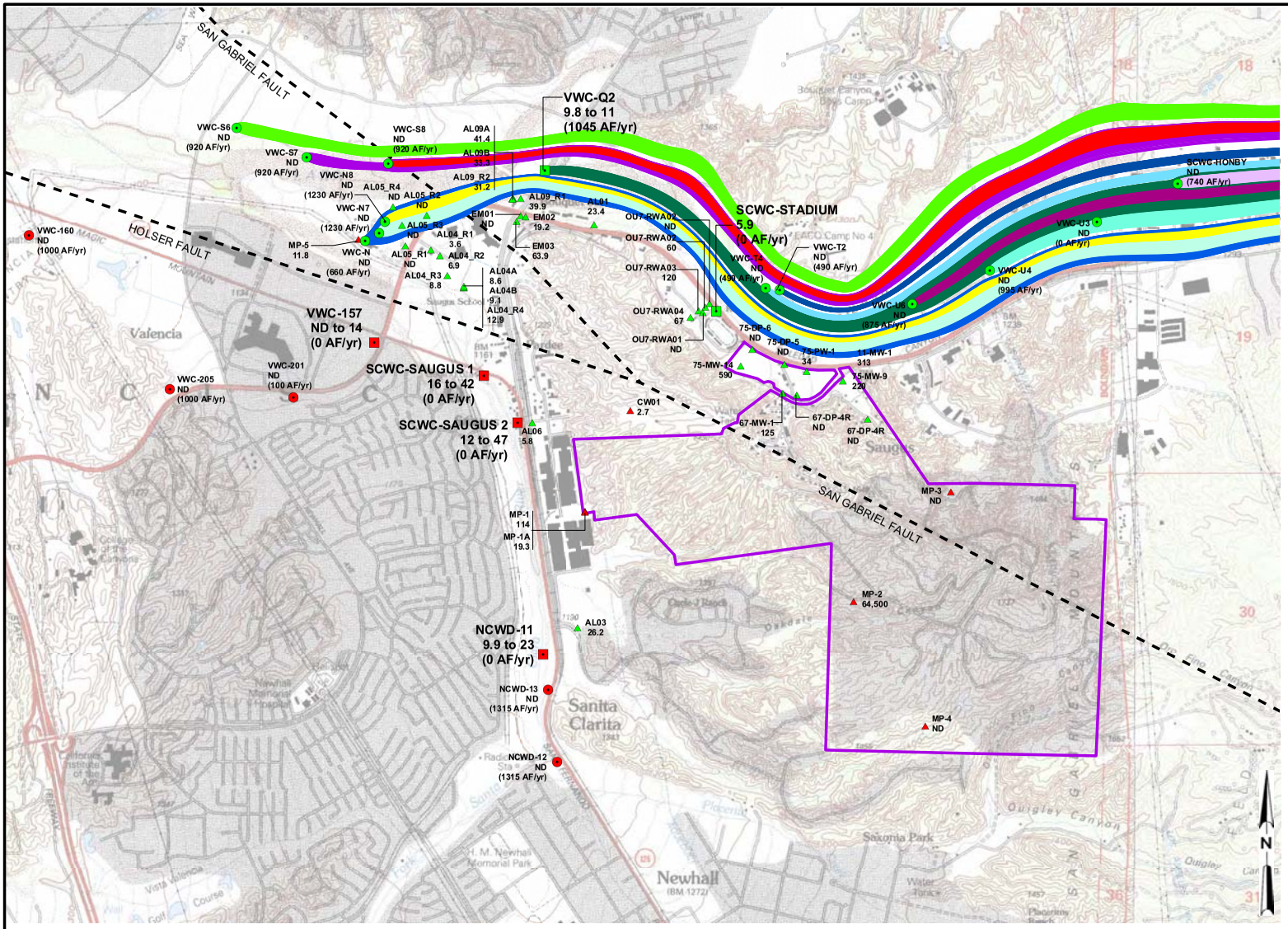
Details of the overall perchlorate contamination issue, which has had a larger impact on the Saugus Formation (four impacted wells with a total pumping capacity of 7,900 gpm) than on the Alluvium (one impacted well with a total pumping capacity of 800 gpm), are discussed in Appendix D of this Plan. As detailed in that Appendix, there has been extensive investigation of the extent of perchlorate contamination which, in combination with the groundwater modeling previously described, has led to the current plan for integrated control of contamination migration and restoration of impacted pumping (well) capacity in 2006. While most of the perchlorate contamination control and restoration plan is focused on the Saugus Formation, part of that plan includes potential capture of contaminated groundwater in the Alluvium by pumping of selected Saugus wells. Specific long-term resolution of perchlorate contamination in the Alluvium, which impacted two water supply wells, is focused on a combination of wellhead treatment at one well, the VWC's Well Q2, and several source control methods such as on-site pumping and treatment in the northern Alluvium (at the northerly portion of the former Whittaker-Bermite site) and subsequent restoration of the impacted Stadium well. In the interim, i.e., through 2006, a key challenge is protection of active Alluvial wells that could be impacted, including what effect that might have on adequacy of Alluvial groundwater pumping capacity and what response will be taken.

In April 2005, perchlorate was detected in VWC's Well Q2. VWC's response was to remove the well from active water supply service and to rapidly seek approval for installation of wellhead treatment and return of the well to service. As part of outlining its plan for treatment and return of the well to service, VWC analyzed the impact of the temporary inactivation of the well on its water supply capability; the analysis determined that VWC's other sources are sufficient to meet demand and that the inactivation of Well Q2 thus had no impact on VWC's water supply capability (LSCE, 2005). VWC proceeded through mid-2005 to gain approval for installation of wellhead treatment (ion-exchange as described below), including environmental review, and completed the installation of the wellhead treatment facilities in September 2005. Well Q2 was returned to active water supply service in October 2005.

Ongoing monitoring of all active municipal wells near the Whittaker-Bermite site has shown no detections of perchlorate in any active Alluvial wells. However, based on a combination of proximity to the Whittaker-Bermite site and prevailing groundwater flow directions, complemented by findings in the ongoing on-site and off-site investigations by Whittaker-Bermite and the Army Corps of Engineers (ACOE) (See Appendix D), there is logical concern that perchlorate could impact nearby, downgradient Alluvial wells. As a result, provisions are in place to respond to perchlorate contamination if it should occur. The groundwater model was used to examine capture zones around Alluvial wells under planned operating conditions (pumping capacities and volumes) for the time period through currently scheduled restoration of impacted wells in 2006 (Technical Memorandum "Analysis of Near-Term Groundwater Capture Areas for Production Wells Located Near the Whittaker-Bermite Property (Santa Clarita, California)", CH2M Hill, November 2004). The capture zone analysis of Alluvial wells generally near the Whittaker-Bermite site, shown on Figure 5-1, suggests that inflow to those wells will either be upgradient of the contamination site, or will be from the Alluvium beyond where perchlorate is most likely to be transported, with the possible exception of the VWC's Pardee wellfield, which includes Wells N, N7, and N8. Although the capture zone analysis does not show the Pardee wells to be impacted, they are considered to be at some potential risk due to the proximity of their capture zone to the Whittaker-Bermite site.

The combined pumping capacity of VWC's Pardee wells is 6,200 gpm, which equates to about 10,000 af of maximum annual capacity. However, in the operating plan for both normal and dry-year Alluvial pumping, the planned use of those wells represents 2,940 afy of the total 30,000 to 40,000 afy Alluvial groundwater supply. Thus, if the wells were to become contaminated with perchlorate, they would represent an amount of the total Alluvial supply that could be readily replaced, on a short-term interim basis, by utilizing an equivalent amount of imported water from CLWA or by utilizing existing capacity from other Alluvial wells (see Table 3-9 in Chapter 3.0). However, if the Pardee wells were to become contaminated by perchlorate contamination, VWC has made site provisions at its Pardee wellfield for installation of wellhead treatment. Such treatment would be the same methodology as installed at its Well Q2.

In addition to the preceding, on-site investigation by Whittaker-Bermite since late 2003 has resulted in the completion, in June 2005, of a Workplan for a Pilot Remediation Pumping Program in the Northern Alluvium and certain on-site sub-areas east/southeast, or generally upgradient, of the impacted Stadium well. That program basically involves the establishment of containment, generally along the northern boundary of the Whittaker-Bermite site, upgradient of the Stadium well, by continuous pumping of a former Whittaker-Bermite facility well, at a continuous low capacity, complemented by pumping at several groundwater "hot spots" also generally upgradient of the Stadium well. Due to the low conductivity nature of the aquifer materials at the various "hot spots," pumping for containment at those locations would be from several wells at low pumping capacities. Extracted water would be treated at Whittaker-Bermite's existing on-site treatment system. Generally consistent with the Saugus restoration concept, the Northern Alluvium pumping program would have the concurrent objectives of preventing site-related contaminants from leaving the site and removing some contamination from groundwater such that it can be removed in the on-site treatment process prior to discharge of the water back to the groundwater Basin.



LEGEND

CONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

UNCONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

MONITORING WELL
- ALLUVIUM
- SAUGUS

TWO-YEAR GROUNDWATER CAPTURE ZONE
- SCWC-HONBY
- VWC-N
- VWC-N7
- VWC-N8
- VWC-Q2
- VWC-S6
- VWC-S7
- VWC-S8
- VWC-T2
- VWC-T4
- VWC-U4
- VWC-U6
- WHITTAKER-BERMITE PROPERTY BOUNDARY

NOTES:

1. VALUES PRESENTED UNDER WELL SYMBOLS REPRESENT PERCHLORATE CONCENTRATION IN GROUNDWATER (µg/L).
2. PUMPING VALUES IN PARENTHESES ARE ANNUAL PUMPING VOLUMES
3. ND = PERCHLORATE NOT DETECTED IN GROUNDWATER SAMPLE.
4. µg/L = MICROGRAMS PER LITER; AF/yr = acre feet per year
5. FLOWPATHS ARE DELINEATED USING AN EFFECTIVE POROSITY OF 0.10 IN THE ALLUVIAL AQUIFER AND 0.05 IN THE SAUGUS FORMATION.

FIGURE 5-1
FORECASTED TWO-YEAR GROUNDWATER CAPTURE ZONES FOR ACTIVE ALLUVIAL PRODUCTION WELLS LOCATED CLOSEST TO THE WHITTAKER-BERMITE PROPERTY
SANTA CLARITA, CALIFORNIA

CH2MHILL

5.4.2 Saugus Formation

Details of the overall nature and extent of perchlorate contamination are discussed in Appendix D. The program and schedule involves the ultimate installation of treatment facilities to both extract contaminated water and control migration in the aquifer, such that the impacted capacity is restored and perchlorate migration is controlled in 2006.

In the interim, the question of whether existing active Saugus wells are likely to be contaminated by perchlorate migration prior to the installation of treatment and pumping for perchlorate contamination control has been evaluated by using the groundwater flow model to analyze capture zones of existing active wells through 2006, the scheduled period for permitting, installation of treatment, and restoration of impacted capacity. For that analysis, recognizing current hydrologic conditions and available supplemental SWP supplies, the rate of Saugus pumping was conservatively projected to be in the normal range (7,500 to 15,000 afy) for the near-term. The results of the capture zone analysis, illustrated on Figure 5-2, were that the two nearest downgradient Saugus wells, VWC's Wells 201 and 205, would draw water from very localized areas around the wells and would not draw water from locations where perchlorate has been detected in the Saugus. As shown on the figure, the capture zone analysis projected Well 201 would potentially draw Saugus groundwater from areas located up to 450 feet east of the well, but was unlikely to draw water from areas farther to the east through that time period. During the same time, Well 205 would potentially draw Saugus groundwater from areas as much as 650 feet to the east and northeast of this well.

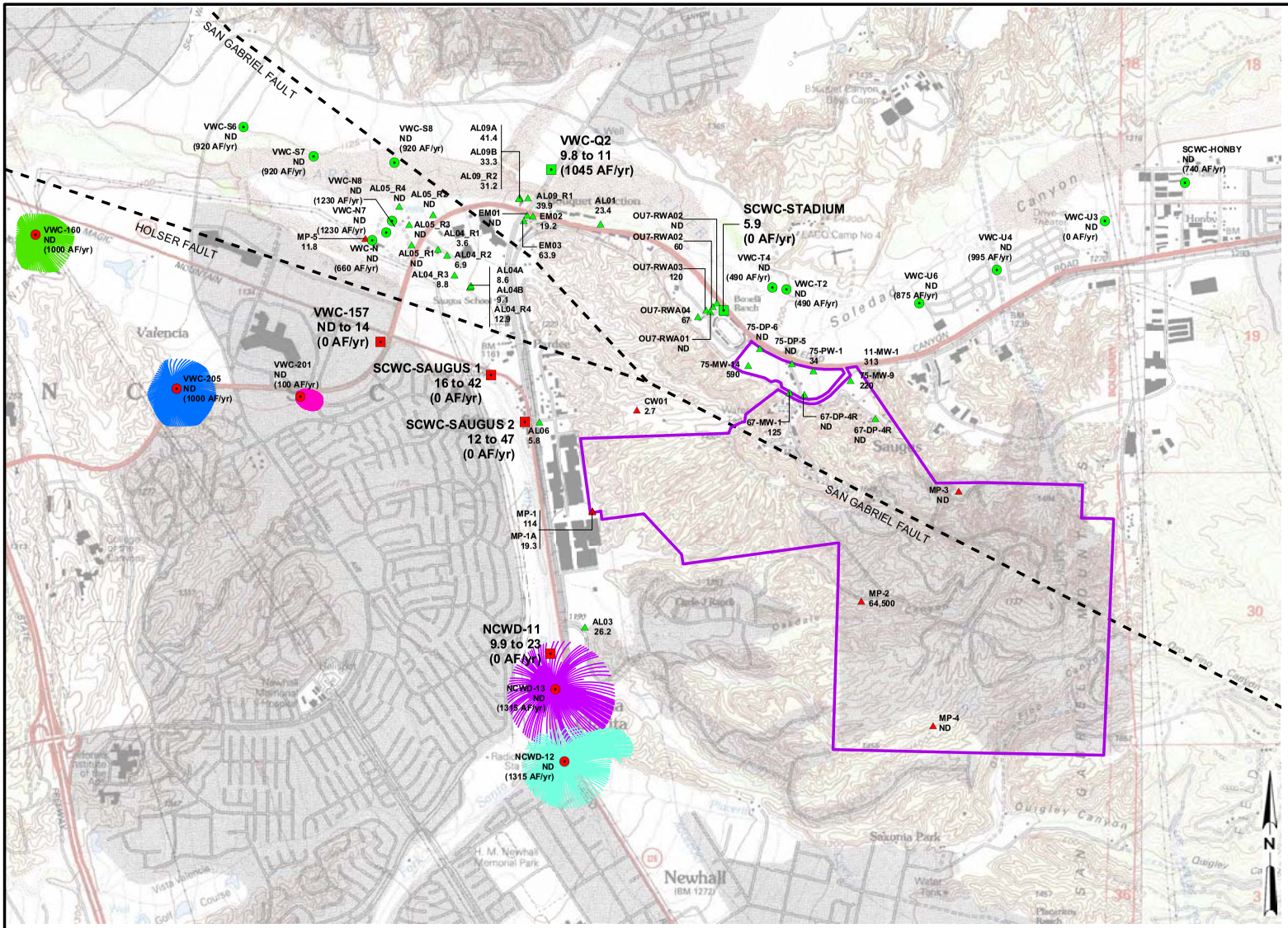
As a result, the currently active downgradient Saugus wells are expected to remain active as sources of water supply in accordance with the overall operating plan for the Saugus Formation, given the generally low planned pumping from the nearest downgradient Saugus wells in the operating plan through 2006, after which restored capacity and resultant aquifer hydraulic control are scheduled to be in place.

5.5 WATER QUALITY IMPACTS ON RELIABILITY

5.5.1 Groundwater Contamination (Perchlorate)

The detection of perchlorate in Valley groundwater supplies has raised concerns over the reliability of those supplies, in particular the Saugus Formation, where four wells have been removed from active service as a result of perchlorate. As discussed below and in Appendix D, planning for remediation of the perchlorate and restoration of the impacted well capacity is substantially underway. While that work is being completed, non-impacted production facilities can be relied upon for the quantities of water projected to be available from the Alluvial Aquifer and Saugus Formation during the time necessary to restore perchlorate-impacted wells. CLWA, the local retail water purveyors, the California Department of Toxic Substances Control (DTSC), and the ACOE continue to work closely on the perchlorate contamination issue.

The following is a summary of the status of perchlorate remediation and restoration of perchlorate-impacted groundwater supply. A more detailed discussion of pertinent events related



LEGEND

CONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

UNCONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

MONITORING WELL
- ALLUVIUM
- SAUGUS

TWO-YEAR GROUNDWATER CAPTURE ZONE
- NC-12
- NC-13
- VWC-160
- VWC-201
- VWC-205
- WHITTAKER-BERMITE PROPERTY BOUNDARY

NOTES:

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3. ND = PERCHLORATE NOT DETECTED IN GROUNDWATER SAMPLE.
4. µg/L = MICROGRAMS PER LITER; AF/yr = acre feet per year
5. FLOWPATHS ARE DELINEATED USING AN EFFECTIVE POROSITY OF 0.10 IN THE ALLUVIAL AQUIFER AND 0.05 IN THE SAUGUS FORMATION.

FIGURE 5-2
FORECASTED TWO-YEAR GROUNDWATER CAPTURE ZONES FOR ACTIVE SAUGUS PRODUCTION WELLS LOCATED CLOSEST TO THE WHITTAKER-BERMITE PROPERTY
SANTA CLARITA, CALIFORNIA

CH2MHILL

to perchlorate contamination, containment, remediation, and water supply restoration is included in Appendix D. These discussions are provided to illustrate that work toward the ultimate remediation of the perchlorate contamination, including the reactivation of impacted groundwater supply wells, has progressed on several integrated fronts over the last five years.

5.5.2 Perchlorate Impacted Water Purveyor Wells

As introduced above, perchlorate was detected in four Saugus Formation production wells near the former Whittaker-Bermite site in 1997. As a result, these wells (SCWD's Wells Saugus 1 and Saugus 2, NCWD's Well NC-11, and VWC's Well V-157) were removed from service. In 2002, perchlorate was detected in the SCWD Stadium well located directly adjacent to the Whittaker-Bermite site. This Alluvial well also has been removed from service.

Since the detection of perchlorate and resultant inactivation of impacted wells, the purveyors have been conducting regular monitoring of active wells near the Whittaker-Bermite site. In April 2005, that monitoring detected the presence of perchlorate in VWC's Well Q2, an Alluvial well located immediately northwest of the confluent of Bouquet Creek and the Santa Clara River. The location of this well is also shown on Figures 5-1 and 5-2. As a result of the detection and confirmation of perchlorate in its Well Q2, VWC removed the well from active service and pursued rapid permitting and installation of wellhead treatment in order to return the well to water supply service as described in Section 5.4.1.

In January 2005, VWC permanently closed well V-157 and in September 2005 completed the construction of new Saugus well V-206 located in an area of the Saugus Formation not impacted by perchlorate. VWC's V-206 is operational and replaces the pumping capacity temporarily impacted by the detection of perchlorate at V-157. In October 2005, VWC restored the pumping capacity of well Q2 with the start-up of wellhead treatment designed to effectively remove perchlorate. In summary, four wells (Saugus 1 and 2, NC-11, and Stadium well) remain temporarily offline due to perchlorate contamination.

Locations of the impacted wells, and other nearby non-impacted wells, relative to the Whittaker-Bermite site are shown on Figures 5-1 and 5-2.

5.5.3 Restoration of Perchlorate Impacted Water Supply

Since the detection of perchlorate in the four Saugus wells in 1997, CLWA and the retail water purveyors have recognized that one element of an overall remediation program would most likely include pumping from impacted wells, or from other wells in the immediate area, to establish hydraulic conditions that would control the migration of contamination from further impacting the aquifer in a downgradient (westerly) direction. Thus, CLWA and the retail water purveyors expect that the overall perchlorate remediation program could include dedicated pumping from some or all of the impacted wells, with appropriate treatment, such that two objectives could be achieved. The first objective is control of subsurface flow and protection of downgradient wells, and the second is restoration of some or all of the contaminated water supply. Not all impacted capacity is required for control of groundwater flow. The remaining capacity would be replaced by construction of replacement wells at non-impacted locations.

In cooperation with state regulatory agencies and investigators working for Whittaker-Bermite, CLWA and the local retail water purveyors developed an off-site plan that focuses on the concepts of groundwater flow control and restored pumping capacity and is compatible with on-site and possibly other off-site remediation activities. Specifically relating to water supply, the plan includes the following:

- Constructing and operating a water treatment process that removes perchlorate from two impacted wells such that the produced water can be used for municipal supply.
- Hydraulically containing the perchlorate contamination that is moving from the Whittaker-Bermite site toward the impacted wells by pumping the wells at rates that will capture water from all directions around them.
- Protecting the downgradient non-impacted wells through the same hydraulic containment that results from pumping two of the impacted wells.
- Restoring the annual volumes of water pumped from the impacted wells before they were inactivated and also restoring the wells' total capacity to produce water in a manner consistent with the retail water purveyors' operating plan for groundwater supply described above.

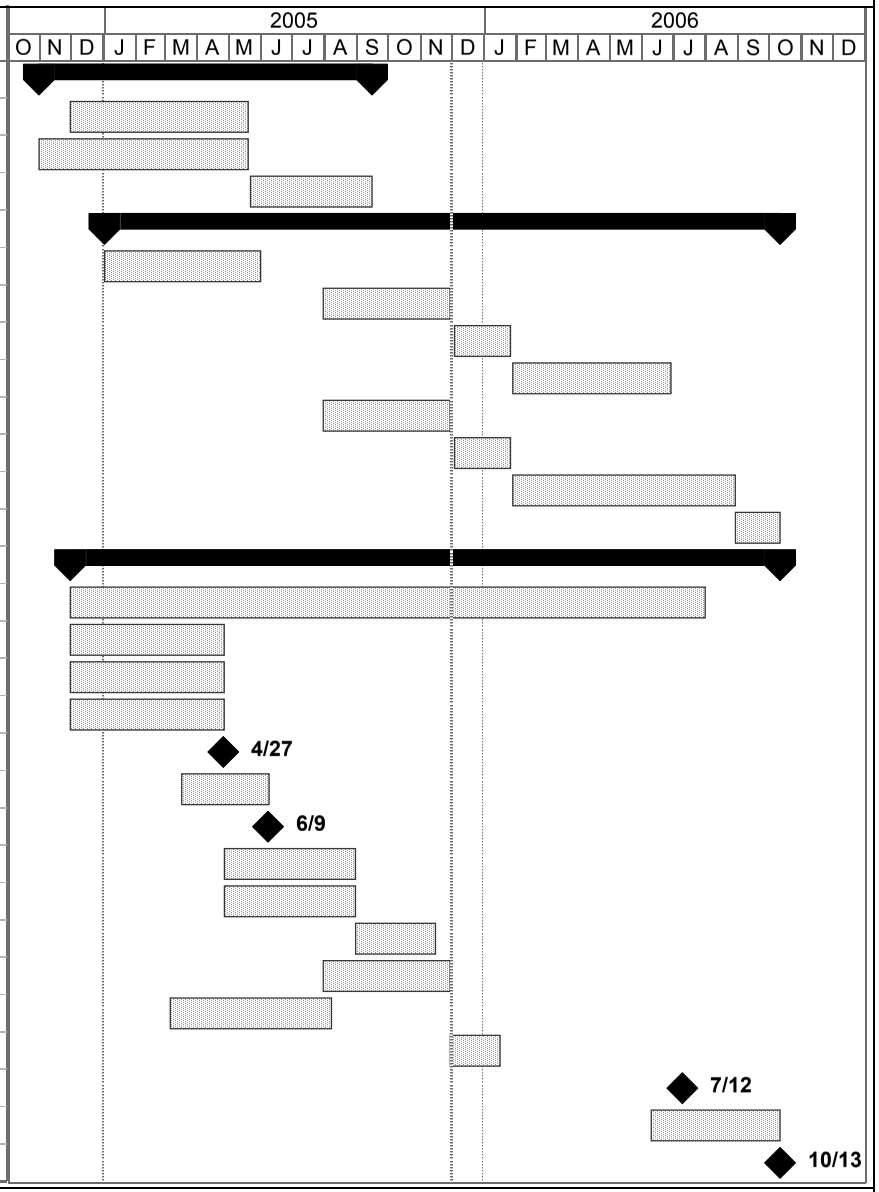
The current schedule for implementation of the plan to restore contaminated water supply (wells) is illustrated on Figure 5-3. Included in the schedule is a planned extended test of the wells that will be returned to service as part of restoring contaminated water supply and that will also be operated to extract contaminated water and control the migration of contamination in the aquifer. Concurrent with the testing of the wells, several specific ion exchange resins will also be tested to evaluate their performance and longevity. The two key activities that comprise the majority of effort required for implementation of the plan are general facilities-related work (design and construction of well facilities, treatment equipment, pipelines, etc.) and permitting work. Both activities are planned and scheduled concurrently, resulting in planned completion (i.e., restoration of all impacted capacity) in 2006. Notable recent accomplishments toward implementation include completion of the Final Draft Interim Remedial Action Plan (RAP) in August 2005 and completion of environmental review with the adoption of a Mitigated Negative Declaration in September 2005.

In light of the preceding, with regard to the adequacy of groundwater as the local component of water supply in this Plan, the impacted capacity will remain unavailable through early to mid-2006, during which time the non-impacted groundwater supply will be sufficient to meet near-term water requirements as described in Chapter 3, Water Resources. Afterwards, the total groundwater capacity will be sufficient to meet the full range of normal and dry-year conditions as provided in the operating plan for groundwater supply.

Returning the contaminated Saugus wells to municipal water supply service by installing treatment requires issuance of permits from DHS before the water can be considered potable and safe for delivery to customers. The permit requirements are contained in DHS Policy Memo 97-005 for direct domestic use of impaired water sources.

Figure 5-3
Preliminary 97-005 Implementation Schedule
Castaic Lake Water Agency

ID	Task Name	Duration	Start	Finish
1	**DTSC Approval Activities**	**230 days**	**Mon 11/1/04**	**Fri 9/16/05**
2	Feasibility Study	6.15 mons	Wed 12/1/04	Fri 5/20/05
3	Draft RAP	29 wks	Mon 11/1/04	Fri 5/20/05
4	Final RAP	4.25 mons	Mon 5/23/05	Fri 9/16/05
5	**Implementation Activities**	**465 days**	**Mon 1/3/05**	**Fri 10/13/06**
6	Easements and ROW	5.4 mons	Mon 1/3/05	Wed 6/1/05
7	Treatment Design	4.4 mons	Mon 8/1/05	Wed 11/30/05
8	Treatment Bidding & Contracting	2 mons	Mon 12/5/05	Fri 1/27/06
9	Treatment Construction	5.5 mons	Mon 1/30/06	Fri 6/30/06
10	Pipeline Design	4.4 mons	Mon 8/1/05	Wed 11/30/05
11	Pipeline Bidding & Contracting	2 mons	Mon 12/5/05	Fri 1/27/06
12	Pipeline Construction	7.7 mons	Mon 1/30/06	Thu 8/31/06
13	System Startup	1.55 mons	Fri 9/1/06	Fri 10/13/06
14	**DHS Approval Activities (97-005)**	**488 days**	**Wed 12/1/04**	**Fri 10/13/06**
15	DHS Coordination	21.8 mons	Wed 12/1/04	Wed 8/2/06
16	TM1: Source Water Assessment	5.3 mons	Wed 12/1/04	Wed 4/27/05
17	TM2: Raw Water Quality Characterization	5.3 mons	Wed 12/1/04	Wed 4/27/05
18	TM3: Source Water Protection	5.3 mons	Wed 12/1/04	Wed 4/27/05
19	DHS Workshop No. 1	0 days	Wed 4/27/05	Wed 4/27/05
20	TM4: Effective Monitoring & Treatment	3 mons	Fri 3/18/05	Thu 6/9/05
21	DHS Workshop No. 2	0 days	Thu 6/9/05	Thu 6/9/05
22	TM5: Human Health Risk Assessment	4.5 mons	Thu 4/28/05	Wed 8/31/05
23	TM6: Alternative Source Assessment	4.5 mons	Thu 4/28/05	Wed 8/31/05
24	DHS Review of TMs 5 & 6	2.75 mons	Thu 9/1/05	Wed 11/16/05
25	Prepare 97-005 Engineer's Report	4.4 mons	Mon 8/1/05	Wed 11/30/05
26	CEQA Initial Study and Draft MND	5.55 mons	Mon 3/7/05	Mon 8/8/05
27	Permit Application	1.7 mons	Thu 12/1/05	Tue 1/17/06
28	Public Hearing	0 days	Wed 7/12/06	Wed 7/12/06
29	DHS Evaluation	4.5 mons	Mon 6/12/06	Fri 10/13/06
30	Obtain DHS Permit	0 days	Fri 10/13/06	Fri 10/13/06



Project: CLWA 97-005_r2
Date: Thu 12/1/05

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

Before issuing a permit to a water utility for use of an impaired source as part of the utility's overall water supply permit, DHS requires that studies and engineering work be performed to demonstrate that pumping the wells and treating the water will be protective of public health for users of the water. The 97-005 Policy Memo requires that DHS review the local retail water purveyor's plan, establish appropriate permit conditions for the wells and treatment system, and provide overall approval of returning the impacted wells to service for potable use. Ultimately, CLWA's and the local retail water purveyor's plan and the DHS requirements are intended to ensure that the water introduced to the potable water distribution system has no detectable concentration of perchlorate.

The DHS 97-005 Policy Memo requires, among other things, the completion of a source water assessment for the impacted wells intended to be returned to service. The purpose of the assessment is to determine the extent to which the aquifer is vulnerable to continued migration of perchlorate and other contaminants of interest from the Whittaker-Bermite site. The assessment includes the following:

- Delineation of the groundwater capture zone caused by operating the impacted wells
- Identification of contaminants found in the groundwater at or near the impacted wells
- Identification of chemicals or contaminants used or generated at the Whittaker-Bermite facility
- Determination of the vulnerability of pumping the impacted wells to these contaminant sources

CLWA is currently working directly with the retail water purveyors and its consultants on development of the DHS 97-005 Policy Memo permit application. Two coordination workshops have already been held with DHS. Drafts of all six elements of the 97-005 Policy Memo have been submitted to DHS and the retail purveyors for review, including: the Source Water Assessment, Raw Water Quality Characterization, Source Protection Plan, Effective Monitoring and Treatment Evaluation, Human Health Risk Assessment, and the Alternatives Sources Evaluation. The Engineer's Report, which summarizes these six elements for the 97-005 process, is anticipated to be complete by the end of November 2005.

The CEQA process for the "CLWA Groundwater Containment, Treatment, and Restoration Project," for which the 97-005 process is being conducted, was completed in August 2005. The Project Description from the project's CEQA Initial Study is included in Appendix E.

As listed above, DHS 97-005 Policy Memo requires an analysis to demonstrate contaminant capture and protection of other nearby water supply wells. The development and calibration of a numerical groundwater flow model of the entire basin had been initiated as a result of a 2001 MOU among the Upper Basin Water Purveyors (CLWA, CLWA SCWD, LACWWD #36, NCWD, and VWC) and the United Water Conservation District in Ventura County.

The groundwater model was initially intended for use in analyzing the operating yield and sustainability of groundwater in the Basin. Use of the model for that analysis is described in Chapter 3. However, the model was adaptable to analyze both the sustainability of groundwater under an operational scenario that includes full restoration of perchlorate-contaminated supply

and the containment of perchlorate near the Whittaker-Bermite property (i.e., by pumping some of the contaminated wells). In 2004, DTSC reviewed and approved the construction and calibration of the regional model as described in the final model report, "Regional Groundwater Flow Model for the Santa Clarita Valley, Model Development and Calibration" (CH2M Hill, April 2004).

After DTSC approval, the model was used to simulate the capture and control of perchlorate by restoring impacted wells, with treatment. The results of that work are summarized in a second report, "Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California" (CH2M Hill, December 2004). The modeling analysis indicates that the pumping of impacted wells SCWD-Saugus 1 and SCWD-Saugus 2 on a nearly continual basis will effectively contain perchlorate migrating westward in the Saugus Formation from the Whittaker-Bermite property. The analysis also indicates that (1) no new production wells are needed in the Saugus Formation to meet the perchlorate containment objective, (2) impacted well NCWD-11 is not a required component of the containment program, and (3) pumping at SCWD-Saugus 1 and SCWD-Saugus 2 is necessary to prevent migration of perchlorate to other portions of the Saugus Formation.

The perchlorate containment report also includes the general design of a sentinel groundwater monitoring network and program required by DHS as part of its 97-005 Policy Memo permitting. The perchlorate containment report was approved by DTSC in November 2004. With that approval, the model is now being used to support the source water assessment and the balance of the permitting process required by DHS under its 97-005 Policy Memo.

Chapter 6
RELIABILITY PLANNING

Chapter 6.0
RELIABILITY PLANNING

6.1 OVERVIEW

The Act requires urban water suppliers to assess water supply reliability that compares total projected water used with the expected water supply over the next twenty years in five year increments. The Act also requires an assessment for a single dry year and multiple dry years. This chapter presents the reliability assessment for CLWA's service area.

It is the stated goal of CLWA and the retail water purveyors to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions over the next 25 years in combination with conservation of non-essential demand during certain dry years, the Plan successfully achieves this goal.

6.2 RELIABILITY OF WATER SUPPLIES

Each water supply source has its own reliability characteristics. In any given year, the variability in weather patterns around the state may affect the availability of supplies to the Valley differently. For example, from 2000 through 2002, southern California experienced dry conditions in all three years. During the same period, northern California experienced one dry year and two normal years. The Valley is typical in terms of water management in southern California; local groundwater supplies are used to a greater extent when imported supplies are less available due to dry conditions in the north, and larger amounts of imported water supplies are used during periods when northern California has wetter conditions. This pattern of "conjunctive use" has been in effect since SWP supplies first came to the Valley in 1980. SWP supplies have supplemented the overall supply of the Valley, which previously depended solely on local groundwater supplies.

To supplement these local groundwater supplies, CLWA contracted with DWR for delivery of SWP water, providing an imported water supply to the Valley. However, the variability in SWP supplies affects the ability of the agencies to meet the overall water supply needs for the service area. While each of the Valley's available supply sources has some variability, the variability in SWP supplies has the largest effect on overall supply reliability.

As discussed in Section 3.2 of Chapter 3, each SWP contractor's Water Supply Contract contains a Table A Amount that identifies the maximum amount of water that contractor may request. However, the amount of SWP water actually allocated to contractors each year is dependent on a number of factors than can vary significantly from year to year. The primary factors affecting SWP supply availability include hydrologic conditions in northern California, the amount of water in SWP storage reservoirs at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by the contractors. The availability of SWP supplies to CLWA and the other SWP contractors is generally less than their full Table A amounts in many years and can be significantly less in very dry years.

DWR's SWP Delivery Reliability Report, issued in May 2003, assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. DWR is currently in the process of updating this report and, on May 25, 2005, provided excerpts from this update that includes updated reliability analyses and a recommendation for which set of analyses to use in preparation of 2005 UWMPs. DWR provided these updated delivery reliability estimates to the SWP contractors in its "Excerpts from the Working Draft of 2005 State Water Project Delivery Reliability."

The amount of SWP water projected to be available to CLWA in this Plan is based on DWR's draft reliability report update. In its report, DWR presents the results of its analysis of the reliability of SWP supplies, based on model studies of SWP operations. In general, DWR model studies show the anticipated amount of SWP supply that would be available for a given SWP water demand, given an assumed set of physical facilities and operating constraints, based on 73 years of historic hydrology. The results are interpreted as the capability of the SWP to meet the assumed SWP demand, over a range of hydrologic conditions, for that assumed set of physical facilities and operating constraints.

DWR's draft report presents the results of model studies for years 2005 and 2025. In these model studies, DWR assumed existing SWP facilities and operating constraints for both the 2005 and 2025 studies. The primary differences between the two studies are an increase in projected SWP contractor demands and an increase in projected upstream demands (which affects SWP supplies by reducing the amount of inflows available for the SWP). In the report, DWR presents the SWP delivery capability resulting from these studies as a percent of full contractor Table A Amounts. To estimate supply capability in intermediate years between 2005 and 2025, DWR interpolates between the results of those studies.

6.3 NORMAL, SINGLE-DRY, AND MULTIPLE-DRY YEAR PLANNING

CLWA has various water supplies available to meet demands during normal, single-dry, and multiple-dry years. The following sections elaborate on the different supplies available to CLWA including groundwater, recycled water, and SWP supplies.

6.3.1 Groundwater

Supplies from the Alluvial Aquifer are projected to be 30,000 to 40,000 afy in average years and 30,000 to 35,000 afy in dry years; supplies from the Saugus Formation are projected to be 7,500 to 15,000 afy in average years and 15,000 to 35,000 afy in dry years. Groundwater modeling of the aquifers has shown that short-term, dry-year supply from the Saugus Formation could increase to up to 35,000 afy. This amount of Saugus Formation pumping can be achieved through pumping from a combination of existing wells at about 15,000 afy, restored capacity from perchlorate-impacted wells of about 10,000 afy, and new wells at 10,000 afy.

The projected groundwater supplies used in this Plan are generally the midpoints of the ranges mentioned above, with the exception of dry-period pumping from the Saugus Formation. Given the large amount of groundwater storage within the Saugus Formation, it was assumed that single-dry year pumping on an intermittent basis would be limited primarily by well capacity, to 35,000 afy. For the multiple-dry year period, it was assumed that pumping from the Saugus

Formation would be governed by the groundwater operating plan summarized in Table 3-6, with average pumping over the 4-year dry period of about 21,500 afy.

6.3.2 Recycled Water

Recycled water is available from two existing water reclamation plants operated by LACSD. CLWA has completed environmental review on the construction of Phase I of its Reclaimed Water System Master Plan, a multi-phased program to deliver recycled water in the Valley. As described in Chapter 4, the ability of CLWA to use recycled water is constrained by its rights to use the water available. CLWA currently has rights to use 1,700 afy of recycled water, and Phase I provides for the delivery of this amount. While actual use of recycled water currently totals approximately 500 afy, the amount of this supply currently available is 1,700 afy. In this Plan, the existing supply of recycled water assumed to be available is 1,700 afy in an average year, a single-dry year, and in each year of a multiple-dry year period. CLWA projects an increase of 15,700 afy in the supply of recycled water by 2030, for a total of 17,400 afy. Similar to the existing recycled water supply, the 15,700 afy of planned recycled water supply is assumed to be available in an average year, a single-dry year, and in each year of a multiple-dry year period.

6.3.3 State Water Project Table A Supply

For this Plan, the availability of SWP supplies to CLWA was estimated by multiplying CLWA's 95,200 afy of Table A Amount by the delivery percentages from DWR's draft report.[1] For the three hydrologic conditions evaluated, the delivery percentages used were taken from DWR's report based on the 73-year average, 1977, and the 1931-1934 average, for the average year, single-dry year, and multiple-dry year conditions, respectively.

In DWR's 73-year model studies, the lowest single-year SWP delivery results from 1977 hydrologic conditions, and the lowest delivery over any four-year period results from the hydrologic conditions from 1931 to 1934. Thus, the estimates of SWP dry-year supply availability used in this assessment were based on the worst case hydrologic conditions in DWR's report.

6.3.3.1 Flexible Storage Account

Under the Water Supply Contracts with DWR for SWP water, the contractors that share in the repayment of Castaic Lake may access a portion of the storage in that reservoir. This accessible storage is referred to as "flexible storage." The contractors may withdraw water from flexible storage, in addition to their allocated Table A supplies, on an as-needed basis. A contractor must replace any water it withdraws from this storage within five years. As one of the three contractors sharing in the repayment of Castaic Lake, CLWA has access to this flexible storage. Its share of the total flexible storage is currently 4,684 af. After recent negotiations with Ventura

[1] Of CLWA's 95,2000 af annual Table A Amount, 41,000 afy was permanently transferred to CLWA in 1999 by Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's Environmental Impact Report ("EIR") prepared in connection with the 41,000 afy water transfer was challenged in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles County Superior Court, Case Number BS056954) ("*Friends*"). A more detailed discussion of these new challenges and the reasons the challenges will have no impact on the amount of water available to CLWA can be found at Section 3.2.2.

County water agencies, CLWA has gained access to an additional 1,376 af of flexible storage for ten years beginning in 2006.

CLWA plans to use this supply only in dry years. For the single-dry year condition, it was assumed the entire amount would be used. For the multiple-dry year condition, it was assumed that the entire amount would be used sometime during the four-year period, so the average annual supply during that period would be one fourth of the total. Any water withdrawn was assumed to be replaced in intervening average and wet years and would be available again for use in the next dry year.

6.3.3.2 Semitropic Water Bank

In 2002, CLWA stored 24,000 af of its allocated SWP Table A supply through a groundwater banking agreement with Semitropic. In 2004, CLWA stored 32,522 af of its 2003 allocated SWP Table A supply in a second Semitropic storage account. Under the terms of these agreements, and after consideration for losses within the groundwater basin, CLWA may withdraw up to 50,870 af when needed within ten years of when the water was stored. In addition to this short-term storage for CLWA, Semitropic has a long-term groundwater banking program with several other partners. The facilities that Semitropic may use in the return of CLWA's banked water supply are the same facilities that Semitropic may use to return banked water to its long-term banking program partners. As a result, there may be competition for use of those facilities in a particularly dry year, which could limit CLWA's ability to access the water in that year.

CLWA plans to use this supply only in dry years. For the single dry year, it was assumed that competition among Semitropic's banking partners for use of return facilities would limit CLWA's supply to about one third of the storage available, or about 17,000 af. For the multiple-dry year period, it was assumed that the entire amount would be accessible and used sometime during the four-year period, so the average annual supply during that period would be one fourth of the total available, or about 12,700 af. Since the stored water must be withdrawn within ten years of when it was stored, it was assumed that this supply is available only through 2013.

6.3.4 Buena Vista-Rosedale

The Buena Vista Water Storage District and the Rosedale-Rio Bravo Water Storage District, both member districts of KCWA, have jointly developed a program that provides both a firm water supply and a water banking component. This planned supply program would provide a firm annual water supply based on existing and long-standing Kern River water rights, which would be delivered by exchange of their SWP Table A supplies. In years when this supply is not needed, it can be banked for withdrawal and delivery in later years. The supply from this program is up to 11,000 afy of firm supply, which will be available in every year.

6.3.5 Rosedale-Rio Bravo Bank

Rosedale-Rio Bravo Water Storage District has also developed a water banking and exchange program. The initial offering from the program is for storage and withdrawal capacity of 20,000 afy, with up to 100,000 af of storage capacity. Withdrawals from the program can be made by exchange of Rosedale's Table A supply, or by pumpback into the California Aqueduct. CLWA issued a draft EIR on its participation in this program in August 2005, and plans to use this

supply only in dry years. For the single-dry year, supplies were assumed at the program's maximum withdrawal capacity of 20,000 af. For the multiple-dry year period, it was assumed in the first five-year increment the program is available that supplies would be limited to an average of 5,000 afy and that 20,000 af of water would be stored in one wet year prior to the dry period. In later years, it was assumed that supplies would average at least 15,000 afy over the dry period and that additional supplies would be banked during wetter years to allow withdrawal of at least this amount.

6.3.6 Additional Planned Banking

CLWA's Draft Water Supply Reliability Plan identifies a need for additional banking programs to firm up the dry-year reliability of service area supplies. While a specific banking program has not yet been identified, the amount of the additional dry-year supply needed was estimated as equivalent to the storage and withdrawal capacity of the Rosedale-Rio Bravo Bank. The supply amounts needed from this additional banking program were assumed to be the same as for the Rosedale-Rio Bravo Bank, with the exception that the program was not assumed to be available until 2015.

6.4 SUPPLY AND DEMAND COMPARISONS

The available supplies and water demands for CLWA's service area were analyzed to access the region's ability to satisfy demands during three scenarios: a normal water year, single-dry year, and multiple-dry years. The tables in this section present the supplies and demands for the various drought scenarios for the projected planning period of 2010-2030 in five year increments. Table 6-1 presents the base years for the development of water year data. Tables 6-2, 6-3, and 64 at the end of this section summarize, respectively, Normal Water Year, Single-Dry Water Year, and Multiple-Dry Year supplies.

Table 6-1
Basis of Water Year Data

Water Year Type	Base Years	Historical Sequence
Normal Water Year	Average	1922-1994
Single-Dry Water Year	1977	--
Multiple-Dry Water Years	1931-1934	--

6.4.1 Normal Water Year

Table 6-2 summarizes CLWA's water supplies available to meet demands over the 20-year planning period during an average/normal year. As presented in the table, CLWA's water supply is broken down into existing and planned water supply sources, including wholesale (imported) water, local supplies, transfers, and banking programs. Demands are shown with and without the effects of an assumed 10 percent urban demand reduction resulting from conservation best management practices.

6.4.2 Single-Dry Year

The water supplies and demands for CLWA's service area over the 20-year planning period were analyzed in the event that a single-dry year occurs, similar to the drought that occurred in California in 1977. Table 6-3 summarizes the existing and planned supplies available to meet demands during a single-dry year. Demand during dry years was assumed to increase by 10 percent.

6.4.3 Multiple-Dry Year

The water supplies and demands for CLWA's service area over the 20-year planning period were analyzed in the event that a four-year multiple-dry year event occurs, similar to the drought that occurred during the years 1931 to 1934. Table 6-4 summarizes the existing and planned supplies available to meet demands during multiple-dry years. Demand during dry years was assumed to increase by 10 percent.

6.4.4 Summary of Comparisons

As shown in the analyses above, CLWA and the retail purveyors have adequate supplies to meet demands during normal, single-dry, and multiple-dry years throughout the 20-year planning period.

Table 6-2
Projected Average/Normal Year Supplies and Demands

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	*67,600*	*69,500*	*71,400*	*73,300*	*73,300*
SWP Table A Supply (1)	67,600	69,500	71,400	73,300	73,300
Flexible Storage Account (CLWA) (2)	0	0	0	0	0
Flexible Storage Account (Ventura County) (2)	0	0	0	0	0
Local Supplies					
Groundwater	*46,000*	*46,000*	*46,000*	*46,000*	*46,000*
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000
Saugus Formation	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	115,300	117,200	119,100	121,000	121,000
Existing Banking Programs					
Semitropic Water Bank (2)	0	0	0	0	0
Total Existing Banking Programs	0	0	0	0	0
Planned Supplies					
Local Supplies					
Groundwater	*0*	*0*	*0*	*0*	*0*
Restored wells (Saugus Formation) (2)	0	0	0	0	0
New Wells (Saugus Formation) (2)	0	0	0	0	0
Recycled Water (3)	0	1,600	6,300	11,000	15,700
Transfers					
Buena Vista-Rosedale (4)	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	11,000	12,600	17,300	22,000	26,700
Planned Banking Programs					
Rosedale-Rio Bravo (2)	0	0	0	0	0
Additional Planned Banking (2)	0	0	0	0	0
Total Planned Banking Programs	0	0	0	0	0
Total Existing and Planned Supplies and Banking	126,300	129,800	136,400	143,000	147,700
Total Estimated Demand (w/o conservation) (5)	100,050	109,400	117,150	128,400	138,300
Conservation (6)	(8,600)	(9,700)	(10,700)	(11,900)	(12,900)
Total Adjusted Demand	91,450	99,700	106,450	116,500	125,400

Notes:

(1) SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available (71% in 2010 and 77% in 2025/2030), taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005).

(2) Not needed during average/normal years.

(3) Recycled water supplies based on projections provided in Chapter 4, Recycled Water.

(4) CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 afy of this supply which, if approved, would leave the remaining 7,000 afy available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

(5) Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area will be added if and when such annexations are approved. Currently proposed annexations have a demand for about 4,000 afy and, given supplies CLWA is in the process of acquiring, potential future annexations with demands up to an additional 7,000 afy could eventually be approved (see Footnote 4).

(6) Assumes 10 percent reduction on urban portion of total demand resulting from conservation best management practices, as discussed in Chapter 7.

Table 6-3
Projected Single-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	*9,860*	*9,860*	*8,480*	*9,480*	*9,480*
SWP Table A Supply (1)	3,800	3,800	3,800	4,800	4,800
Flexible Storage Account (CLWA)	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County) (2)	1,380	1,380	0	0	0
Local Supplies					
Groundwater	*47,500*	*47,500*	*47,500*	*47,500*	*47,500*
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	59,060	59,060	57,680	58,680	58,680
Existing Banking Programs					
Semitropic Water Bank (3)	17,000	0	0	0	0
Total Existing Banking Programs	17,000	0	0	0	0
Planned Supplies					
Local Supplies					
Groundwater	*10,000*	*10,000*	*20,000*	*20,000*	*20,000*
Restored wells (Saugus Formation)	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	10,000	10,000	10,000
Recycled Water (4)	0	1,600	6,300	11,000	15,700
Transfers					
Buena Vista-Rosedale (5)	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	21,000	22,600	37,300	42,000	46,700
Planned Banking Programs					
Rosedale-Rio Bravo (6)	20,000	20,000	20,000	20,000	20,000
Additional Planned Banking (7)	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	20,000	40,000	40,000	40,000	40,000
Total Existing and Planned Supplies and Banking	117,060	121,660	134,980	140,680	145,380
Total Estimated Demand (w/o conservation) (8) (9)	110,100	120,300	128,900	141,200	152,100
Conservation (10)	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900

Notes:

(1) SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of single dry deliveries projected to be available for the worst case single dry year of 1977 (4% in 2010 and 5% in 2025/2030), taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005).

(2) Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).

(3) The total amount of water currently in storage is 50,870 af, available through 2013. Withdrawals of up to this amount are potentially available in a dry year, but given possible competition for withdrawal capacity with other Semitropic banking partners in extremely dry years, it is assumed here that about one third of the total amount stored could be withdrawn.

(4) Recycled water supplies based on projections provided in Chapter 4, Recycled Water.

(5) CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 afy of this supply which, if approved, would leave the remaining 7,000 afy available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

(6) Rosedale-Rio Bravo Water Banking and Recovery Program online in 2006, based on completing CEQA and subsequent adoption by CLWA Board of Directors.

(7) Assumes additional planned banking supplies available by 2014.

(8) Assumes increase in total demand of 10 percent during dry years.

(9) Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area will be added if and when such annexations are approved. Currently proposed annexations have a demand for about 4,000 afy and, given supplies CLWA is in the process of acquiring, potential future annexations with demands up to an additional 7,000 afy could eventually be approved (see Footnote 5).

(10) Assumes 10 percent reduction on urban portion of total normal year demand resulting from conservation best management practices ([urban portion of total normal year demand x 1.10] * 0.10), as discussed in Chapter 7.

Table 6-4
Projected Multiple-Dry Year Supplies and Demands [1]

Water Supply Sources	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	*32,010*	*32,910*	*32,570*	*32,570*	*32,570*
SWP Table A Supply (2)	30,500	31,400	31,400	31,400	31,400
Flexible Storage Account (CLWA) (3)	1,170	1,170	1,170	1,170	1,170
Flexible Storage Account (Ventura County) (3)	340	340	0	0	0
Local Supplies					
Groundwater	*47,500*	*47,500*	*47,500*	*47,500*	*47,500*
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation (4)	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	81,210	82,110	81,770	81,770	81,770
Existing Banking Programs					
Semitropic Water Bank (3)	12,700	0	0	0	0
Total Existing Banking Programs	12,700	0	0	0	0
Planned Supplies					
Local Supplies					
Groundwater	*6,500*	*6,500*	*6,500*	*6,500*	*6,500*
Restored wells (Saugus Formation) (4)	6,500	6,500	5,000	5,000	5,000
New Wells (Saugus Formation) (4)	0	0	1,500	1,500	1,500
Recycled Water (5)	0	1,600	6,300	11,000	15,700
Transfers					
Buena Vista-Rosedale (6)	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	17,500	19,100	23,800	28,500	33,200
Planned Banking Programs					
Rosedale-Rio Bravo (7) (8)	5,000	15,000	15,000	15,000	15,000
Additional Planned Banking (8) (9)	0	5,000	15,000	15,000	15,000
Total Planned Banking Programs	5,000	20,000	30,000	30,000	30,000
Total Existing and Planned Supplies and Banking	116,410	121,210	135,570	140,270	144,970
Total Estimated Demand (w/o conservation) (10) (11)	110,100	120,300	128,900	141,200	152,100
Conservation (12)	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900

Notes:

(1) Supplies shown are annual averages over four consecutive dry years (unless otherwise noted).

(2) SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of deliveries projected to be available for the worst case four-year drought of 1931-1934 (32% in 2010 and 33% in 2025/2030), taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005).

(3) Based on total amount of storage available divided by 4 (4-year dry period). Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).

(4) Total Saugus pumping is the average annual amount that would be pumped under the groundwater operating plan, as summarized in Table 3-6 ([11,000+15,000+25,000+35,000]/4).

(5) Recycled water supplies based on projections provided in Chapter 4, Recycled Water.

(6) CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 afy of this supply which, if approved, would leave the remaining 7,000 afy available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

(7) Rosedale-Rio Bravo Water Banking and Recovery Program online in 2006, assuming CEQA complete and adoption by CLWA Board of Directors.

(8) Average dry year period supplies could be up to 20,000 af for each program depending on storage amounts at the beginning of the dry period.

(9) Assumes additional planned banking supplies available by 2014.

(10) Assumes increase in total demand of 10 percent during dry years.

(11) Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area will be added if and when such annexations are approved. Currently proposed annexations have a demand for about 4,000 afy and, given supplies CLWA is in the process of acquiring, potential future annexations with demands up to an additional 7,000 afy could eventually be approved (see Footnote 6).

(12) Assumes 10 percent reduction on urban portion of total normal year demand resulting from conservation best management practices ([urban portion of total normal year demand x 1.10] * 0.10), as discussed in Chapter 7.

Chapter 7
DEMAND MANAGEMENT MEASURES

Chapter 7.0
WATER DEMAND MANAGEMENT MEASURES

7.1 OVERVIEW

This section describes the water Demand Management Measures (DMMs) and the Best Management Practices (BMPs) implemented by CLWA as a part of water conservation programs to result in quantifiable water savings for the Valley.

7.2 WATER DEMAND MANAGEMENT MEASURES AND BEST MANAGEMENT PRACTICES

Establishing goals and choosing water conservation measures is a continuing planning process. Goals are developed, adopted, and then evaluated periodically. Specific conservation measures are phased in and then evaluated for their effectiveness, achievement of desired results, and customer satisfaction. Water conservation can achieve a number of goals such as:

- Meeting legal mandates
- Reducing average annual potable water demands
- Reducing wastewater flows
- Reducing urban runoff
- Reducing demands during peak seasons
- Meeting drought restrictions

The Act specifies 14 DMMs. The Act was revised in 2000 to relate the DMMs to the 14 BMPs of the California Urban Water Conservation Council (CUWCC).

The CUWCC was formed in 1991 through the "Memorandum of Understanding Regarding Urban Water Conservation in California." The urban water conservation BMPs included in the MOU are intended to reduce California's long-term urban water demands. The BMPs are currently implemented by the signatories to the MOU on a voluntary basis. However, the CALFED Bay-Delta Program (now the California Bay-Delta Authority) included mandatory implementation of the BMPs and certification of water use efficiency programs in its final Environmental Impact Statement/Report and Record of Decision. Work toward this certification requirement has taken place during the five year planning period since 2000, but to date a final decision on such a requirement has not been made by the Bay-Delta Authority. Therefore, implementation of the BMPs/DMMs continues to be voluntary.

After adoption of the 2000 UWMP, CLWA signed the urban MOU in February 2001 on its own behalf as a water wholesaler and on behalf of the local retail water purveyors, thus meeting one of the recommendations of the 2000 UWMP. NCWD signed the MOU separately on its own behalf in September 2002. Los Angeles County signed the MOU prior to the 2000 UWMP on

behalf of all its Waterworks Districts. The retail purveyors have voluntarily complied with those BMPs considered locally cost-effective, as discussed in Section 7.3.

7.3 IMPLEMENTATION LEVELS OF DMMs/BMPs

The CUWCC is composed of over 150 urban water suppliers and 30 environmental organizations, as well as other interested companies and organizations. It has spent much of its existence determining the methodology by which savings from various water conservation measures (BMPs) can be quantified. The CUWCC has published "Guidelines to Preparing Cost-effectiveness Analysis" and a "BMP Cost and Savings Study," which assigns the water savings that can be ascribed to specific devices and activities when making cost-effectiveness evaluations for specific BMPs.

The BMP Cost and Savings Study recognizes two categories of BMPs: device-based and activity-based. Device-based BMPs, such as showerhead and toilet replacement programs, are intended to alter water use patterns through the actual installation of water-saving appliances. Activity-based BMPs, such as school education and public information programs, are intended to modify social behaviors to encourage people to save water. The savings from device-based BMPs can be directly quantified and attributed, whereas savings from activity-based BMPs are usually not possible to quantify. Device-based BMPs will result in quantifiable water savings for the Valley.

CLWA has been implementing the following BMPs, which pertain to wholesalers and retailers (with the exception of BMP 10), for the past several years (both prior to and after signing the urban MOU):

BMP 3	System Water Audits, Leak Detection and Repair
BMP 7	Public Information
BMP 8	School Education
BMP 10	Wholesale Agency Assistance
BMP 11	Conservation Pricing
BMP 12	Conservation Coordinator

CLWA implements BMP 8 on behalf of all the retailers.

In addition, since signing the urban MOU, CLWA has been assisting the purveyors by implementing BMPs 2 (Residential Plumbing Retrofit) and 14 (Residential Ultra Low Flush Toilet Replacement Programs). CLWA and VWC also undertook a pilot program to assess the cost-effectiveness of BMP 5 (Large Landscape Conservation Programs and Incentives) and BMP 9 (Conservation Programs for Commercial, Industrial, and Institutional Accounts). These two BMPs will see increased focus during the next five year planning period of this Plan. NCWD has been implementing all cost-effective BMPs since it signed the MOU.

Three BMPs are undergoing revision by the CUWCC and their implementation will be re-assessed during this planning period.

Signatories to the urban MOU are allowed by Water Code Section 10631(j) to include their biennial CUWCC BMP reports in an UWMP to meet the requirements of the DMMs sections of the UWMP Act. As a wholesaler MOU signatory, CLWA assists with BMP implementation and reporting for two retail purveyors: SCWD and VWC. NCWD, as a separate MOU signatory, is responsible for BMP implementation and reporting for its own retail service area. LACWWD #36 BMP implementation and reporting is done by the County of Los Angeles on behalf of all its Waterworks Districts. For the purposes of this Plan, the most recent BMP reports (2003 and 2004) as required by the urban MOU are attached as Appendix F. This appendix includes the reports for CLWA (wholesale), SCWD, and VWC. NCWD's separate report is also included in Appendix F.

7.4 SUMMARY OF CONSERVATION

CLWA will continue to implement the BMPs applicable to a wholesale water agency (BMPs 3, 7, 8, 10, 11, and 12), as well as other BMPs found to be locally cost-effective. NCWD will continue to implement all locally cost-effective BMPs for its service area. VWC, while not a signatory, will also continue to implement all cost-effective BMPs in its service territory.

CLWA, in cooperation with the retail purveyors, continues development and implementation of a comprehensive water conservation program. The program will expand existing water conservation activities and BMP implementation. These efforts will be tied to water conservation programs in adjoining urban areas making appropriate improvements to meet the unique conditions of the Valley.

Chapter 8
WATER SHORTAGE CONTINGENCY PLANNING

Chapter 8.0
WATER SHORTAGE CONTINGENCY PLANNING

8.1 OVERVIEW

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought which limits supplies, an earthquake which damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality. This chapter of the Plan describes how CLWA and the retail water purveyors plan to respond to such emergencies so that emergency needs are met promptly and equitably.

To date, both a Water Shortage Contingency Plan and a Drought Emergency Water Sharing Agreement have been prepared by CLWA and the retail purveyors. Prohibitions, penalties and financial impacts of shortages have recently been developed by CLWA SCWD, NCWD, and VWC and are summarized in this chapter.

8.2 COORDINATED PLANNING

CLWA and the purveyors have coordinated efforts in the past to meet water shortages. During 1991 (the fifth year of a six-year drought), the purveyors and CLWA prepared a Water Shortage Contingency Plan. Since this plan was first prepared, the Valley has experienced two water shortages: in 1991-1992 due to the continuation of the 1987-1992 drought and in 1994 due to the January 17, 1994, Northridge earthquake. The plan worked extremely well in both instances, and minor updates were made to incorporate what was actually experienced during these two periods. It is envisioned that the Water Shortage Contingency Plan will be implemented whenever needed on a contingency basis.

8.2.1 CLWA and the Water Purveyors

During times of normal supply, the water agencies meet periodically to review total water supply and demand in the Valley and any new regulations affecting the water industry.

During 1991, the local agencies met about once per month. Monthly water production and demand reports were produced and shared with the City of Santa Clarita Drought Committee. Also, after the 1987-1992 drought, CLWA and the retail purveyors cooperated in sharing available water from all sources without regard to contractual or other water rights for the duration of the emergency, and to facilitate among themselves water transfers, exchanges, and arrangements to use each others distribution facilities. Should water shortage conditions similar to the 1987-1992 drought occur again, it is expected that similar coordinated planning between the local agencies would be conducted.

8.2.2 City of Santa Clarita Drought Committee

The City of Santa Clarita Drought Committee was created by the City's Ordinance No. 91-16, adopted on March 13, 1991. The committee was made up of five appointees representing the

public, a representative of the City Staff, purveyor representatives, and a representative from CLWA. The function was to:

- Review all available data on water consumption, water supply and groundwater conditions
- Evaluate the level of compliance with the terms of the ordinance
- Evaluate the level of achievement of the stated water consumption reductions
- Make recommendations to the City Council concerning the timing of and need for implementation of future additional water restrictions as may be developed
- Make recommendations to the water purveyors serving the City of Santa Clarita concerning additional measures to encourage water conservation

From its inception and through the crucial summer months of 1991, the group met twice monthly. In the event of another drought or water shortage crisis, such a committee could be reinstituted. The 1991 ordinances, resolutions and agreements in Appendix G will be used as the model for the water shortage contingency resolution/ordinance package.

8.3 STAGES OF ACTION TO RESPOND TO WATER SHORTAGES

The Saugus Formation has underground storage of approximately 1.65 million acre-feet. In times of continued drought, the Saugus Formation can be pumped for temporary periods above its normal-year production. During an extended drought, the purveyors would consider upgrading the pumping capacity of their wells in the Saugus Formation and possibly drill additional wells to enable temporary pumping above the normal-year production of 7,500 to 15,000 afy. As developed in the Valley's groundwater operating plan and presented in Table 3-6, production in the Saugus Formation can be as high as 25,000-35,000 afy during multiple-dry year periods.

The Alluvium would be most affected by a continued local drought. As developed in the Valley's groundwater operating plan and further presented in Table 3-6, sustainable production during normal years can range from 30,000 to 40,000 afy. However, due to operational constraints in the eastern part of the Basin, production would be reduced to approximately 30,000 to 35,000 afy during locally dry years.

Table 8-1 presents the four-stage rationing and demand reduction goals for the Valley.

Table 8-1
Rationing and Reduction Goals

Deficiency	Stage	Demand Reduction Goal	Type of Program
Up to 15%	1	15% reduction	Voluntary
15-25%	2	25% reduction	Mandatory
25-35%	3	35% reduction	Mandatory
35-50%	4	50+% reduction	Mandatory

Priorities for use of available water, based on Chapter 3 of the California Water Code, are:

- Health and Safety—Interior residential, sanitation and fire protection
- Commercial, Industrial, and Governmental—Maintain jobs and economic base
- Existing Landscaping—Especially trees and shrubs
- New Demand—Projects with permits when shortage declared

Water quantity calculations used to determine the interior household gpcd requirements for health and safety are provided in Table 8-2. As developed in Table 8-2, the California Water Code Stage 2, 3, and 4 health and safety allotments are 68 gpcd, or 33 ccf (100 cubic feet) per person per year. When considering this allotment and the 2005 Valley Planning Area population of 249,343, as presented in Table 2-7, the total annual water supply required to meet the first priority use during a water shortage is approximately 19,000 afy.

Table 8-2
Per Capita Health and Safety Water Quantity Calculations

	Non-Conserving Fixtures		Habit Changes		Conserving Fixtures	
Toilets	5 flushes x 5.5 gpf =	27.5	3 flushes x 5.5 gpf =	16.5	5 flushes x 1.6 gpf =	8.0
Showers	5 min x 4.0 gpm =	20.0	4 min x 3.0 gpm =	12.0	5 min x 2.0 gpm =	10.0
Washers	12.5 gpcd (1/3 load) =	12.5	11.5 gpcd (1/3 load) =	11.5	11.5 gpcd (1/3 load) =	11.5
Kitchens	4 gpcd =	4.0	4 gpcd =	4.0	4 gpcd =	4.0
Other	4 gpcd =	4.0	4 gpcd =	4.0	4 gpcd =	4.0
Total gpcd		68.0		48.0		37.5
CCF per capita per year		33.0		23.0		18.0

8.4 MINIMUM WATER SUPPLY AVAILABLE DURING NEXT THREE YEARS

The minimum water supply available during the next three years would occur during a three-year multiple-dry year event between the years 2006 and 2008. As shown in Table 8-3, the total supplies and banking range from approximately 103,500 afy to 120,500 afy during the next three years. When comparing these supplies to the demand projections provided in Chapters 2 and 6 of this Plan, CLWA and the purveyors have adequate supplies available to meet projected demands should a multiple-dry year period occur during the next three years.

Table 8-3
Estimate of Minimum Supply for the Next Three Years

Source	Supply (af)		
	2006	2007	2008
Wholesale Imported	*29,620*	*29,620*	*29,620*
SWP Table A Supply (1)	27,600	27,600	27,600
Flexible Storage Account (CLWA) (2)	1,560	1,560	1,560
Flexible Storage Account (Ventura County) (2)	460	460	460
Local Supply			
Groundwater	*37,500*	*54,500*	*54,500*
Alluvial Aquifer	32,500	32,500	32,500
Saugus Formation	5,000	22,000	22,000
Recycled Water	1,700	1,700	1,700
Transfers			
Buena Vista-Rosedale (3)	11,000	11,000	11,000
Banking Programs	*23,600*	*23,600*	*23,600*
Semitropic Water Bank (4)	16,900	16,900	16,900
Rosedale-Rio Bravo (5) (6)	6,700	6,700	6,700
Total Supplies	**103,420**	**120,420**	**120,420**

Notes:

(1) SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of total deliveries projected to be available for the worst case three-year drought of 1990-1992, calculated from data in Table B-8 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005). The average of total SWP deliveries over this three year period was 29 percent of total Table A Amounts.

(2) Based on total amount of storage available divided by 3 (3-year dry period).

(3) CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 afy of this supply which, if approved, would leave the remaining 7,000 afy available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

(4) Based on total amount of storage available (50,870 af) divided by 3 (3-year dry period) and rounded down to the nearest 100.

(5) Assumes Rosedale-Rio Bravo Water Banking and Recovery Program on line in 2006, based on completion of CEQA and subsequent adoption by CLWA Board of Directors.

(6) Based on total amount of storage available (20,000 af) divided by 3 (3-year dry period).

8.5 ACTIONS TO PREPARE FOR CATASTROPHIC INTERRUPTION

8.5.1 General

The Valley is located approximately 20 miles southwest of the San Andreas Fault. A major earthquake along the southern portion of the San Andreas Fault would affect the Valley. The California Division of Mines and Geology has stated two of the aqueduct systems that import

water to southern California could be ruptured by displacement on the San Andreas Fault, and supply may not be restored for a three to six week period. The situation would be further complicated by physical damage to pumping equipment and local loss of electrical power.

DWR has a contingency aqueduct outage plan for restoring the California Aqueduct to service should a major break occur, which it estimates would take approximately four months to repair.

Experts agree it may be at least three days after the earthquake before outside help could get to the Valley. Extended supply shortages of both groundwater and imported water, due to power outages and/or equipment damage, would be severe until the water supply could be restored.

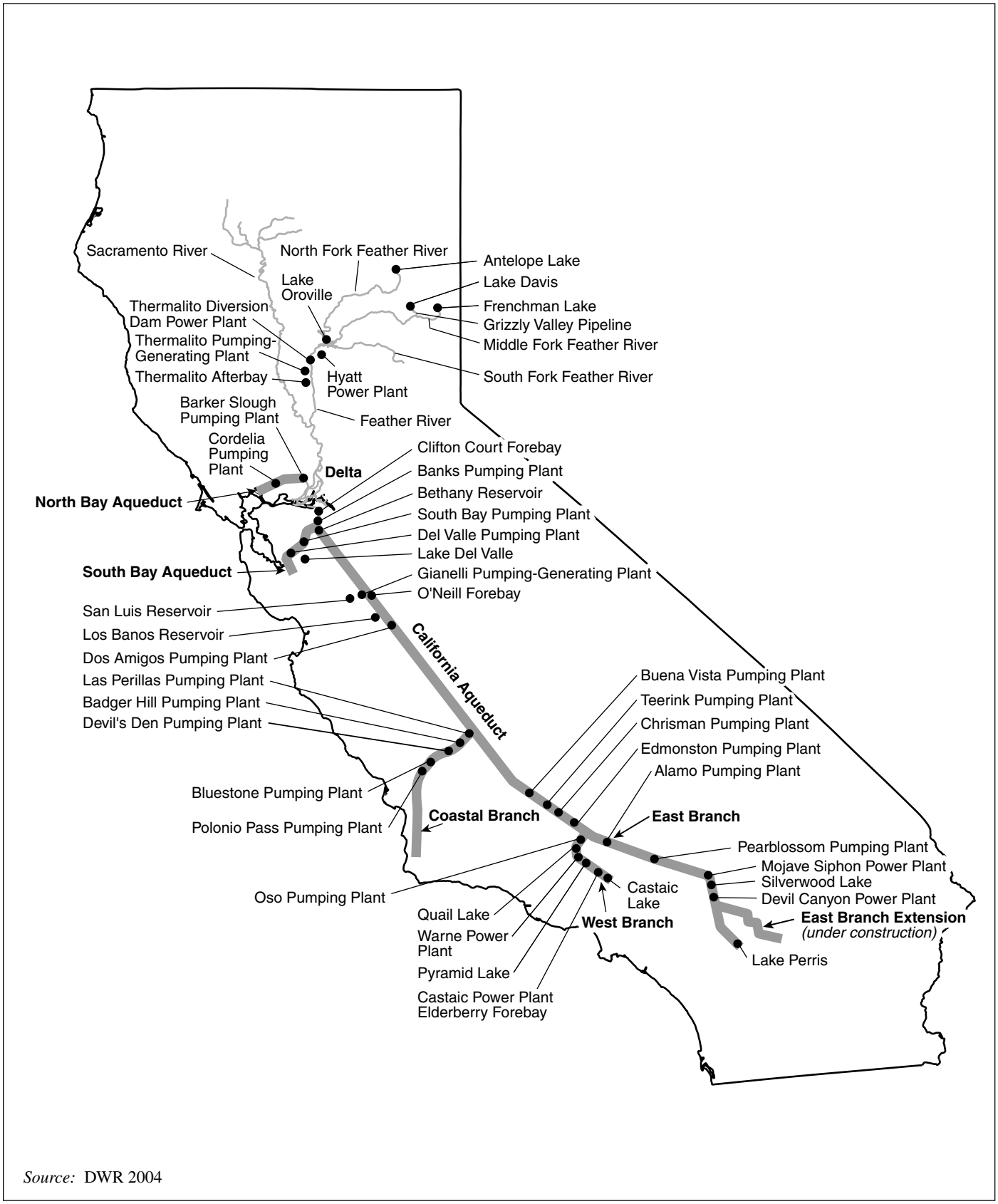
Combined water storage of the local agencies totals approximately 190 million gallons of water in storage tanks, which can be gravity fed to Valley residences, even if there is a power outage. In addition, since the 1994 Northridge earthquake, storage tanks have been fitted with flexible couplings, which should reduce damage to local storage facilities. The public would be asked to reduce consumption to minimum health and safety levels, extending the supply to seven days. This would provide sufficient time to restore a significant amount of groundwater production. After the groundwater supply is restored, the pumping capacity of the four retail purveyors, along with CLWA's proportionate share of storage from Pyramid and Castaic Lakes, could meet the reduced demand until such time that the imported water supply was reestablished. Updates on the water situation would be made as often as necessary.

The Valley's water sources are generally of good quality, and no insurmountable problems resulting from industrial or agricultural contamination are foreseen. If contamination did result from a toxic spill or similar accident, the contamination would be isolated and should not significantly impact the total water supply. In addition, such an event would be covered by the purveyors' emergency response plan. The recent detection of perchlorate in the Saugus Formation and Alluvial Aquifer is an example of prior contamination due to industrial chemical processes. The few affected wells have been shut down; design of the treatment process to remove the perchlorate is near completion; and the wells are expected to return to service in 2006.

8.5.2 SWP Emergency Outage Scenarios

In addition to earthquakes, the SWP could experience other emergency outage scenarios. Past examples include slippage of aqueduct side panels into the California Aqueduct near Patterson in the mid-1990s, the Arroyo Pasajero flood event in 1995 (which also destroyed part of Interstate 5 near Los Banos), and various subsidence repairs needed along the East Branch of the Aqueduct since the 1980s. All these outages were short-term in nature (on the order of weeks), and DWR's Operations and Maintenance Division worked diligently to devise methods to keep the Aqueduct in operation while repairs were made. Thus, the SWP contractors experienced no interruption in deliveries.

One of the SWP's important design engineering features is the ability to isolate parts of the system. The Aqueduct is divided into "pools." Thus, if one reservoir or portion of the California Aqueduct is damaged in some way, other portions of the system can still remain in operation. The Primary SWP facilities are shown on Figure 8-1.



Source: DWR 2004

Figure 8-1. Primary SWP Facilities

Other events could result in significant outages and potential interruption of service. Examples of possible nature-caused events include a levee breach in the Delta near the Harvey O. Banks Pumping Plant, a flood or earthquake event that severely damaged the Aqueduct along its San Joaquin Valley traverse, or an earthquake event along either the West or East Branches. Such events could impact some or all SWP contractors south of the Delta.

The response of DWR, CLWA, and other SWP contractors to such events would be highly dependent on the type and location of any such event. In typical SWP operations, water flowing through the Delta is diverted at the SWP's main pumping facility, located in the southern Delta, and is pumped into the California Aqueduct. During the relatively heavier runoff period in the winter and early spring, Delta diversions generally exceed SWP contractor demands, and the excess is stored in San Luis Reservoir. Storage in SWP aqueduct terminal reservoirs, such as Pyramid and Castaic Lakes, is also refilled during this period. During the summer and fall, when diversions from the Delta are generally more limited and less than contractor demands, releases from San Luis Reservoir are used to make up the difference in deliveries to contractors. The SWP share of maximum storage capacity at San Luis Reservoir is 1,062,000 af.

CLWA receives its SWP deliveries through the West Branch of the California Aqueduct at Castaic Lake. The only other contractors receiving deliveries from the West Branch are Metropolitan and Ventura County Watershed Protection District (formerly known as the Ventura County Flood Control District). The West Branch has two terminal reservoirs, Pyramid Lake and Castaic Lake, which were designed to provide emergency storage and regulatory storage (i.e., storage to help meet peak summer deliveries) for CLWA and the other two West Branch contractors. Maximum operating capacity at Pyramid and Castaic lakes is 169,900 af and 323,700 af, respectively.

In addition to SWP storage south of the Delta in San Luis and the terminal reservoirs, a number of contractors have stored water in groundwater banking programs in the San Joaquin Valley, and many also have surface and groundwater storage within their own service areas.

Three scenarios that could impact the delivery to CLWA of its SWP supply, previously banked supplies, or other supplies delivered to it through the California Aqueduct are described below. For each of these scenarios, it was assumed that an outage of six months could occur. CLWA's ability to meet demands during the worst of these scenarios is presented following the scenario descriptions.

Scenario 1: Levee Breach Near Banks Pumping Plant

As demonstrated by the June 2004 Jones Tract levee breach and previous levee breaks, the Delta's levee system is fragile. The SWP's main pumping facility, Banks Pumping Plant, is located in the southern Delta. Should a major levee in the Delta near these facilities fail catastrophically, salt water from the eastern portions of San Francisco Bay would flow into the Delta, displacing the fresh water runoff that supplies the SWP. All pumping from the Delta would be disrupted until water quality conditions stabilized and returned to pre-breach conditions. The re-freshening of Delta water quality would require large amounts of additional Delta inflows, which might not be immediately available, depending on the timing of the levee

breach. The Jones Tract repairs took several weeks to accomplish and months to complete; a more severe breach could take much longer, during which time pumping from the Delta might not be available on a regular basis.

Assuming that the Banks Pumping Plant would be out of service for six months, DWR could continue making at least some SWP deliveries to all southern California contractors from water stored in San Luis Reservoir. The water available for such deliveries would be dependent on the storage in San Luis Reservoir at the time the outage occurred and could be minimal if it occurred in the late summer or early fall when San Luis Reservoir storage is typically low. In addition to supplies from San Luis Reservoir, water from the West Branch terminal reservoirs would also be available to the three West Branch contractors, including CLWA. CLWA water stored in groundwater banking programs in the San Joaquin Valley may also be available for withdrawal and delivery to CLWA.

Scenario 2: Complete Disruption of the California Aqueduct in the San Joaquin Valley

The 1995 flood event at Arroyo Pasajero demonstrated vulnerabilities of the California Aqueduct (the portion that traverses the San Joaquin Valley from San Luis Reservoir to Edmonston Pumping Plant). Should a similar flood event or an earthquake damage this portion of the aqueduct, deliveries from San Luis Reservoir could be interrupted for a period of time. DWR has informed the SWP contractors that a four-month outage could be expected in such an event. CLWA's assumption is a six-month outage.

Arroyo Pasajero is located downstream of San Luis Reservoir and upstream of the primary groundwater banking programs in the San Joaquin Valley. Assuming an outage at a location near Arroyo Pasajero that resulted in the California Aqueduct being out of service for six months, supplies from San Luis Reservoir would not be available to those SWP contractors located downstream of that point. However, CLWA water stored in groundwater banking programs in the San Joaquin Valley could be withdrawn and delivered to CLWA, and water from the West Branch terminal reservoirs would also be available to the three West Branch contractors, including CLWA. Assuming an outage at a location on the California Aqueduct south of the groundwater banking programs in the San Joaquin Valley, these supplies would not be available to CLWA, but water from the West Branch terminal reservoirs would be available to the three West Branch contractors, including CLWA.

Scenario 3: Complete Disruption of the West Branch of the California Aqueduct

The West Branch of the California Aqueduct begins at a bifurcation of the Aqueduct south of Edmonston Pumping Plant, which pumps SWP water through and across the Tehachapi Mountains. From the point of bifurcation, the West Branch is an open canal through Quail Lake, a small flow regulation reservoir, to the Peace Valley Pipeline, which carries water into Pyramid Lake. From Pyramid Lake, water is released into the Angeles Tunnel, through Castaic Powerplant into Elderberry Forebay, and then into Castaic Lake.

If a major earthquake (an event similar to or greater than the 1994 Northridge earthquake) were to damage a portion of the West Branch, deliveries could be interrupted. The exact location of

such damage along the West Branch would be key to determining emergency operations by DWR and the three West Branch SWP contractors. For this scenario, it was assumed that the West Branch would suffer a single-location break and deliveries of SWP water from north of the Tehachapi Mountains or of CLWA water stored in groundwater banking programs in the San Joaquin Valley would not be available. It was also assumed that Pyramid and Castaic dams would not be damaged by the event and that water in Pyramid and Castaic Lakes would be available to the three West Branch SWP contractors, including CLWA.

In any of these three SWP emergency outage scenarios, DWR and the SWP contractors would coordinate operations to minimize supply disruptions. Depending on the particular outage scenario or outage location, some or all of the SWP contractors south of the Delta might be affected. But even among those contractors, potential impacts would differ given each contractor's specific mix of other supplies and available storage. During past SWP outages, the SWP contractors have worked cooperatively to minimize supply impacts among all contractors. Past examples of such cooperation have included certain SWP contractors agreeing to rely more heavily on alternate supplies, allowing more of the outage-limited SWP supply to be delivered to other contractors; and exchanges among SWP contractors, allowing delivery of one contractor's SWP or other water to another contractor, with that water being returned after the outage was over.

Of these three SWP outage scenarios, the West Branch outage scenario presents the worst-case scenario for CLWA. In this scenario, CLWA would rely on local supplies and water available from Pyramid and Castaic Lakes. An assessment of the supplies available to meet demands in CLWA's service area during a six-month West Branch outage and the additional levels of conservation projected to be needed are presented in Table 8-4 for 2005 through 2030.

During an outage, the local supplies available would consist of groundwater from the Alluvial Aquifer and the Saugus Formation, as well as recycled water. It was assumed that local well production would be unimpaired by the outage and that the outage would occur during a year when average/normal supplies would be available from the Alluvial Aquifer. Pumping from the Saugus was assumed to be one-half of the annual supplies available in a single dry year. Note that adequate well and aquifer capacity exists to pump at levels higher than those assumed in this assessment, particularly during a temporary period such as an outage. However, to be conservative, groundwater production was assumed to be one-half of annual supplies. Based on the assumption that additional voluntary conservation could reduce the amount of waste discharge, and therefore the amount of recycled water available, the amount of recycled water assumed to be available would be reduced by 25 percent.

The water available to CLWA from Pyramid and Castaic Lakes includes flexible storage available to CLWA at Castaic Lake and emergency and potentially regulatory storage available in both Pyramid and Castaic Lakes. Regulatory storage, which is used to help meet high peak summer deliveries, may or may not be available depending on what time of year an outage occurs. For this assessment, regulatory storage was assumed to be unavailable. The amount of emergency storage assumed to be available to CLWA was based on CLWA's proportionate share of usable storage in each reservoir, where usable storage is maximum operating storage, less regulatory and dead pool storage. At Castaic Lake, this usable storage determination also

excludes the three West Branch contractors' total flexible storage. CLWA's proportionate share of usable storage was assumed to be slightly less than three percent, based on its share of capital cost repayment at each reservoir. On this cost repayment basis, the proportionate shares of the Metropolitan and Ventura County Flood Control District are about 96 percent and one percent, respectively.

Table 8-4 shows that, for a six-month emergency outage, additional conservation beyond the conservation BMPs described in Chapter 7 would be required, with the additional demand reductions ranging from three to 16 percent of the urban portion of total demand. It is likely that potential cooperation among SWP contractors and/or temporarily increased purveyor groundwater production during such an outage could increase supplies so that lower amounts, or even no amount, of additional conservation would be needed. However, even without such supply increases, these levels of additional conservation would be readily achievable. In an emergency such as this, these levels of additional conservation would likely be achieved through voluntary conservation, but mandatory measures would be enacted if needed.

Table 8-4
Projected Supplies and Demands During
Six-Month Disruption of Imported Supply System [1]

	Supply / Demand (af)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Local Supplies						
Existing Supplies						
Groundwater						
Alluvial Aquifer (2)	17,500	17,500	17,500	17,500	17,500	17,500
Saugus Formation (3)	5,000	7,500	7,500	7,500	7,500	7,500
Recycled Water (4) (5)	190	600	640	640	640	640
Planned Supplies						
Groundwater (3)						
Restored wells (Saugus Formation)	0	5,000	5,000	5,000	5,000	5,000
New Wells (Saugus Formation)	0	0	0	5,000	5,000	5,000
Recycled Water (5)	0	0	600	2,360	4,130	5,890
Total Existing and Planned Local Supplies	22,690	30,600	31,240	38,000	39,770	41,530
SWP West Branch Storage Available						
Flexible Storage (at Castaic Lake)						
Existing (CLWA)	4,680	4,680	4,680	4,680	4,680	4,680
Existing (Ventura County) (6)	0	1,380	1,380	0	0	0
Emergency Storage						
Pyramid Lake (7)	4,370	4,370	4,370	4,370	4,370	4,370
Castaic Lake (8)	3,370	3,370	3,370	3,370	3,370	3,370
Total West Branch Storage	12,420	13,800	13,800	12,420	12,420	12,420
Total Local Supplies and West Branch Storage	35,110	44,400	45,040	50,420	52,190	53,950
Demands (9)						
Total Estimated Demand (w/o Conservation) (10)	44,700	50,000	54,700	58,600	64,200	69,100
Conservation (11)	(3,700)	(4,300)	(4,900)	(5,300)	(6,000)	(6,500)
Total Demand (w/ Conservation)	41,000	45,700	49,800	53,300	58,200	62,600
Additional Conservation Required	5,900	1,300	4,800	2,900	6,000	8,700
Additional Conservation as Percent of Demand (12)	16%	3%	10%	5%	10%	13%

Notes:

(1) Assumes complete disruption in SWP supplies and in deliveries through the California Aqueduct for six months.

(2) Pumping from the Alluvial Aquifer is assumed to be one-half of average/normal year supplies (see Table 6-2).

(3) Pumping from the Saugus Formation is assumed to be one-half of single dry year supplies (see Table 6-3).

(4) Existing recycled water supply is based on one-half of current actual use of about 500 af for 2005, projected demand of 1,600 af for 2010, and existing supply of 1,700 af from 2015 on, as adjusted for the reduction described in Footnote 5.

(5) Assumes 25 percent reduction in waste discharge, and therefore in recycled water availability, due to additional voluntary conservation.

(6) Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).

(7) CLWA's share of usable storage at Pyramid Lake, based on its 2.817 percent proportionate share of capital cost repayment of the reservoir. Usable storage is assumed to be 165,100 af (maximum operating storage of 169,900 af, less regulatory storage of 10,000 af for making peak summer deliveries and dead pool storage of 4,800 af).

(8) CLWA's share of usable storage at Castaic Lake, based on its 2.927 percent proportionate share of capital cost repayment of the reservoir. Usable storage is assumed to be 115,100 af (maximum operating storage of 323,700 af, less regulatory storage of 30,000 af for making peak summer deliveries, total SWP contractor flexible storage of 160,000 af, and dead pool storage of 18,600 af).

(9) Demands are assumed to be one-half of average/normal year demands (see Table 2-2).

(10) Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area will be added if and when such annexations are approved. During a six-month outage, currently proposed annexations would have a demand for about 2,000 afy and, given supplies CLWA is in the process of acquiring, potential future annexations with demands up to an additional 3,500 afy could eventually be approved.

(11) Assumes 10 percent reduction on urban portion of total demand resulting from conservation best management practices, as discussed in Chapter 7.

(12) Additional Conservation is expressed as percent of urban portion of total demand, since an outage would result in shortfall only to purveyors' customers (i.e., urban users).

8.5.3 Regional Power Outage Scenarios

For a major emergency such as an earthquake, Southern California Edison (Edison) has declared that in the event of an outage, power would be restored within a 24 hour period. Following the Northridge earthquake, Edison was able to restore power within 19 hours. Edison experienced extensive damage to several key power stations, yet was still able to recover within a 24 hour timeframe.

CLWA

To specifically address the concern of water outages due to loss of power, CLWA has equipped its two treatment plants with generators to produce power for treating water to comply with the State of California Safe Drinking Water Act and the Health and Safety Code. The Rio Vista Water Treatment Plant and Intake Pump Station emergency generator system provides electrical power to treat 30 mgd for 72 hours without fuel replacement. The Earl Schmidt Filtration Plant emergency generator system provides electrical power to treat 33 mgd for 72 hours without fuel replacement.

CLWA SCWD

SCWD is committed to providing regular service and meeting the needs of the community during any emergency situation. SCWD is obligated to respond to emergencies by using all available resources in the most effective way possible. SCWD has prepared an Emergency Response Plan that provides emergency operations procedures for the effective use of resources during various emergency situations. Emergency situations include but are not limited to: earthquakes, major fire emergencies, water outages due to loss of power, localized flooding, water contamination, and acts of sabotage.

To specifically address the concerns of water outages due to loss of power, SCWD has purchased and maintains one mobile generator and has the ability to obtain emergency access to others. The current generator is trailer mounted and has the capability of supplying 180 Kilovolt-Amperes (KVA). This capacity provides the capability to run any facility within the service area of SCWD. Most primary pumping facilities are equipped with emergency transfer switches, and SCWD employees are trained regularly to install and operate the generators in the most efficient and safe manner. The generator's run time is only limited by the amount of available diesel fuel. SCWD has an above ground diesel fuel storage tank with a capacity of 1,000 gallons located at its Warehouse at 21110 West Golden Triangle Road in the City of Santa Clarita. SCWD maintains one carrier truck, which is equipped with the capability of dispensing 100 gallons of diesel as necessary in refilling the generators. In addition, SCWD maintains a trailer-mounted 100 gallon diesel tank that will be deployed as required to preserve services. SCWD will respond to power outages on a prioritized basis and will continue its response to the power emergency as long as necessary. In addition to the generators, SCWD has a gas driven pump capable of delivering a maximum 2,000 gallons per minute (gpm). This pump can be installed at select facilities and run as required.

NCWD

NCWD fully understands its role in providing a vital service to the community. NCWD is obligated to respond to emergencies by using all available resources in the most effective way possible. NCWD has prepared an Emergency Response Plan that provides emergency operations procedures for the effective use of NCWD resources during various emergency situations. Emergency situations meant to be addressed by this plan are: earthquakes, major fire emergencies, water outages due to loss of power, localized flooding, water contamination, and acts of sabotage. To specifically address the concerns of water outages due to loss of power, NCWD has purchased and maintains three mobile generators. The generators are trailer mounted and have the following capacities: 600 KVA; 300 KVA; and 180 KVA.

These capacities provide the capability to run any facility within NCWD's service area. All primary pumping facilities are equipped with emergency transfer switches, and NCWD employees are trained regularly to maximize the speed to install and operate the generators. The generator run time is only limited by the amount of available diesel fuel. NCWD has an above ground diesel fuel storage tank with a capacity of 1,000 gallons located at its main office at 23780 N. Pine Street in the City of Santa Clarita. Multiple crew trucks are equipped with 100 gallon diesel tanks and the necessary fueling equipment to refill the generators. NCWD would respond to power outages on a prioritized basis and would continue its response to the power emergency as long as necessary. In addition to the generators, NCWD has a gas driven pump capable of delivering 600 gpm. This pump can be installed at select facilities as needed.

The NCWD Emergency Response Plan should be referenced for a more detailed description of specific actions NCWD plans to take in the event of a major power failure.

VWC

In the event that a power outage occurs, VWC has one mobile generator capable of powering either one of VWC's Saugus wells or two Alluvial wells that are in close proximity to one another. VWC would use the generator as a back-up to ensure water service remained until Edison was able to restore power. For regional power outages, VWC would rely on Edison's reliability criteria for restoring service with the longest outage assumed not to exceed 24 hours. This length of outage would not have a significant impact on water service.

The VWC Emergency Response Plan should be referenced for a more detailed description of specific actions VWC plans to take in the event of a major power failure.

8.6 MANDATORY PROHIBITIONS DURING SHORTAGES

All Valley residents live within the boundaries of the City of Santa Clarita or Los Angeles County. Several ordinances were passed in 1991, during the last long-term drought, by the various governmental entities in the Santa Clarita Valley outlawing wasteful water practices. It is expected that, if the Valley experienced another dry-year period, the same ordinances would be reactivated.

On February 11, 1991, the CLWA Board of Directors adopted Resolution No. 804 mandating a program of water conservation in the Santa Clarita Valley.

On February 14, 1991, the NCWD Board of Directors adopted Resolution No. 101 outlawing wasteful water practices. The ordinance was amended on October 15, 1991, with the adoption of Ordinance No. 102 and further amended on July 14, 2005, with the adoption of Ordinance No. 112.

On March 13, 1991, the City of Santa Clarita adopted Ordinance No. 91-16 outlawing wasteful water practices and calling for voluntary water conservation. The ordinance was amended on October 8, 1991 by the adoption of Ordinance No. 91-48.

On March 21, 1991, the Los Angeles County Board of Supervisors adopted Ordinance No. 91-0046U, which prohibits wasteful water practices.

Most of the ordinances mentioned above had sunset provisions that were effective January 1, 1992; however, these ordinances could be reinstituted as needed.

8.7 CONSUMPTIVE REDUCTION METHODS DURING RESTRICTIONS

8.7.1 Supply Shortage Triggering Levels

The agencies will manage water supplies to minimize the social and economic impact of water shortages. The Plan is designed to provide a minimum 50 percent of normal supply during a severe or extended water shortage.

Demand reduction stages may be triggered by a shortage in any one of the water sources in the Valley or by shortages in a combination of supplies. The guidelines for triggering the stages are listed in Table 8-5. However, circumstances may arise where the purveyors may deviate from these guidelines, such as in a case where the Governor declares a water shortage emergency and/or institutes a statewide rationing program.

Table 8-5
Water Deficiency Triggering Levels

Stage	Percent Shortage
1	Up to 15 percent water deficiency
2	15 to 25 percent water deficiency
3	25 to 35 percent water deficiency
4	35 to 50+ percent water deficiency

8.7.2 Consumption Limits

The Valley-wide consumption allocation method for each customer type is as follows:

Single Family	Hybrid of Per-capita and Percentage Reduction
Multi Family	Hybrid of Per-capita and Percentage Reduction

Commercial	Percentage Reduction
Industrial	Percentage Reduction
Governmental	Percentage Reduction
Recreational	Percentage Reduction
Irrigation	Percentage Reduction

The percentage reductions at each stage and for each customer type correspond to the figures listed in Table 8-4. In a drought situation (multiple-dry year period), individual customer allotments will be based on a normal year consumption table. The water agencies will classify each customer and calculate each customer's allotment according to Table 8-4. Each customer will be notified of its classification and allotment by mail before the implementation of a mandatory program. New customers and connections will be notified at the time service commences if a mandatory program is in effect. Any customer may appeal its classification on the basis of use or the allotment on the basis of incorrect calculation.

In a disaster, prior notice of allotment may not be possible. Notice will be provided by the most efficient means available, if necessary, through the terms of the CLWA's Emergency Response Plan.

8.7.3 New Demand

During any declared water shortage emergency requiring mandatory rationing, the retail purveyors recommend that the City and County building departments continue to process applications for grading and building permits, but not issue the actual permits until mandatory rationing is rescinded. In Stages 3 and 4, it may be necessary to discontinue all use of grading water, even if permits have been issued, and consider banning all use of water for non-essential uses, such as new landscaping and pools.

8.8 PENALTIES FOR EXCESSIVE USE

The following section provides a summary of the penalties, if any, that are implemented for excessive water use for CLWA SCWD, NCWD, and VWC.

8.8.1 CLWA Santa Clarita Water Division

The SCWD has one commodity rate for all customer classes, so no excessive use penalties are in place.

8.8.2 Newhall County Water District

In July 2005, NCWD's Board of Directors adopted Ordinance No. 112, which addresses water conservation, shortage, drought, and emergency response procedures. NCWD's Water Conservation Action Plan states that no water user shall waste water or make, cause, or permit the use of water for any purpose contrary to any provision of Ordinance No. 112, or in quantities in excess of the use permitted by the conservation stage in effect. If excessive use (water leaks and/or waste) is detected from any water user, the following enforcement plan will be followed:

Efficient Water Use and Stage 1 Enforcement:

- Any sign of water leaks and/or waste will be documented.
- NCWD will then determine the appropriate level of action to inform the water user of the guidelines in Ordinance No. 112 and will encourage more efficient water use.

Stages 2, 3, and 4 Enforcement:

- First Violation: NCWD shall issue a verbal warning to the water user and recommend corrective action.
- Second Violation: NCWD shall issue a written warning to the water user, and a fine of $40 shall be added to the water user's bill if the corrective action is not taken within 30 days after receiving the written warning.
- Third Violation: A fine of $100 shall be added to the water user's bill if the corrective action is not taken within 30 days after receiving the written warning. In addition, the NCWD Board or General Manager may require installation of a flow-restricting device on the water user's service connection.
- Fourth Violation: For the fourth and any additional violations, a fine of $250 shall be added to the water user's bill at the property where the violation occurred. NCWD may also discontinue the water user's water service at the property where the violation occurred. Reconnection shall be permitted only when there is reasonable protection against future violations, such as a flow-restricting device on the customer's service connection, as determined at NCWD's discretion.

NCWD Enforcement Costs: NCWD shall be reimbursed for its costs and expenses in enforcing the provisions of Ordinance No. 112, including costs incurred for staff to investigate and monitor the water user's compliance with the terms of the Ordinance. Charges for installation of flow-restricting devices or for discontinuing or restoring water service, as NCWD incurs those charges, shall be added to the water user's bill at the property where the enforcement costs were incurred.

8.8.3 Valencia Water Company

VWC is regulated by the PUC. During times of threatened or actual water shortage, the PUC will require that VWC apportion its available water supply among its customers. In the absence of direction from the PUC, VWC will apportion the supply in the manner that appears most equitable under circumstances then prevailing and with the cooperation of the Valley water purveyors with due regard to public health and safety.

The PUC's methodology for water utilities to implement Water Conservation Plans is documented in Standard Practice U-40-W, "Instructions for Water Conservation, Rationing, and Service Connection Moratoria." Water shortage contingency plans must be approved by the PUC prior to implementation by VWC. As stated in the Standard Practice U-40-W, the PUC shall

authorize mandatory conservation and rationing by approving Schedule No. 14.1, Mandatory Water Conservation and Rationing. Schedule No. 14.1 sets forth water use violation fines, charges for removal of flow restrictors, and the period during which mandatory conservation and rationing measures will be in effect.

8.9 FINANCIAL IMPACTS OF ACTIONS DURING SHORTAGES

The following section addresses the financial impacts of actions during water shortages for CLWA SCWD, NCWD, and VWC.

8.9.1 CLWA Santa Clarita Water Division

Approximately 45 percent of SCWD's expenses are variable and will be reduced proportionately with any reduction in sales due to voluntary or mandatory conservation. The remaining 55 percent of expenses are fixed and will not decrease as a result of reduced sales. Also, only 50 percent of the fixed expenses are included in the meter charge, and 70 percent of SCWD's revenues are generated by the commodity and energy charge.

As a result of the 1987-1992 drought, the Valley's retail water purveyors asked their retail customers to voluntarily reduce water use in 1992. The customers temporarily achieved a 25 percent reduction in usage. Approximately 70 percent of SCWD's revenues are derived from the commodity charge. A reduction of 25 percent could dramatically affect the financial stability of SCWD and impact its ability to meet its payment obligations and fund its capital program. Rather than being faced with the necessity of raising rates during a drought period, the Board directed staff to establish and maintain a Water Conservation Rate Stabilization Fund to be used in years when actual consumption drops 10 percent or more below average consumption. The Rate Stabilization Fund, established to address the financial impacts of water shortages, was approved by the Board in 2004.

8.9.2 Newhall County Water District

NCWD's rates are designed with the intent that NCWD will generate adequate revenues to meet the costs of operating the water system. For the 2005-06 budget year, it is expected that 26 percent of NCWD's total water revenues will come from the service charge and about 74 percent of the total revenues will come from the commodity charge. The service charge is based on meter size and the commodity charge is based on the quantity of water consumed.

The nature of NCWD's operation (as with any water utility) is that the majority of the operating costs are "fixed" in nature and do not increase or decrease in direct proportion with increases or decreases in water use by customers. For example, if water availability issues or shortages cause NCWD to request a voluntary reduction in the customer's water use, two-thirds of the operating costs will remain the same even though less water is sold. This would result in a major revenue shortfall.

In an effort to address this shortfall, NCWD established a reserve policy (Resolution 2005-26), that includes a "rate stabilization" fund to be used in situations where actual consumption of

water is reduced as a direct result of a water shortage situation as defined in Table 8-1 of this Plan.

In the event of a declaration of a water shortage situation, NCWD's Board of Directors will consider options and actions intended to replenish the rate stabilization reserve to its ideal level. These actions may include but are not limited to rate increases or surcharges, per customer assessments, and utilization of other reserve funds.

8.9.3 Valencia Water Company

The PUC allows the investor owned water utilities it regulates to track and seek recovery of lost revenues and expense increases due to mandatory or voluntary water rationing during a drought. PUC regulated utilities' rates are set based on an assumed level of customer water usage during normal weather conditions. Therefore, when a drought occurs and customers conserve water, a utility's revenue declines, and it is difficult for the utility to fund its operating expenses. In order to provide an incentive for utilities to promote water conservation during periods of drought, the PUC developed a mechanism whereby utilities can track lost revenues as well as increases in expenses due to drought. Utilities can then recover a portion of their lost revenues and expense increases via a surcharge to customers. This reduces the financial strain conservation programs place on investor owned utilities while furthering the statewide goal of water conservation during periods of drought.

8.10 WATER SHORTAGE CONTINGENCY RESOLUTION

If a water shortage crisis reoccurs, such as the 1987-1992 drought, the water agencies will call a public hearing to declare a water shortage pursuant to Sections 351 and 352 of the California Water Code.

The Los Angeles County Board of Supervisors (on behalf of LACWWD #36) and NCWD's and CLWA's respective Boards of Directors would adopt ordinances, similar to those adopted in 1991, implementing the Water Shortage Contingency Plan. As stated in Section 8.6, in February 1991, the CLWA Board of Directors adopted Resolution No. 804, which recognized reductions in requested delivery of SWP supply and mandated water conservation in the Valley.

VWC would file an advice letter with the CPUC implementing the Water shortage Contingency Plan.

8.11 MECHANISM TO DETERMINE REDUCTIONS IN WATER USE

Demand

NCWD, SCWD, and VWC bill their customers on a monthly basis. The prior year's consumption is included on most customer bills. This allows comparison of the total consumption from each billing period to the same billing period from the prior year.

Production

Under normal conditions, CLWA, NCWD, SCWD, and VWC prepare monthly production reports, which are reviewed and compared to production reports and pumping statistics from the same period of the prior year. Under water shortage conditions, these production reports could be prepared as often as daily.

Stage 1 and 2 Water Shortages

During Stage 1 and 2 Water Shortages, retail purveyors will review selected production reports on a daily basis, and CLWA will provide each retail purveyor with a copy of its daily production report. The water agencies will meet on a more frequent basis to review water supply and demand in the Valley. Billing reports will be reviewed to identify users who are not abiding by the plan.

Stage 3 and 4 Water Shortages

During Stage 3 and 4 Water Shortages, the retail purveyors will review all production reports and pumping statistics on a daily basis. The water agencies will continue to monitor the supply and demand in the Valley. Water transfers and agreements to use each other's distribution facilities will be implemented as needed. Billing reports will be reviewed to identify users who are not abiding by the plan.

Disaster Shortage

During a disaster shortage, management will continually monitor production figures. The water agencies will work to transfer water and use each other's distribution facilities where feasible.

Appendix A
UWMP Checklist

Appendix A
2005 Urban Water Management Plan Checklist

Yes	No			
Coordination with Appropriate Agencies				**(Water Code §10620 (d)(1)(2))**
✓		Participated in area, regional, watershed or basin wide plan		1-2 Page or Chapter
✓		Describe the coordination of the plan preparation and anticipated benefits.		1-2 thru 1-4 Page or Chapter
Describe resource maximization / import minimization plan				**(Water Code §10620 (f))**
✓		Describe how water management tools / options maximize resources & minimize need to import water		1-5 Page or Chapter
Plan Updated in Years Ending in Five and Zero				**(Water Code § 10621(a))**
✓		Date updated and adopted plan received	*Adopted Nov. 9th, 2005*	1-2 thru 1-4 Page or Chapter
City and County Notification and Participation				**(Water Code § 10621(b))**
✓		Notify any city or county within service area of UWMP of plan review & revision		1-3 thru 1-5 Page or Chapter
✓		Consult and obtain comments from cities and counties within service area		1-3 thru 1-5 Page or Chapter
Service Area Information				**(Water Code § 10631 (a))**
✓		Include current and projected population		2-7 Page or Chapter
✓		Population projections were based on data from state, regional or local agency		2-7 Page or Chapter
✓		Describe climate characteristics that affect water management		1-8; 1-9; 2-9; 2-10 Page or Chapter
✓		Describe other demographic factors affecting water management		1-9 Page or Chapter
Water Sources				**(Water Code § 10631 (b))**
✓		Identify existing and planned water supply sources		3-1; chapter 3 Page or Chapter
✓		Provide current water supply quantities		3-1; chapter 3 Page or Chapter
✓		Provide planned water supply quantities		3-1; chapter 3 Page or Chapter
If Groundwater identified as existing or planned source				**(Water Code §10631 (b)(1-4))**
✓		Has management plan		3-6 thru 3-9 Page or Chapter
✓		Attached management plan (b)(1)		[attached to adopted plan] Page or Chapter
✓		Description of basin(s) (b)(2)		3-6 Page or Chapter
		Basin is adjudicated		-- Page or Chapter
		If adjudicated, attached order or decree (b)(2)		-- Page or Chapter
		Quantified amount of legal pumping right (b)(2)		-- Page or Chapter
✓		Analysis of location, amount & sufficiency, last five years (b)(3)		3-9 thru 3-18 Page or Chapter
✓		Analysis of location & amount projected, 20 years (b)(4)		3-9 thru 3-18 Page or Chapter
Reliability of Supply				**(Water Code §10631 (c) (1-3)**
✓		Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage		Chapter 6 Page or Chapter
Water Sources Not Available on a Consistent Basis				**(Water Code §10631 (c))**
✓		Describe the reliability of the water supply due to seasonal or climatic shortages		3-3, 3-8, Chapter 6 Page or Chapter
✓		Describe the vulnerability of the water supply to seasonal or climatic shortages		1-8; 1-9; Chapter 6 Page or Chapter
✓		Describe plans to supplement/replace inconsistent sources with alternative sources/DMMs		3-17; 5-5; 5-10 Page or Chapter
Transfer or Exchange Opportunities				**(Water Code §10631 (d))**
✓		Describe short term and long term exchange or transfer opportunities		3-19; 3-23 Page or Chapter
Water Use Provisions				**(Water Code §10631 (e) (1-2))**
✓		Quantify past water use by sector		2-4; 2-5 Page or Chapter
✓		Quantify current water use by sector		2-4; 2-5 Page or Chapter
✓		Project future water use by sector		2-4; 2-5 Page or Chapter
✓		Identify and quantify sales to other agencies		3-2, 3-3 Page or Chapter
✓		Identify and quantify additional water uses		Chapter 3 & 4 Page or Chapter
Demand Management Measures				**(Water Code §10631 (f)(g))**
✓		Agency is a CUWCC member		Chapter 7 Page or Chapter
✓		Annual BMP reports provided and considered completed by CUWCC website		Appendix F Page or Chapter
Planned Water Supply Projects and Programs				**(Water Code §10631 (h))**
✓		Detailed description of expected future supply projects & programs		3-22; 3-23 Page or Chapter
✓		Timeline for each proposed project		3-20 thru 3-23 Page or Chapter
✓		Quantification of each projects normal yield (AFY)		3-22; 3-23 Page or Chapter
✓		Quantification of each projects single dry-year yield (AFY)		3-22; 3-23 Page or Chapter
✓		Quantification of each projects multiple dry-year yield (AFY)		3-22; 3-23 Page or Chapter

Appendix A
2005 Urban Water Management Plan Checklist

Yes	No			
Opportunities for development of desalinated water			**(Water Code §10631 (i))**	
✓		Describes opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply	3-23 thru 3-25	Page or Chapter
If Supplier receives or projects receiving water from a wholesale supplier			**(Water Code §10631 (k))**	
✓		Agency receives, or projects receiving, wholesale water	3-2 thru 3-6	Page or Chapter
✓		Agency provided written demand projections to wholesaler, 20 years	3-3	Page or Chapter
✓		Wholesaler provided written water availability projections, by source, to agency, 20 years (if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)	3-4	Page or Chapter
✓		Reliability of wholesale supply provided in writing by wholesale agency (if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)	3-5; chapter 6	Page or Chapter
Water Shortage Contingency Plan Section			**(Water Code § 10632)**	
Stages of Action			**(Water Code § 10632 (a))**	
✓		Provide stages of action	8-2	Page or Chapter
✓		Provide the water supply conditions for each stage	8-2	Page or Chapter
✓		Includes plan for 50 percent supply shortage	8-2	Page or Chapter
Three-Year Minimum Water Supply			**(Water Code §10632 (b))**	
✓		Identifies driest 3-year period	8-3; 8-4	Page or Chapter
✓		Minimum water supply available by source for the next three years	8-3	Page or Chapter
Preparation for catastrophic water supply interruption			**(Water Code §10632 (c))**	
✓		Provided catastrophic supply interruption plan	8-4 thru 8-13	Page or Chapter
Prohibitions			**(Water Code § 10632 (d))**	
✓		List the mandatory prohibitions against specific water use practices during water shortages	8-13; 8-14	Page or Chapter
Consumption Reduction Methods			**(Water Code § 10632 (e))**	
✓		List the consumption reduction methods the water supplier will use to reduce water use in the most restrictive stages with up to a 50% reduction.	8-14; 8-15	Page or Chapter
Penalties			**(Water Code § 10632 (f))**	
✓		List excessive use penalties or charges for excessive use	8-15 thru 8-17	Page or Chapter
Revenue and Expenditure Impacts			**(Water Code § 10632 (g))**	
✓		Describe how actions and conditions impact revenues	8-17; 8-18	Page or Chapter
✓		Describe how actions and conditions impact expenditures	8-17; 8-18	Page or Chapter
✓		Describe measures to overcome the revenue and expenditure impacts	8-17; 8-18	Page or Chapter
Water Shortage Contingency Ordinance/Resolution			**(Water Code § 10632 (h))**	
✓		Attach a copy of the draft water shortage contingency resolution or ordinance.	Appendix G	Page or Chapter
Reduction Measuring Mechanism			**(Water Code § 10632 (i))**	
✓		Provided mechanisms for determining actual reductions	8-18	Page or Chapter
Recycling Plan Agency Coordination			**(Water Code § 10633)**	
✓		Describe the coordination of the recycling plan preparation information to the extent available.	4-1	Page or Chapter
Wastewater System Description			**(Water Code § 10633 (a))**	
✓		Describe the wastewater collection and treatment systems in the supplier's service area	4-2; 4-3	Page or Chapter
✓		Quantify the volume of wastewater collected and treated	4-3	Page or Chapter
Wastewater Disposal and Recycled Water Uses			**(Water Code § 10633 (a - d))**	
✓		Describes methods of wastewater disposal	4-5	Page or Chapter
✓		Describe the current type, place and use of recycled water	4-6; 4-7	Page or Chapter
✓		Describe and quantify potential uses of recycled water	4-7; 4-8	Page or Chapter
✓		Determination of technical and economic feasibility of serving the potential uses	4-7; 4-8	Page or Chapter
Projected Uses of Recycled Water			**(Water Code § 10633 (e))**	
✓		Projected use of recycled water, 20 years	4-8	Page or Chapter
✓		Compare UWMP 2000 projections with UWMP 2005 actual (§ 10633 (e))	4-8	Page or Chapter

Appendix A
2005 Urban Water Management Plan Checklist

Yes	No			
Plan to Optimize Use of Recycled Water			**(Water Code § 10633 (f))**	
✓		Describe actions that might be taken to encourage recycled water uses	4-8, 4-9	Page or Chapter
✓		Describe projected results of these actions in terms of acre-feet of recycled water used per year	4-9	Page or Chapter
✓		Provide a recycled water use optimization plan which includes actions to facilitate the use of recycled water (dual distribution systems, promote recirculating uses)	4-9, 4-10	Page or Chapter
Water quality impacts on availability of supply			**(Water Code §10634)**	
✓		Discusses water quality impacts (by source) upon water management strategies and supply reliability	Chapter 5	Page or Chapter
Supply and Demand Comparison to 20 Years			**(Water Code § 10635 (a))**	
✓		Compare the projected normal water supply to projected normal water use over the next 20 years, in 5-year increments.	6-7	Page or Chapter
Supply and Demand Comparison: Single-dry Year Scenario			**(Water Code § 10635 (a))**	
✓		Compare the projected single-dry year water supply to projected single-dry year water use over the next 20 years, in 5-year increments.	6-8	Page or Chapter
Supply and Demand Comparison: Multiple-dry Year Scenario			**(Water Code § 10635 (a))**	
✓		Project a multiple-dry year period (as identified in Table 9) occurring between 2006-2010 and compare projected supply and demand during those years	6-9	Page or Chapter
✓		Project a multiple-dry year period (as identified in Table 9) occurring between 2011-2015 and compare projected supply and demand during those years	6-9	Page or Chapter
✓		Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 and compare projected supply and demand during those years	6-9	Page or Chapter
✓		Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 and compare projected supply and demand during those years	6-9	Page or Chapter
Provision of Water Service Reliability section to cities/counties within service area			**(Water Code § 10635(b))**	
✓		Provided Water Service Reliability section of UWMP to cities and counties within which it provides water supplies within 60 days of UWMP submission to DWR	[to be complied w/ adopted Plan]	Page or Chapter
Does the Plan Include Public Participation and Plan Adoption			**(Water Code § 10642)**	
✓		Attach a copy of adoption resolution	[attached to adopted Plan]	Page or Chapter
✓		Encourage involvement of social, cultural & economic community groups	1-3 thru 1-5; Appendix B	Page or Chapter
✓		Plan available for public inspection	1-3 thru 1-5; Appendix B	Page or Chapter
✓		Provide proof of public hearing	1-3 thru 1-5; Appendix B	Page or Chapter
✓		Provided meeting notice to local governments	1-3 thru 1-5; Appendix B	Page or Chapter
Review of implementation of 2000 UWMP			**(Water Code § 10643)**	
✓		Reviewed implementation plan and schedule of 2000 UWMP	Chapter 1	Page or Chapter
✓		Implemented in accordance with the schedule set forth in plan	Chapter 1	Page or Chapter
Provision of 2005 UWMP to local governments			**(Water Code § 10644 (a))**	
✓		Provide 2005 UWMP to DWR, and cities and counties within 30 days of adoption	[to be complied w/ upon adoption of Plan]	Page or Chapter
Does the plan or correspondence accompanying it show where it is available for public review			**(Water Code § 10645)**	
✓		Does UWMP or correspondence accompanying it show where it is available for public review	1-3	Page or Chapter

Appendix B
Public Outreach Materials

UWMP 2005 Workshop and Public Hearing Schedule	
Date	**Meeting**
April 7, 2005	Community Workshop #1
June 29, 2005	Community Workshop #2
August 31, 2005	Community Workshop #3
September 28, 2005	First Joint Public Hearing
October 26, 2005	Second Joint Public Hearing

UWMP 2005 Outreach Meeting Schedule	
Date	**Meeting**
May 17, 2005	City of Santa Clarita Planning and Government Relations Staff
July 13, 2005	Building Industry Association Executive Director
August 3, 2005	Building Industry Association Government Affairs Committee
August 9, 2005	Santa Clarita Valley Government Affairs Committee
September 20, 2005	Santa Clarita Valley Chamber of Commerce Board
September 21, 2005	Castaic Town Council
September 22, 2005	Santa Clarita Valley Chamber of Commerce Environmental Committee

The Signal
3/29/05

SANTA CLARITA VALLEY

URBAN WATER MANAGEMENT PLAN

2005

CASTAIC LAKE WATER AGENCY AND THE SANTA CLARITA VALLEY WATER COMMUNITY ANNOUNCE THE PREPARATION OF THE 2005 URBAN WATER MANAGEMENT PLAN

The Urban Water Management Plan, mandated by the State of California, presents a picture of the Valley's water situation through the year 2030. It describes the long-range water needs of the community, and the means that will be used to supply the necessary water. We encourage your interest and involvement.

Kick-Off Community Workshop

Date: Thursday, April 7, 2005

Time: 6:00 pm

Location: Castaic Lake Water Agency,
Administration Building,
27234 Bouquet Canyon Road

Purpose: At this Kick-Off Community Workshop we will present an overview of the state requirements and an outline of the contents of the 2005 Urban Water Management Plan. Our team of experts will provide an overview and answer any questions. We will also provide an overview of the many opportunities for public comment during the preparation of the 2005 Urban Water Management Plan.

CASTAIC LAKE WATER AGENCY

Please call (661) 297-1600
for information.

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

Daily News
3/31/05

SANTA CLARITA VALLEY

URBAN WATER MANAGEMENT PLAN

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CASTAIC LAKE WATER AGENCY

Please call (661) 297-1600 for information.

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

711349 03.31.05

The Signal
Daily News
6/22/05

SANTA CLARITA VALLEY
URBAN WATER MANAGEMENT PLAN
2005

CASTAIC LAKE WATER AGENCY AND
THE SANTA CLARITA VALLEY WATER COMMUNITY
ANNOUNCE THE PREPARATION OF THE
2005 URBAN WATER MANAGEMENT PLAN

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YOU ARE CORDIALLY INVITED TO ATTEND OUR NEXT WORKSHOP
JUNE 29, 2005
5:30 P.M.

June 2005	Preliminary Draft UWMP release for public comment
June 2005	Community Workshop to review UWMP and seek input
August 2005	Follow up Community Workshop – release Draft UWMP, review contents with the public
September 2005	First CLWA Public Hearing
October 2005	Second CLWA Public Hearing
October 2005	Final UWMP considered for approval by the CLWA Board and NCWD Board (at a joint meeting)

CASTAIC LAKE WATER AGENCY

All meetings will be held at
Castaic Lake Water Agency, Administration Building
27234 Bouquet Canyon Road, at times TBA.
Please call (661) 297-1600 for information.

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

Breakfast, Lunch and Dinner only $175.00.
All Golfers get a chance at the Hole In One contest for a car sponsored by Frontier Toyota as well as many other raffles and prizes.
Musical sendoff provided by Canyon High Marching Band and Happy Hour Jazz, by the Canyon High Jazz Band.
Register online at www.goldstarbrigade.org or call (661) 252-7076.
This is a Non-Profit event. For sponsorship information log onto our website or call the number above.

SANTA CLARITA VALLEY
URBAN WATER MANAGEMENT PLAN
2005

CASTAIC LAKE WATER AGENCY AND
THE SANTA CLARITA VALLEY WATER COMMUNITY
ANNOUNCE THE PREPARATION OF THE
2005 URBAN WATER MANAGEMENT PLAN

The Urban Water Management Plan, mandated by the State of California, presents a picture of the Valley's water situation through 2030. It describes the long-range water needs of the community, and the means that will be used to supply the necessary water. We encourage your interest and involvement.

YOU ARE CORDIALLY INVITED TO ATTEND
OUR NEXT WORKSHOP
AUGUST 31, 2005
6:30 P.M.

June 2005	Preliminary Draft UWMP release for public comment
June 2005	Community Workshop to review UWMP and seek input
August 2005	Follow up Community Workshop – release Draft UWMP, review contents with the public
September 2005	First CLWA Public Hearing
October 2005	Second CLWA Public Hearing - UWMP considered for approval by the CLWA Board and NCWD Board (at a joint meeting)

CASTAIC LAKE WATER AGENCY

All meetings will be held at
Castaic Lake Water Agency, Administration Building
27234 Bouquet Canyon Road, at times TBA.
Please call (661) 297-1600 for information.

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

SANTA CLARITA VALLEY
URBAN WATER MANAGEMENT PLAN
2005

CASTAIC LAKE WATER AGENCY AND
THE SANTA CLARITA VALLEY WATER COMMUNITY
ANNOUNCE THE PREPARATION OF THE
2005 URBAN WATER MANAGEMENT PLAN

The Urban Water Management Plan, mandated by the State of California, presents a picture of the Valley's water situation through 2030. It describes the long-range water needs of the community, and the means that will be used to supply the necessary water. We encourage your interest and involvement.

YOU ARE CORDIALLY INVITED TO ATTEND OUR NEXT WORKSHOP

AUGUST 31, 2005
6:30 P.M.

June 2005	Preliminary Draft UWMP release for public comment
June 2005	Community Workshop to review UWMP and seek input
August 2005	Follow up Community Workshop – release Draft UWMP, review contents with the public
September 2005	First CLWA Public Hearing
October 2005	Second CLWA Public Hearing - UWMP considered for approval by the CLWA Board and NCWD Board (at a joint meeting)

CASTAIC LAKE WATER AGENCY

All meetings will be held at
Castaic Lake Water Agency, Administration Building
27234 Bouquet Canyon Road, at times TBA.
Please call (661) 297-1600 for information.

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

The Signal
Monday
10-17-05
3 of 3

SANTA CLARITA VALLEY
URBAN WATER MANAGEMENT PLAN
2005

CASTAIC LAKE WATER AGENCY AND
THE SANTA CLARITA VALLEY WATER COMMUNITY
ANNOUNCE THE PREPARATION OF THE
2005 URBAN WATER MANAGEMENT PLAN

The Urban Water Management Plan, mandated by the State of California, presents a picture of the Valley's water situation through 2030. It describes the long-range water needs of the community, and the means that will be used to supply the necessary water. We encourage your interest and involvement.

YOU ARE CORDIALLY INVITED TO ATTEND OUR NEXT PUBLIC HEARING

OCTOBER 26, 2005

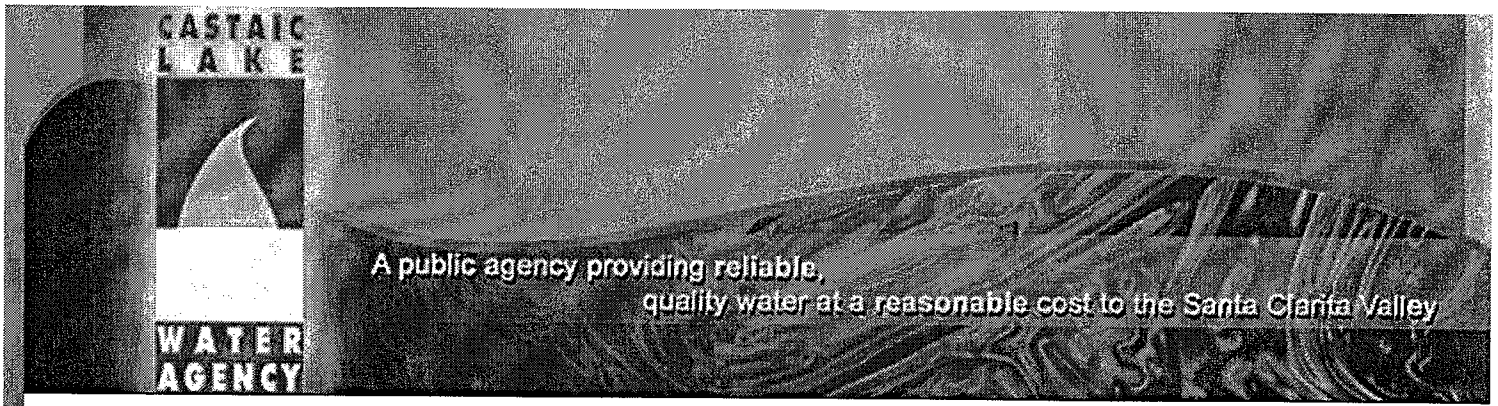
7:00 P.M.

June 2005	Preliminary Draft UWMP release for public comment
June 2005	Community Workshop to review UWMP and seek input
August 2005	Follow up Community Workshop – release Draft UWMP, review contents with the public
September 23, 2005	First CLWA Public Hearing
October 26, 2005	Second CLWA Public Hearing - UWMP considered for approval by the CLWA Board and NCWD Board (at a joint meeting)

CASTAIC LAKE WATER AGENCY

Hearing will be held at
Castaic Lake Water Agency, Administration Building
27234 Bouquet Canyon Road
Please call (661) 297-1600 for information.

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company



Publications (Newsletters, etc.)

Important Notices

This is where new items, important notices and information on upcoming events are posted.

IMPORTANT: The Draft 2005 Urban Water Management Plan for the Santa Clarita Valley is available for review. PLEASE SCROLL TO THE BOTTOM OF THIS PAGE FOR MORE INFORMATION.

Draft 2005 Urban Water Management Plan for the Santa Clarita Valley

The Draft 2005 Urban Water Management Plan is prepared in accordance with the requirements of the Urban Water Management Planning Act (Water Code sections 10630 et seq.). Every five years, in years ending in "5" and "0," water suppliers having more th 3,000 service connections or selling at least 3,000 acre-feet of water per year must prepare a plan.

Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company ha prepared a joint regional plan for the Santa Clarita Valley, as encouraged by the Act. Los Angeles County Waterworks District No. 36 is participating on an ad hoc basis.

Two public hearings will be held to review the plan. Both hearings will he held during joint meetings of the CLWA and NCWD Boar of Directors, and will take place in the CLWA Board Room at the address shown below.

Wednesday, September 28, 2005 7:00 p.m.

Wednesday, October 26, 2005 7:00 p.m.

Written comments should be submitted to CLWA by 5:00 p.m., Wednesday, October 21, 2005. Comments should be directed to:

Mary Lou Cotton
Water Resources Manager
CLWA
27234 Bouquet Canyon Road
Santa Clarita, CA 91350
Fax: 661/297-1611

- Draft 2005 UWMP Introduction and Table of Contents
- Draft 2005 UWMP Chapters 1 through 4
- Draft 2005 UWMP Chapters 5 through 8
- Draft 2005 UWMP Appendix A
- Draft 2005 UWMP Appendix B
- Draft 2005 UWMP Appendix C
- Draft 2005 UWMP Appendix D
- Draft 2005 UWMP Appendix E

CASTAIC LAKE WATER AGENCY

Vital News About Water Issues in the Santa Clarita Valley Summer 2005

Water Currents

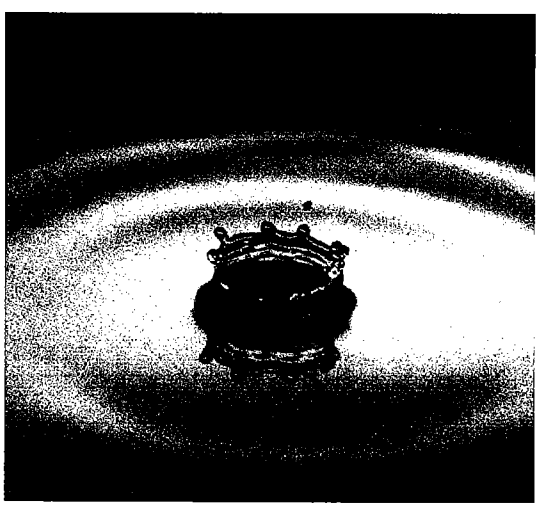
Urban Water Management Plan to Address SCV Water Demand and Supply

CLWA and the local water retailers are preparing a draft of the Santa Clarita Valley 2005 Urban Water Management Plan (UWMP) for review this summer and fall. All California urban water suppliers having more than 3,000 service connections or selling more than 3,000 acre-feet of water annually are required by the California Water Code to prepare a UWMP every five years. About 450 water suppliers statewide are affected. CLWA, CLWA Santa Clarita Water Division, Newhall County Water District (NCWD), and Valencia Water Company are working jointly to prepare a draft of a 2005 plan for the Santa Clarita Valley. Los Angeles County Waterworks District No. 36 is participating on an *ad hoc* basis, as the Los Angeles County Department of Public Works must prepare its own UWMP.

A UWMP must consider projected demands and supplies for a 20-year period, in five-year increments. It must also assess water supply and demand scenarios for average/normal water years (i.e., periods of normal precipitation), a single dry year, and multiple dry years.

The draft 2005 UWMP for the Santa Clarita Valley will identify current local and imported water supply sources, as well as potential future sources. Current sources include the State Water Project, local groundwater and recycled water. Future potential sources include all of these plus water transfers, additional recycled water, groundwater banking, water conservation and desalination.

The plan will identify future demand based on growth projections. By assessing projected demand along with projected supply, the 2005 UWMP will show how the Santa Clarita Valley will meet its water needs through 2030.



CLWA and the retailers published an amended 2000 UWMP this past January, which addresses in detail the issue of perchlorate contamination first detected in 1997 in certain groundwater wells adjacent to the former Whittaker-Bermite site. It describes plans for returning the contaminated wells to service.

Years of negotiations between CLWA, the local water retailers and the current and former owners of the site, in an effort to reach agreement on clean-up, were unproductive. In November 2000 CLWA and the retailers filed suit to compel the

Continued, page 4

DIRECTORS
E.G. "Jerry" Gladbach
Dean D. Efstathiou
William C. Cooper
Robert W. Kimmo
[illegible]
Peter Kavanaugh
Barbara D. Dye
Thomas P. Campbell
Edward A. Colley
Jacquelyn H. McMillan
R.J. Kelly
GENERAL MANAGER
Dan Masnada

CASTAIC LAKE WATER AGENCY

Vital News About Water Issues in the Santa Clarita Valley Fall 2005

Water Currents

CLWA and Retailers Seek Public Comment on 2005 Urban Water Management Plan

The California Urban Water Planning Act requires water utilities to update and submit an Urban Water Management Plan (UWMP) every five years. CLWA is one of California's approximately 450 water suppliers now preparing such a plan. CLWA, CLWA Santa Clarita Water Division, Newhall County Water District (NCWD), and Valencia Water Company have worked together to prepare a draft of a 2005 plan for the Santa Clarita Valley. (Los Angeles County Waterworks District No. 36 is participating on an *ad hoc* basis, as the Los Angeles County Department of Public Works must prepare its own UWMP.)

A UWMP must consider projected demands and supplies for a 20-year period, in five-year increments. It must also assess water supply and demand scenarios for average/normal water years (i.e., periods of normal precipitation), a single dry year, and multiple dry years.

The draft 2005 UWMP for the Santa Clarita Valley is available for public review and comment. The Plan identifies current local and imported water supply sources, as well as potential future sources. Current sources include the State Water Project, local ground- water and recycled water. Future potential sources include all of these sources plus water transfers, additional recycled water, groundwater banking, water conservation and desalination.

The Plan identifies future demand based on growth projections. By assessing projected demand along with projected supply, the 2005 UWMP shows how the Santa Clarita Valley will meet its water needs through 2030.



Two public hearings to discuss the 2005 UWMP have been scheduled, the first of which was held on Wednesday, September 28, 2005, during a joint meeting of the CLWA and NCWD Boards of Directors . A second public hearing is scheduled for 7 p.m. on Wednesday, October 26, 2005. The hearing will be held in the CLWA Boardroom at 27234 Bouquet Canyon Road, Santa Clarita, CA 91350.

DIRECTORS
E. G. "Jerry" Gladbach
Dean D. Efstathiou
William C. Cooper
Robert J. DiPrimio
William [illegible]
Peter Kavounas
Barbara [illegible]
Thomas P. Campbell
Edward A. Colley
Jacquelyn H. McMillan
R.J. Kelly

GENERAL MANAGER
Dan Masnada

JEFFREY LAMBERT, AICP
Planning / Government Relations

March 26, 2005

Sand Canyon Area Well Owners Association
c/o 27363 Sand Canyon Road
Santa Clarita, CA 91387-3632

Subject: 2005 Santa Clarita Valley Urban Water Manager Plan

Dear Sand Canyon Well Owners Association:

We have begun to prepare the 2005 Santa Clarita Valley Urban Water Management Plan. In an effort to ensure all interested parties are fully informed and involved in our process, we have scheduled the first of many community workshops.

Date:	Thursday, April 7, 2005
Time:	6:00 pm
Location:	Castaic Lake Water Agency, Administration Building, 27234 Bouquet Canyon Road

The purpose of this Kick-Off Community Workshop is to present an overview of the state requirements and an outline of the contents of the 2005 Santa Clarita Valley Urban Water Management Plan.

I have enclosed a flyer for this workshop and encourage you to attend.

Sincerely,

Jeffrey Lambert, AICP
Public Outreach Manager, 2005 SCV UWMP

4603 Morse Avenue, Sherman Oaks, CA 91423, (818) 907-0294
Jeffrey@Jeffrey-Lambert.com

Ms. Dana Wisehart
United Water Conservation District
106 N. 8th Street
Santa Paula, California 93060

Stephan C. Volker
436 14th Street, Suite 1300
Oakland, California 94612

Sierra Club Angeles Chapter
3435 Wilshire Boulevard, Suite 320
Los Angeles, California 90010-1904

Friends of the Santa Clara River
660 Randy Drive
Newbury Park, California 91320-4323

Mr. Steve Cole
Acting General Manager
Newhall Country Water District
P.O. Box 220970
Newhall, California 91322-0970

Mr. Dennis Slivinski, Assistant County Counsel
County of Ventura
800 South Victoria Avenue
Ventura, California 93009-1830

Mr. David Todd
Office of Water Use Efficiency
CA Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Mr. Gerald Johns, Deputy Director
CA Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Jeffrey M. Smith, AICP
Southern CA Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

McCormick, Kidman & Behrens, LLP
Russ Behrens, Esq.
695 Town Center Drive
Suite 400
Costa Mesa, California 92626-7187

Mr. Chris Stephens, Planning Director
Resource Management Agency
County of Ventura
800 South Victoria Avenue
Ventura, California 93009-1600

Mr. James Hartl
Director, Regional Planning
County of Los Angeles
320 West Temple Street
Los Angeles, CA 90012

Mr. Michael Murphy
Inter-Government Relations Officer
City of Santa Clarita
23920 Valencia Blvd.
Santa Clarita, CA 91355

Ms. Judy Reinsma, President
Santa Clarita Valley Well Owners Association
P.O. Box 800085
Santa Clarita, CA 91380

Sand Canyon Area Well Owners Association
c/o 27363 Sand Canyon Road
Santa Clarita, CA 91387-3632

Paul Fancett
Castaic Area Town Council
P.O. Box 325
Castaic, CA 91310

Paul Ash, President
Westranch Town Council
Hanger, Levine and Steinberg
21031 Ventura Blvd., Suite 800
Woodland Hills, CA 91364

Santa Clarita Sierra Club
21827 Parvin Dr.
Saugus, CA 91350

Santa Clarita Organization for Planning the Environment **SCOPE**
P.O. Box 1182
Canyon Country, CA
91386-1182

NOTE:
Those shaded addresses were sent Return Receipt (only Judy Reinsma was returned without evidence of receipt)

JEFFREY LAMBERT, AICP
Planning / Government Relations

June 21, 2005

Subject: 2005 Santa Clarita Valley Urban Water Management Plan

Dear:

As you know, we are preparing the 2005 Santa Clarita Valley Urban Water Management Plan. In an effort to ensure all interested parties are fully informed and involved in the process, we have scheduled the second community workshop.

Date:	Wednesday, June 29, 2005
Time:	5:30 pm
Location:	Castaic Lake Water Agency, Administration Building, 27234 Bouquet Canyon Road

The purpose of this Community Workshop is to present the Preliminary Draft 2005 UWMP and to seek your feedback. The Draft 2005 UWMP is scheduled to be released in August with public hearings scheduled for September and October.

I encourage you to attend and learn more about the 2005 Santa Clarita Valley Urban Water Management Plan.

Sincerely,

Jeffrey Lambert, AICP
Public Outreach Manager, 2005 SCV UWMP

4603 Morse Avenue, Sherman Oaks, CA 91423, (818) 907-0294
Jeffrey@Jeffrey-Lambert.com

JEFFREY LAMBERT, AICP
Planning / Government Relations
4603 Morse Avenue, Sherman Oaks, CA 91423, (818) 907-0294
Jeffrey@Jeffrey-Lambert.com

August 22, 2005

Subject: 2005 Santa Clarita Valley Urban Water Management Plan

Dear Interested Party:

As you know, the Santa Clarita Valley water suppliers are preparing the 2005 Santa Clarita Valley Urban Water Management Plan. This letter is intended to provide you with advanced information on upcoming public meetings. We have scheduled the third community workshop and have tentatively scheduled two public hearings at joint meetings of the Castaic Lake Water Agency and Newhall County Water District Boards of Directors. These meetings have been scheduled as follows:

What:	**Third Community Workshop**
Date:	Wednesday, August 31, 2005
Time:	6:30 pm
Location:	Castaic Lake Water Agency, Administration Building, 27234 Bouquet Canyon Road
What:	**Joint Public Hearing**
Date:	Wednesday, September 28, 2005 (tentative)
Time:	7:00 pm
Location:	Castaic Lake Water Agency, Administration Building, 27234 Bouquet Canyon Road
What:	**Joint Public Hearing (Second)**
Date:	Wednesday, October 26, 2005 (tentative)
Time:	7:00 pm
Location:	Castaic Lake Water Agency, Administration Building, 27234 Bouquet Canyon Road

The Draft 2005 UWMP is scheduled for release in mid- to late-August. The Draft 2005 UWMP will be available on the CLWA and NCWD web sites.

I encourage you to attend and be involved in the review and adoption of the 2005 Santa Clarita Valley Urban Water Management Plan.

Sincerely,

Jeffrey Lambert, AICP
Public Outreach Manager, 2005 SCV UWMP

Ms. Dana Wisehart
United Water Conservation District
106 N. 8th Street
Santa Paula, California 93060

Stephan C. Volker
436 14th Street, Suite 1300
Oakland, California 94612

Sierra Club Angeles Chapter
3435 Wilshire Boulevard, Suite 320
Los Angeles, California 90010-1904

Friends of the Santa Clara River
660 Randy Drive
Newbury Park, California 91320-4323

Mr. Steve Cole
Acting General Manager
Newhall Country Water District
P.O. Box 220970
Newhall, California 91322-0970

Mr. Dennis Slivinski, Assistant County Counsel
County of Ventura
800 South Victoria Avenue
Ventura, California 93009-1830

Mr. David Todd
Office of Water Use Efficiency
CA Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Mr. Gerald Johns, Deputy Director
CA Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Jeffrey M. Smith, AICP
Southern CA Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

McCormick, Kidman & Behrens, LLP
Russ Behrens, Esq.
695 Town Center Drive
Suite 400
Costa Mesa, California 92626-7187

Mr. Chris Stephens, Planning Director
Resource Management Agency
County of Ventura
800 South Victoria Avenue
Ventura, California 93009-1600

Mr. James Hartl
Director, Regional Planning
County of Los Angeles
320 West Temple Street
Los Angeles, CA 90012

Mr. Michael Murphy
Inter-Government Relations Officer
City of Santa Clarita
23920 Valencia Blvd.
Santa Clarita, CA 91355

Ms. Judy Reinsma, President
Santa Clarita Valley Well Owners Association
P.O. Box 800085
Santa Clarita, CA 91380

Sand Canyon Area Well Owners Association
c/o 27363 Sand Canyon Road
Santa Clarita, CA 91387-3632

Paul Fancett
Castaic Area Town Council
P.O. Box 325
Castaic, CA 91310

Paul Ash, President
Westranch Town Council
Hanger, Levine and Steinberg
21031 Ventura Blvd., Suite 800
Woodland Hills, CA 91364

Santa Clarita Sierra Club
21827 Parvin Dr.
Saugus, CA 91350

Santa Clarita Organization for Planning the Environment SCOPE
P.O. Box 1182
Canyon Country, CA
91386-1182

NOTE:
Those shaded addresses were sent Return Receipt (only Judy Reinsma was returned without evidence of receipt)

Jeffrey Lambert, AICP
Planning / Government Relations

July 20, 2005

Santa Clarita Organization for Planning the Environment **SCOPE**
P.O. Box 1182
Canyon Country, CA
91386-1182

Dear SCOPE:

As you know, the Santa Clarita Valley water agencies are preparing the 2005 Urban Water Management Plan. I have been asked to manage the public outreach component of this effort. This includes seeking opportunities to talk with interested community groups about the 2005 UWMP. We released the Preliminary Draft 2005 UWMP on June 27, 2005 and are working toward the release of the Draft 2005 UWMP in August.

With this in mind, I am requesting an opportunity to meet with you at your convenience. We would like to present the most recent version of the 2005 UWMP and answer any questions you may have.

I look forward to meeting with you. Please contact me via my cell phone at (818) 605-1506 to arrange a meeting.

Sincerely,

Jeffrey Lambert, AICP

Jeffrey Lambert, AICP
Planning / Government Relations

July 20, 2005

Santa Clarita Sierra Club
21827 Parvin Dr.
Saugus, CA 91350

Dear Santa Clarita Sierra Club:

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Planning / Government Relations

July 20, 2005

Paul Ash, President
Westranch Town Council
Hanger, Levine and Steinberg
21031 Ventura Blvd., Suite 800
Woodland Hills, CA 91364

Dear Mr. Ash:

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Castaic Area Town Council
P.O. Box 325
Castaic, CA 91310

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Jeffrey Lambert, AICP

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Planning / Government Relations

July 20, 2005

Sand Canyon Area Well Owners Association
c/o 27363 Sand Canyon Road
Santa Clarita, CA 91387-3632

Dear Sand Canyon Area Well Owners Association:

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Sincerely,

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Jeffrey Lambert, AICP
Planning / Government Relations

July 20, 2005

Ms. Judy Reinsma, President
Santa Clarita Valley Well Owners Association
P.O. Box 800085
Santa Clarita, CA 91380

Dear Ms. Reinsma:

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July 20, 2005

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Inter-Government Relations Officer
City of Santa Clarita
23920 Valencia Blvd.
Santa Clarita, CA 91355

Dear Mr. Murphy:

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Planning / Government Relations

July 20, 2005

Mr. James Hartl
Director, Regional Planning
County of Los Angeles
320 West Temple Street
Los Angeles, CA 90012

Dear Mr. Hartl:

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Planning / Government Relations

July 20, 2005

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Resource Management Agency
County of Ventura
800 South Victoria Avenue
Ventura, California 93009-1600

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Jeffrey Lambert, AICP
Planning / Government Relations

July 20, 2005

Jeffrey M. Smith, AICP
Southern CA Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Dear Mr. Smith:

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Jeffrey Lambert, AICP
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July 20, 2005

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CA Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

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Office of Water Use Efficiency
CA Department of Water Resources
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July 20, 2005

Mr. Dennis Slivinski, Assistant County Counsel
County of Ventura
800 South Victoria Avenue
Ventura, California 93009-1830

Dear Mr. Slivinski:

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July 20, 2005

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Newbury Park, California 91320-4323

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3435 Wilshire Boulevard, Suite 320
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436 14th Street, Suite 1300
Oakland, California 94612

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Planning / Government Relations

July 20, 2005

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United Water Conservation District
106 N. 8th Street
Santa Paula, California 93060

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Planning / Government Relations

July 20, 2005

Paul Ash, President
Westranch Town Council
Hanger, Levine & Steinberg
21031 Ventura Blvd, Suite 800
Woodland Hills, CA 91364-6512

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Jeffrey Lambert, AICP

Appendix C
Groundwater Resources and Yield In the Santa Clarita Valley

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Groundwater Resources and Yield in the Santa Clarita Valley

Introduction

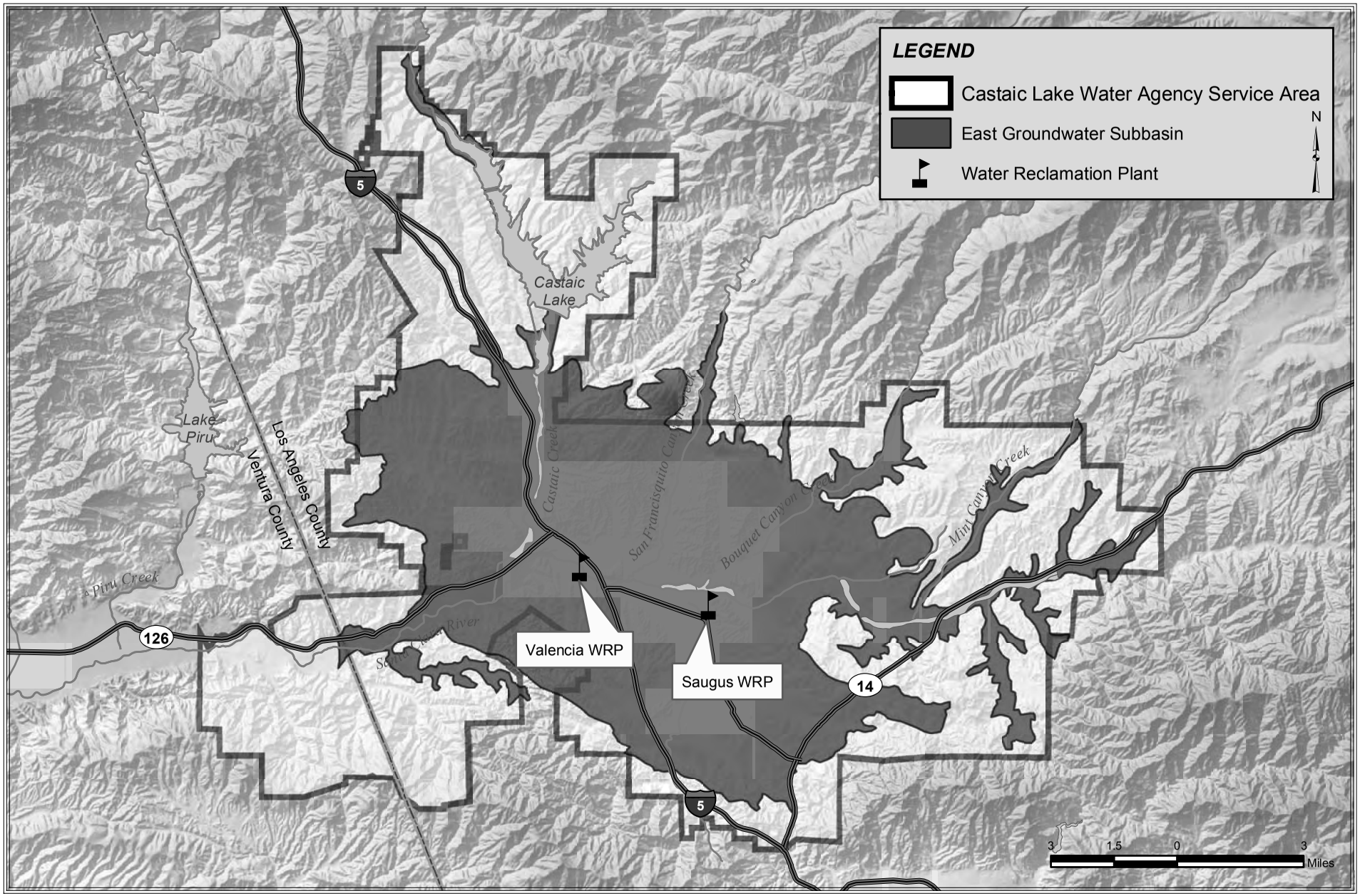
Beginning in the early part of the twentieth century, and continuing through the 1970s, local groundwater extracted from the two aquifers that comprise the local groundwater basin was the Santa Clarita Valley's sole source of water supply. Since 1980, local groundwater supplies have been supplemented with imported surface water from the State Water Project (SWP). In 2003, augmentation of those water supplies began with the initiation of deliveries from Castaic Lake Water Agency's (CLWA) recycled water system, which is anticipated to increase with time.

Santa Clara River Valley Groundwater Basin – East Subbasin

The groundwater basin generally beneath the Santa Clarita Valley, identified in the California Department of Water Resources' (DWR) Bulletin 118, 2003 Update as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin) (Basin No. 4-4.07), is comprised of two aquifer systems. The Alluvium generally underlies the Santa Clara River and its several tributaries and the Saugus Formation underlies practically the entire Upper Santa Clara River area. There are also some scattered outcrops of Terrace deposits in the Basin that likely contain limited amounts of groundwater; however, since these deposits are located in limited areas that are situated at elevations above the regional water table and are also of limited thickness, they are of no practical significance as aquifers and consequently have not been developed for any significant water supply. Figure C-1 illustrates the mapped extent of the Basin in DWR Bulletin 118 (2003), which approximately coincides with the outer extent of the Alluvium and Saugus Formation, and its relationship to the extent of the CLWA service area.

A 2001 Update Report on both the Alluvium and Saugus Formation Aquifers was completed by Richard C. Slade and Associates, Consulting Groundwater Geologists (Slade, 2002). That report updated the analyses and interpretation of hydrogeologic conditions from earlier reports (Slade, 1986 and 1988), including extensive detail on major aspects of the groundwater Basin. Notable parts of the 2001 Update Report includes:

- Description of the extensive additional data available since the original Alluvium and Saugus Formation reports were prepared in 1986 and 1988, respectively
- Organization of historic data into a Geographic Information System (GIS) database
- Description of the overall groundwater basin in conformance with that being mapped by the Department of Water Resources in Bulletin 118 (2003)



LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Figure C-1
Santa Clara River Valley
East Groundwater Subbasin

- Analysis of historical groundwater levels and production, and conclusions that there have been no conditions that would be illustrative of groundwater overdraft
- Suggestion that utilization of operational yield (as opposed to perennial yield) as a basis for managing groundwater production would be more applicable in this basin to reflect
- Fluctuating utilization of groundwater in conjunction with utilization of imported SWP water
- Conclusion that operational yield of the Alluvium is 30,000 to 40,000 acre-feet per year (afy) for wet and average/normal rainfall years, with an expected reduction into the range of 30,000 to 35,000 afy in dry years
- Conclusion that operational yield of the Saugus Formation would be in the range of 7,500 to 15,000 afy on a long-term basis, with short-term increases during dry periods into a range of 15,000 to 25,000 afy, and to 35,000 afy if dry year conditions continue

Groundwater Management Plan

As part of legislation authorizing CLWA to provide retail water service to individual municipal customers in addition to its ongoing wholesale water supply, Assembly Bill 134 (2001) included a requirement that CLWA prepare a groundwater management plan in accordance with the provisions of Water Code Section 10753, which was originally enacted by, and is commonly known as, Assembly Bill 3030. The general contents of CLWA's groundwater management plan were outlined in 2002, and a detailed plan was drafted and adopted in 2003 to satisfy the requirements of AB 134. The plan both complements and formalizes a number of existing water supply and water resource planning and management activities in CLWA's service area, which effectively encompasses the East Subbasin of the Santa Clara River Valley Groundwater Basin.

CLWA adopted the Groundwater Management Plan (GWMP) in December 2003. As part of the GWMP, four management objectives, or goals, were established for the Basin including: (1) development of an integrated surface water, groundwater, and recycled water supply to meet existing and projected demands for municipal, agricultural, and other water uses; (2) assessment of groundwater Basin conditions to determine a range of operational yield values that will make use of local groundwater conjunctively with supplemental SWP supplies and recycled water to avoid groundwater overdraft, (3) preservation of groundwater quality, including active characterization and solution of any groundwater contamination problems, and (4) preservation of interrelated surface water resources, which includes managing groundwater to not adversely impact surface and groundwater discharges or quality to downstream basin(s).

The adopted GWMP includes 14 elements that are intended to accomplish the Basin management objectives listed above. In summary, the plan elements include:

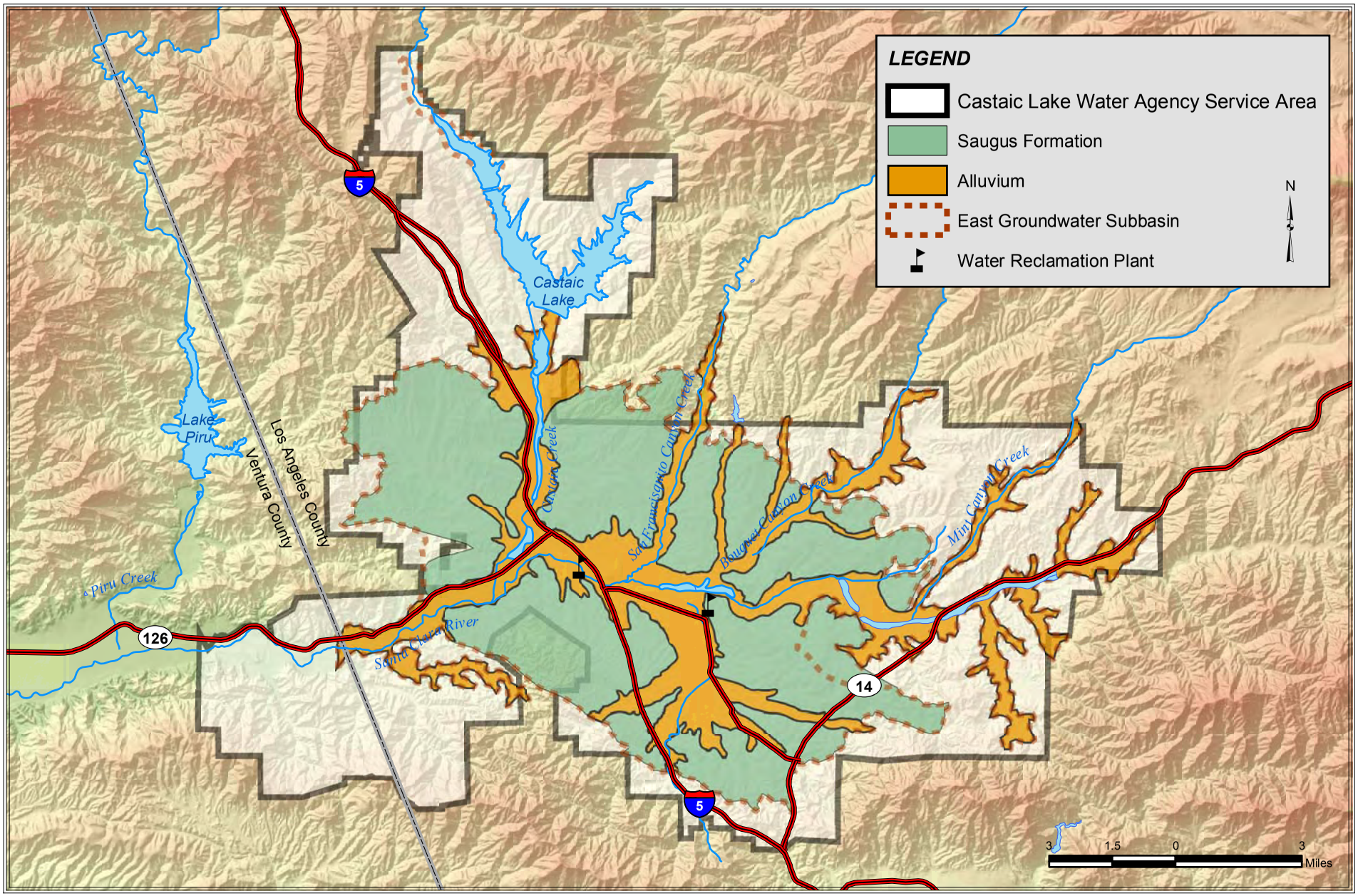
- Monitoring of groundwater levels, quality, production and subsidence
- Monitoring and management of surface water flows and quality
- Determination of Basin yield and avoidance of overdraft

- Development of regular and dry-year emergency water supply
- Continuation of conjunctive use operations
- Long-term salinity management
- Integration of recycled water
- Identification and mitigation of soil and groundwater contamination, including involvement with other local agencies in investigation, cleanup, and closure
- Development and continuation of local, state and federal agency relationships
- Groundwater management reports
- Continuation of public education and water conservation programs
- Identification and management of recharge areas and wellhead protection areas
- Identification of well construction, abandonment, and destruction policies
- Provisions to update the groundwater management plan

Alluvium – General

The Alluvial Aquifer system, of Quaternary to Holocene (recent) geologic age, consists primarily of stream channel and flood plain deposits of the Santa Clara River and its tributaries. The Alluvium is deepest along the center of the present river channel, with a maximum thickness of about 200 feet near the Saugus area. It thins toward the flanks of the adjoining hills and toward the eastern and western boundaries of the Basin and, in the tributaries, becomes a mere veneer in their upper reaches. The spatial extent of the Alluvium throughout the Basin is illustrated in Figure C-2.

Groundwater generally moves westward toward the outlet of the Basin, which is also the outlet of the Upper Santa Clara River Hydrologic Area. Thus, groundwater movement in the Alluvium beneath the tributaries is toward their confluence with the Santa Clara River and then westward in the Alluvium. From about Castaic Junction to Blue Cut, the Alluvium thins and narrows. This configuration forces groundwater to rise, keeping the depth to water at or close to the land surface. As discussed in more detail below, the general groundwater flow direction has remained unchanged whether groundwater levels are high or intermittently depressed. The San Gabriel and Holser faults traverse the Basin but neither fault measurably affects groundwater levels or flows in the Alluvium.

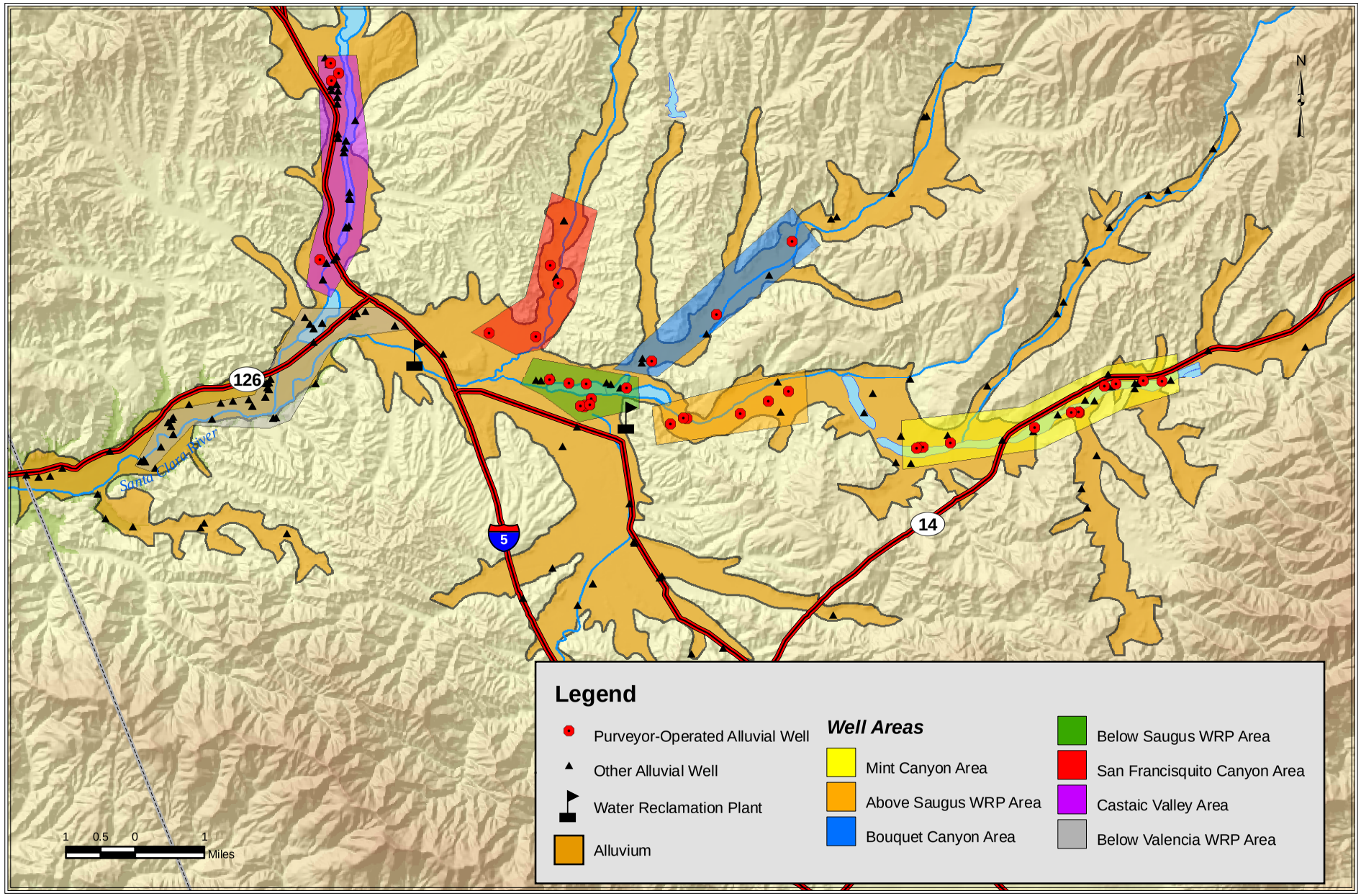


LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Figure C-2
Alluvial and Saugus Formations
Santa Clara River Valley East Groundwater Subbasin

Alluvial wells are distributed throughout the basin along the Santa Clara River and its southwest draining tributaries. Figure C-3 illustrates the location of the wells operated by retail water purveyors and other known Alluvial wells in the Basin. The Alluvium is the most permeable of the local aquifer units. Based on well yields and aquifer testing, estimated transmissivity values of 50,000 to 500,000 gallons per day per foot have been reported for the Alluvium, with the higher values where the Alluvium is thickest in the center of the Valley and generally west of Bouquet Canyon. The amount of groundwater in storage in the Alluvium can vary because of the effects of recharge, discharge, and pumping from the aquifer. The maximum storage capacity of the Alluvium has been estimated to be 240,000 acre-feet (af).

Consistent with the 2001 Update Report (Slade, 2002), the current management practice of the local retail water purveyors is to continue a groundwater operating plan that generally results in total Alluvial pumping in the range of 30,000 to 40,000 afy, slightly reduced to 30,000 to 35,000 afy in dry periods. This operating plan maximizes use of the Alluvium because of the aquifer's ability to store and produce good quality water on a perennial basis, and because the Alluvium is capable of rapid recovery of water levels and storage in wet periods. As with many groundwater basins, it is possible to intermittently exceed the long-term average yield for one or more years without long-term adverse effects. In the eastern part of the Alluvial Aquifer system, pumping during dry periods results in intermittently lower water levels in that portion of the aquifer. However, management of pumping during dry periods limits the lowering of water levels, and normal-to-wet period recharge results in a rapid return of groundwater levels to historic highs. Historical groundwater data collected from the Alluvium over many hydrologic cycles provides assurance that groundwater elevations return to normal in average or wet years following periods during which the groundwater elevations have declined. In addition, high rainfall totals in only one to two years generally will cause water levels within the Alluvium to rise quickly and by a relatively large amount. Such water level response to rainfall is a significant characteristic of permeable, porous, alluvial aquifer systems that occur within large watersheds.



LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Figure C-3
Alluvial Well Locations
Santa Clara River Valley, East Groundwater Subbasin

Alluvium – Historical and Current Conditions

Total pumpage from the Alluvium in 2004 was about 33,800 af, of which about 56 percent (19,000 af) was for municipal water supply, and the balance, about 44 percent (14,800 af), was for agriculture and other (minor) miscellaneous uses.

Alluvial pumpage has been recorded intermittently since the mid-1940s, and consistently since 1980. When pumpage records are unavailable (e.g., in the 1970s), data has been approximated to obtain a continuous historic record (Figure C-4). Alluvial pumpage from private wells, estimated to be at most 500 afy, has been included in the total Alluvial pumpage. Since the inception of SWP deliveries to CLWA in 1980, total pumpage from the Alluvium has ranged from a low of about 20,000 afy (in 1983) to slightly more than 43,000 afy (in 1999). Agricultural pumpage remained stable from the mid-1940's through about 1960, generally ranging from 33,000 to 37,000 afy, with annual pumpage as high as 41,000 af. From 1960 through the late 1970's, agricultural pumpage declined in a nearly linear trend, and has fluctuated slightly since then, between approximately 10,000 and 16,000 afy. As agricultural pumpage declined, municipal pumpage from the Alluvium increased from less than 4,000 afy in the 1950s to approximately 17,000 af in 1980. Beginning in 1980 with the importation of SWP water, municipal pumpage from the Alluvium declined to about 12,500 afy and remained stable throughout the 1980's. Municipal pumpage has subsequently increased to the current range of approximately 20,000 to 25,000 afy. Overall, there has been a change in municipal/agricultural pumping distribution since 1980, toward a slightly higher fraction for municipal water supply (from about 50 percent to nearly 60 percent of Alluvial pumpage), which reflects the general land use changes in the Valley.

The most recent analysis of the Alluvium (Slade, 2002) suggested that the operational yield of the Alluvium is 30,000 to 40,000 afy in average/normal and wet years, with a reduction to 30,000 to 35,000 afy in dry years. On a long-term basis since the importation of SWP water, total Alluvial pumpage has been about 30,500 afy (31,300 af in years with less than average precipitation, and 29,400 af in years with greater than average precipitation). These amounts are at the lower end of the range of operational yield of the Alluvium.

Groundwater Production - Alluvium

Santa Clara River Valley, East Groundwater Subbasin

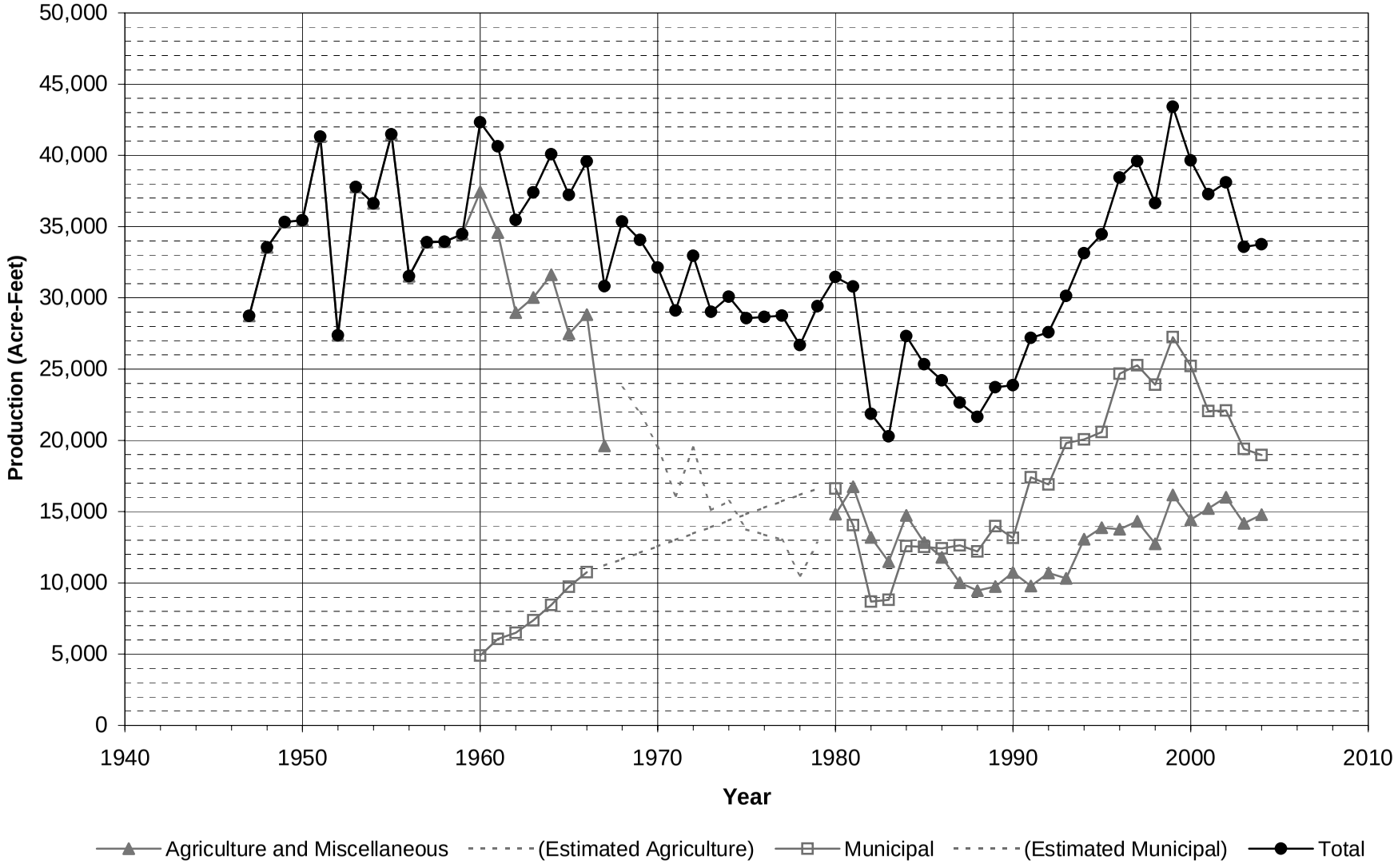


Figure C-4

Groundwater levels in various parts of the Basin have historically exhibited different responses to both pumpage and climatic fluctuations. During the last 20 to 30 years, in essentially all the alluvial portions of the Basin, groundwater levels have fluctuated from near the ground surface when the Basin is full, to as much as 100 feet lower when the Basin is pumped during intermittent dry periods of reduced recharge. Figure C-3 groups the Alluvial wells into areas with similar groundwater level fluctuations. Figures C-5 and C-6 present historical groundwater levels organized into hydrograph form (groundwater elevation vs. time) for four of these areas in the Basin. The other areas shown in Figure C-3 exhibit groundwater level responses similar to those in these four areas.

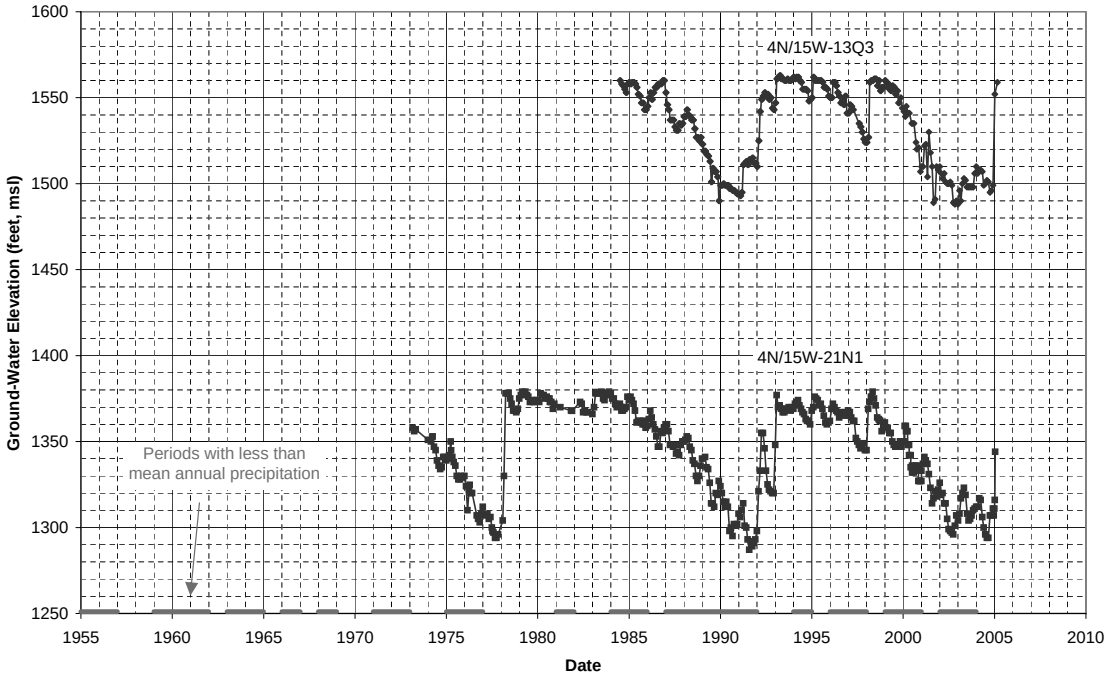
The 'Mint Canyon' area is located at the far eastern end of the Basin along the Santa Clara River. In this area, the Alluvium is shallower than in the western parts of the Basin; consequently, the area has historically exhibited the most dramatic responses to climatic fluctuations. The 'Above Saugus WRP' and 'Bouquet Canyon' areas generally exhibit groundwater level responses that are similar to those in the 'Mint Canyon' area.

The 'Below Saugus WRP' area is located along the Santa Clara River immediately downstream of the Saugus Water Reclamation Plant (WRP). This area has shown a dramatic increase in groundwater levels (30 to 60 feet) since the 1960s. The area now receives recharge from the treated wastewater discharged from the Saugus WRP to the Santa Clara River, and is located in one of the thickest areas of the Alluvium. The 'Below Saugus WRP' area exhibits groundwater level responses to climatic fluctuations, but these responses are much smaller than those further east in the Basin. The 'San Francisquito Canyon' area generally exhibits groundwater level responses that are similar to those in the 'Below Saugus WRP' area.

The 'Castaic Valley' area is located along Castaic Creek below Castaic Lake. Groundwater levels in this area have remained fairly constant, with slight responses to climatic fluctuations, since the 1950s.

The 'Below Valencia' WRP area is located along the Santa Clara River downstream of the Valencia WRP, and receives recharge from the treated wastewater discharged from the Valencia WRP to the Santa Clara River. Groundwater levels in this area exhibit slight, if any, response to climatic fluctuations, and have remained fairly constant since the 1950s.

Groundwater Elevation for 'Mint Canyon' Area Alluvial Wells
(lowest and highest for area shown)



Groundwater Elevation for 'Below Saugus WRP' Area Alluvial Wells
(lowest and highest for area shown)

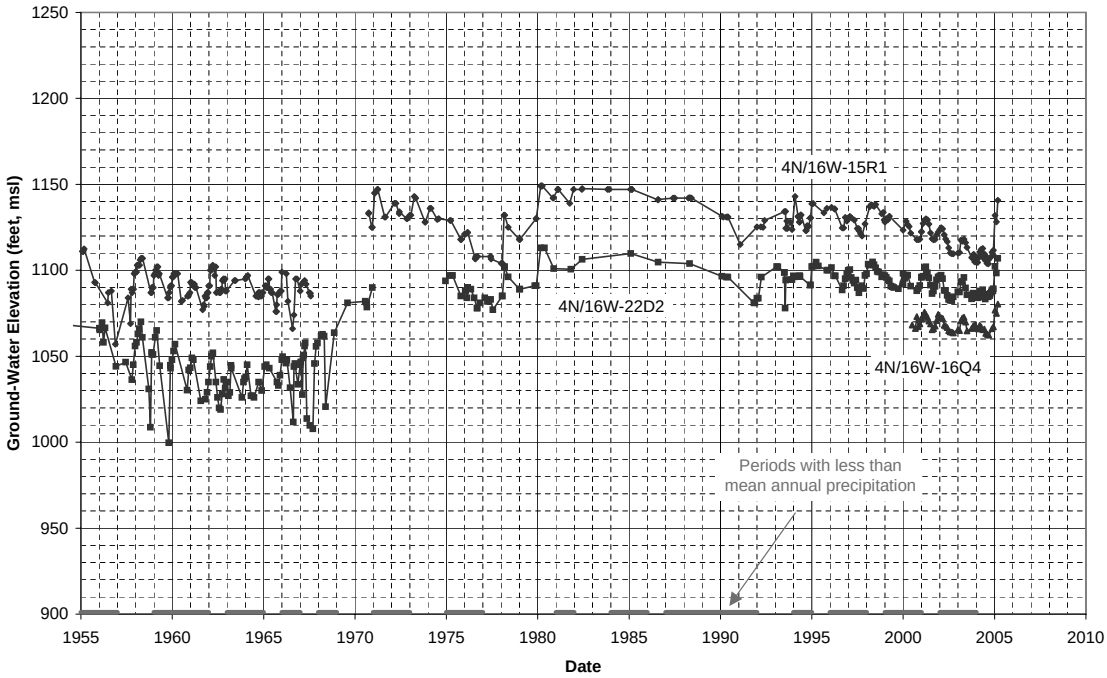
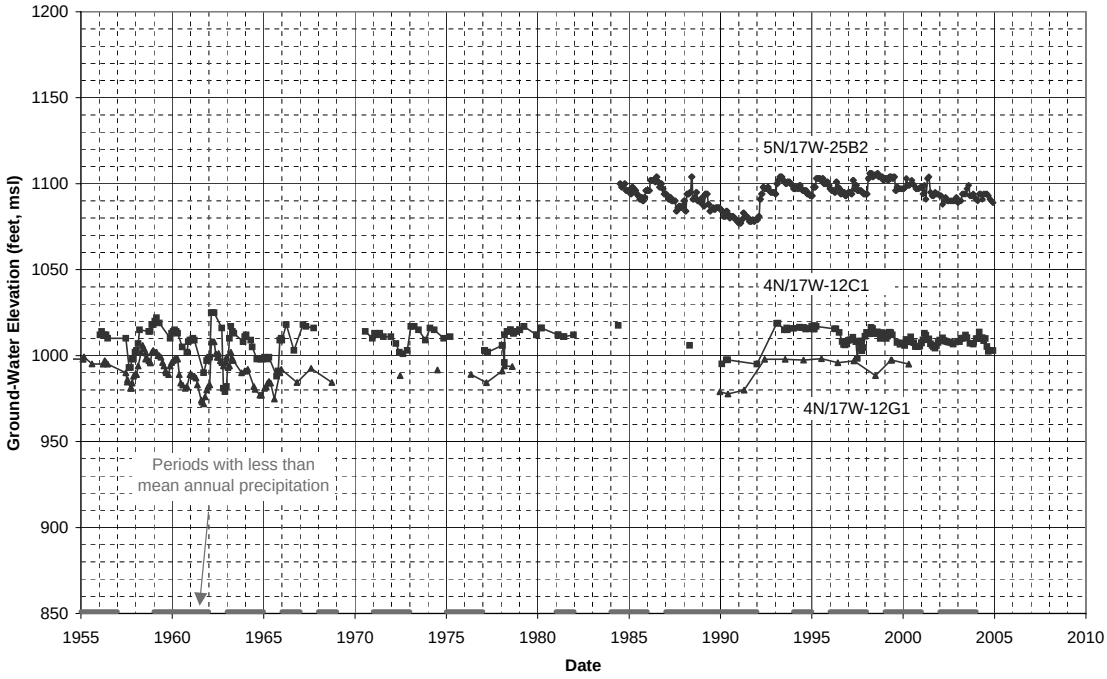


Figure C-5

Groundwater Elevation for 'Castaic Valley' Area Alluvial Wells
(lowest and highest for area shown)



Groundwater Elevation for 'Below Valencia WRP' Area Alluvial Wells
(lowest and highest for area shown)

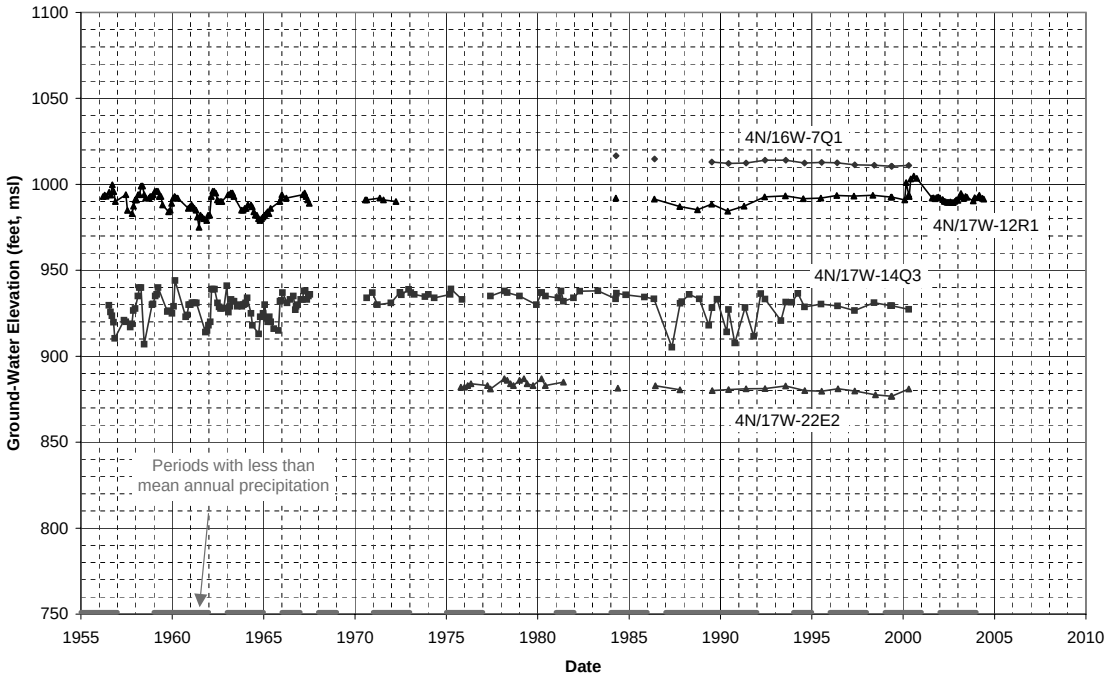
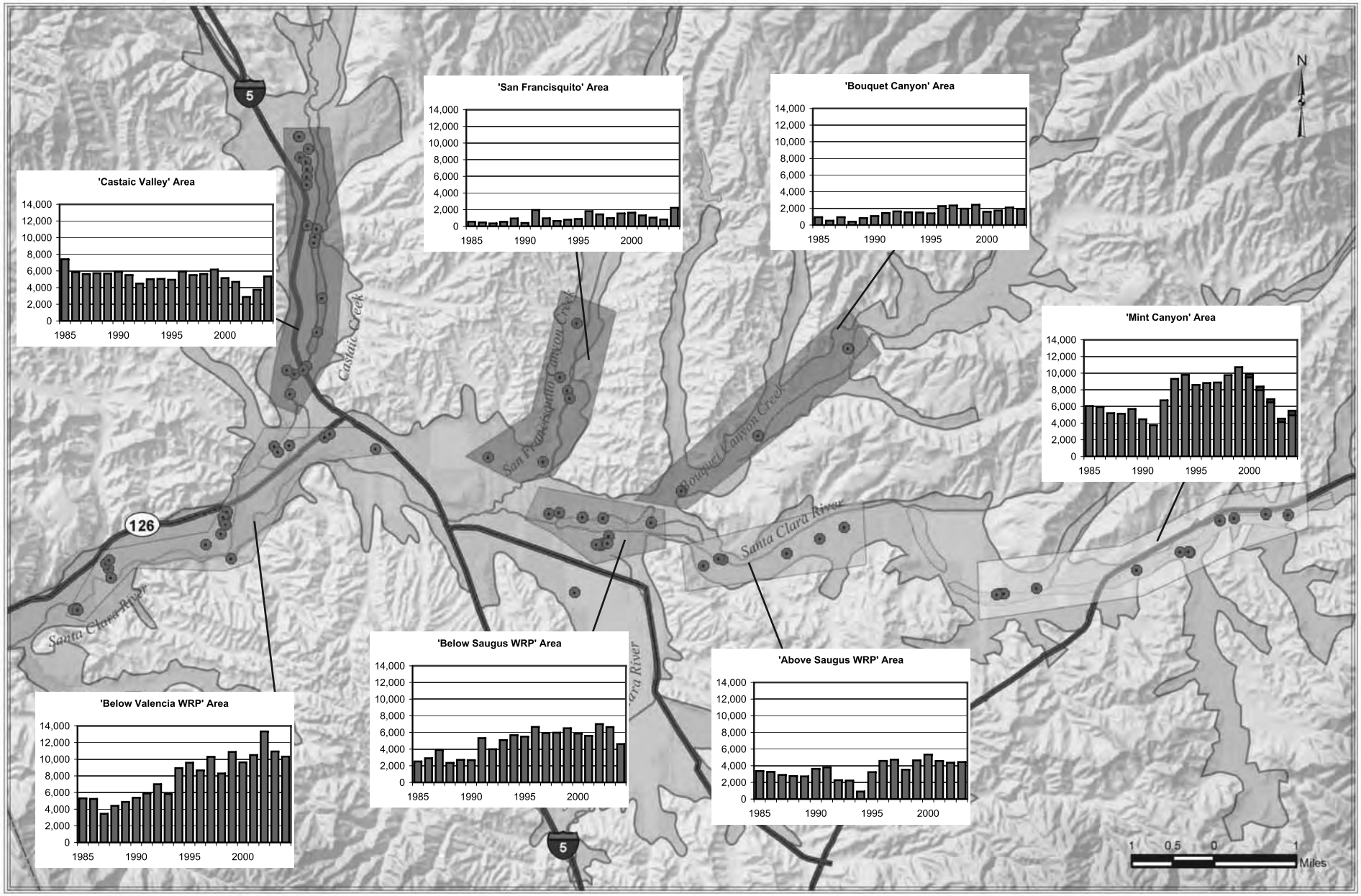


Figure C-6

Groundwater fluctuations in the 'Mint Canyon' area (illustrated in Figure C-5) represent the most substantial intermittent changes in the Basin. As described and discussed above, the Alluvium has historically experienced a number of alternating wet and dry hydrologic conditions during which groundwater level declines are followed by returns to historic highs. Since the Alluvium is thinner to the east, the resulting groundwater fluctuations are most dramatic in this area, up to 75 to 100 feet. When water levels are low, well yields and pumping capacities in this area can be impacted. The affected retail water purveyors respond by decreasing pumping and increasing use of Saugus Formation and imported SWP supplies. The purveyors also shift a fraction of the Alluvial pumpage that would normally be supplied by 'Mint Canyon' area wells to areas further west, where well yields and pumping capacities remain fairly constant because of smaller groundwater level fluctuations. As shown in Figure C-7, the purveyors have decreased the percent of total Alluvial pumpage from the 'Mint Canyon' area steadily beginning in 2000, and have offset these decreases by increasing pumpage in the 'Below Saugus WRP' and 'Below Valencia WRP' areas. This allows the purveyors to maximize the available supply from the Alluvium during dry periods to best meet demand. In spite of the current period of below average precipitation, groundwater levels in the 'Mint Canyon' area have ceased to decline in the last two years. This is illustrative of the purveyors' integrated use of surface water and groundwater to maintain local groundwater resources within their overall yield.

Depending on the period of available data, all the hydrographs of groundwater levels in the Alluvium show the same general picture: recent (last 30 years) groundwater levels have exhibited historic highs; in some locations, there are intermittent dry-period declines (and an associated use of some groundwater from storage) followed by wet-period recoveries (and associated natural refilling of storage space). On a long-term basis, the Alluvium shows no signs of water level-related overdraft (i.e., no trend toward decreasing water levels and storage). Since there is no evidence of any historic or recent trend toward permanent groundwater level or storage decline, pumpage from the Alluvium has been, and continues to be, within the operational yield of that aquifer.

As previously mentioned, it is possible to intermittently pump the aquifer by exceeding its average yield for one or more years without long-term impacts. This utilizes some water from storage in the aquifer, and is evidenced by lowered groundwater levels, which subsequently recover during periods of reduced pumpage or higher than average precipitation. Records of groundwater levels, pumpage and precipitation suggest that declines and subsequent rises in groundwater levels are influenced more by fluctuations in the availability of water for recharge than by pumpage. When less water is available for recharge, during periods of lower than average precipitation and streamflow, groundwater levels decline even when pumpage remains



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Figure C-7
Annual Groundwater Production from Alluvium by Area (Acre-feet)
Santa Clara River Valley, East Groundwater Subbasin

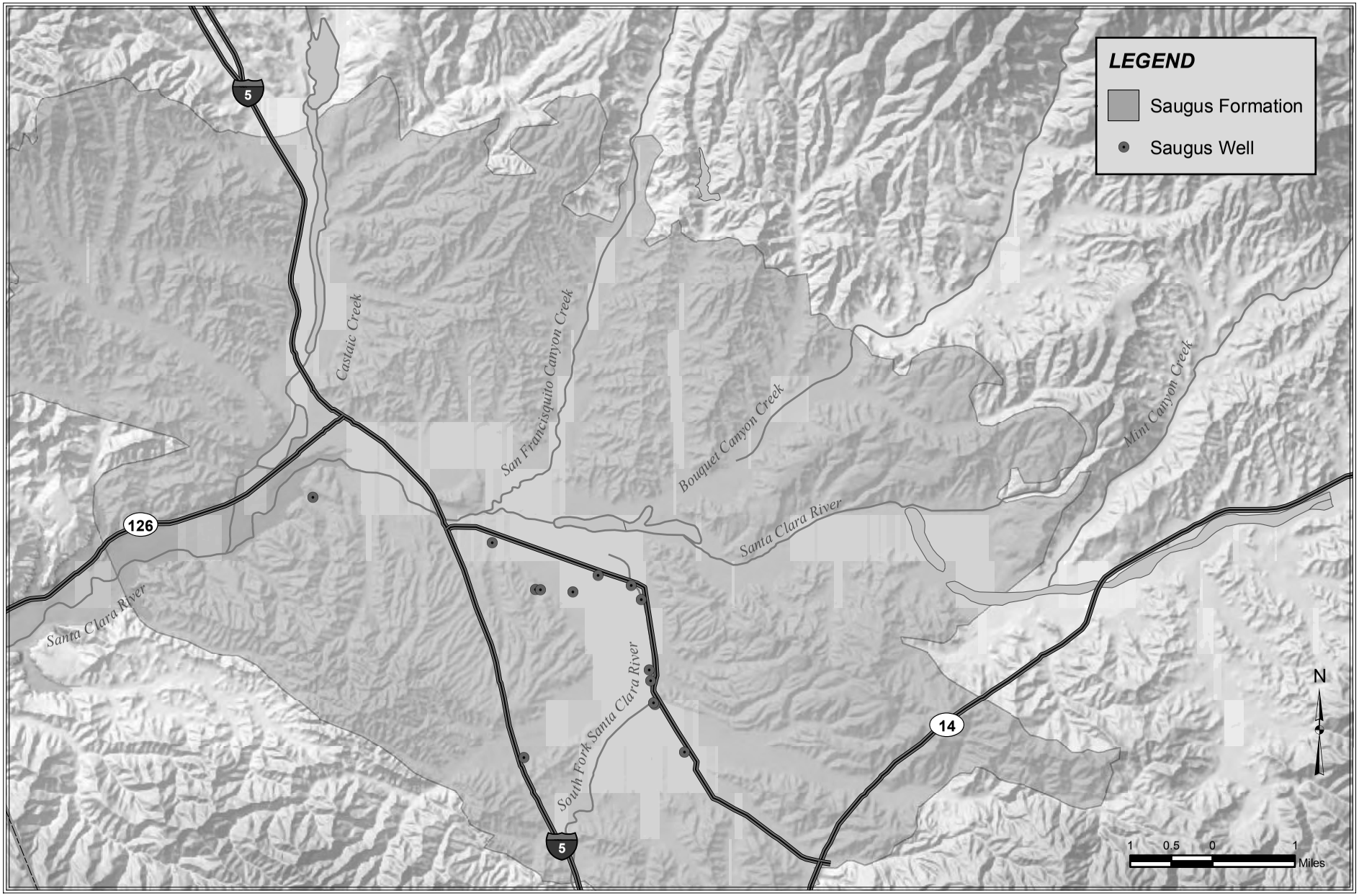
constant. Conversely, when an abundance of water is available for recharge because of wet conditions, pumpage can increase significantly without affecting groundwater levels. Overall, long-term experience with Alluvial Aquifer response to pumping in the ranges now considered to be its operational yield shows that such ranges can be considered reliable components of future supply. Recently completed numerical groundwater flow modeling, discussed in detail below, has been used to project Alluvial Aquifer response to the same ranges of pumping over multiple decades of varying hydrologic conditions; groundwater levels are projected to essentially repeat what has historically occurred since the importation of supplemental SWP water.

Saugus Formation – General

The Saugus Formation, of Pliocene to Pleistocene geologic age, has traditionally been divided into two stratigraphic units: the lowermost, geologically older Sunshine Ranch Member, which is of mixed marine to terrestrial (non-marine) origin; and the overlying, or upper, portion of the Formation which is entirely terrestrial in origin. The Sunshine Ranch Member of the Saugus Formation has a maximum thickness of about 3,000 to 3,500 feet in the central part of the Valley; however, due to its marine origin and fine-grained nature, it is not considered to be a viable source of groundwater for municipal or other water supply. Above the Sunshine Ranch Member, the upper portion of the Saugus Formation is coarser grained, consisting mainly of lenticular beds of sandstone and conglomerate that are interbedded with lesser amounts of sandy mudstone, which were deposited in stream channels, flood plains, and alluvial fans by one or more ancestral drainage systems in the Valley. The sand and gravel units that represent aquifer materials in the upper part of the Saugus Formation are generally located between depths of about 300 and 2,500 feet. The spatial extent of the Saugus Formation throughout the Basin is illustrated on Figure C-8.

The Saugus Formation is much thicker and more spatially extensive throughout the Basin when compared to the Alluvium. It is also significant in terms of groundwater storage and individual well capacity. However, the Saugus Formation has typically lower values of transmissivity, in the range of 80,000 to 160,000 gpd/ft, with the higher values in the upper portions of the Formation. The storage capacity of the Saugus has most recently been estimated to be 1.65 million af between depths of 300 feet and approximately 2,500 feet (to the base of the Saugus, or to the base of fresh water if shallower than 2,500 feet). Groundwater in the Saugus Formation generally moves north along the South Fork of the Santa Clara River, towards the Santa Clara River and the outlet of the Basin. Saugus wells operated by the retail water purveyors (shown in Figure C-8) are located in the southern portion of the Basin, south of the Santa Clara River.

For long-term planning purposes, the operating plan includes pumping from the Saugus in the range of 7,500 to 15,000 afy in average/normal years, a conservative estimate in light of historical estimates of potential recharge to the Saugus complemented by observations of high groundwater levels in the overlying Alluvium over the last 30 years. The operating plan also



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Figure C-8
Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin

includes planned dry-year pumping of 15,000 to 35,000 afy for one to three consecutive dry years, when shortages to other water supplies could occur. Such high pumping would be followed by periods of lower pumpage (7,500 to 15,000 afy in average/normal years as noted above) to allow recharge to recover water levels and storage in the Saugus. Maintaining the substantial volume of water in the Saugus Formation is an important strategy to help provide water supplies in the Valley during dry periods.

Saugus Formation – Historical and Current Conditions

Total pumpage from the Saugus Formation in 2004 was 6,500 af, of which most (5,700 af) was for municipal water supply, and the balance (800 af) was for agricultural and other (minor) uses. Historically, groundwater pumpage from the Saugus peaked in the early 1990s and then declined steadily. Pumpage has remained generally stable, at an average of about 4,600 afy, since 1998.

Historical pumpage records for the Saugus Formation are limited prior to 1980, but suggest that pumpage from the Saugus was minimal at that time. When pumpage records are unavailable, data have been approximated to obtain a continuous historic record (Figure C-9). The records indicate that there was almost no pumping from the Saugus prior to 1960 (about 100 af in most years, beginning in 1948), and that some increased pumping for agricultural water supply (about 900 af) began in about 1962. The largest amount of agricultural pumping from the Saugus was during the mid-1960s, when annual pumpage was about 3,000 af. Agricultural pumping from the Saugus declined to near zero by the late 1970s, but has generally ranged from 500 to 1,000 afy since 1982. Municipal pumping records from the Saugus are incomplete prior to 1980. There was no Saugus pumpage for municipal supply in the early 1960s. Despite the lack of pre-1980 records, post-1980 data suggests that municipal pumping from the Saugus began in the 1970s, and reached nearly 5,000 afy by 1980-81.

The first historical investigation of the Saugus (Slade, 1988) suggested that the recharge potential of the Saugus was in the range of 11,000 to 22,000 afy, depending on precipitation and groundwater levels in the partially overlying Alluvium. Recent updating of that original work (Slade, 2002) suggested that the operational yield of the Saugus Formation is in the range of 7,500 to 15,000 afy in average years, with an increase to as much as 35,000 afy in multiple dry year periods. On a long-term average basis since the importation of SWP water, total pumpage from the Saugus Formation has ranged from a low of about 3,700 afy (in 1999) to a high of nearly 15,000 afy (in 1991); average pumpage from 1980 to present has been about 6,700 afy. These numbers are at the lower end of the estimated range of the operational yield of the Saugus Formation.

Unlike the Alluvium, which has an abundance of wells with extensive water level records, the water level data for the Saugus Formation is limited by the distribution of the wells in this Formation and the periods of record. The wells that do have water level records extending back

Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

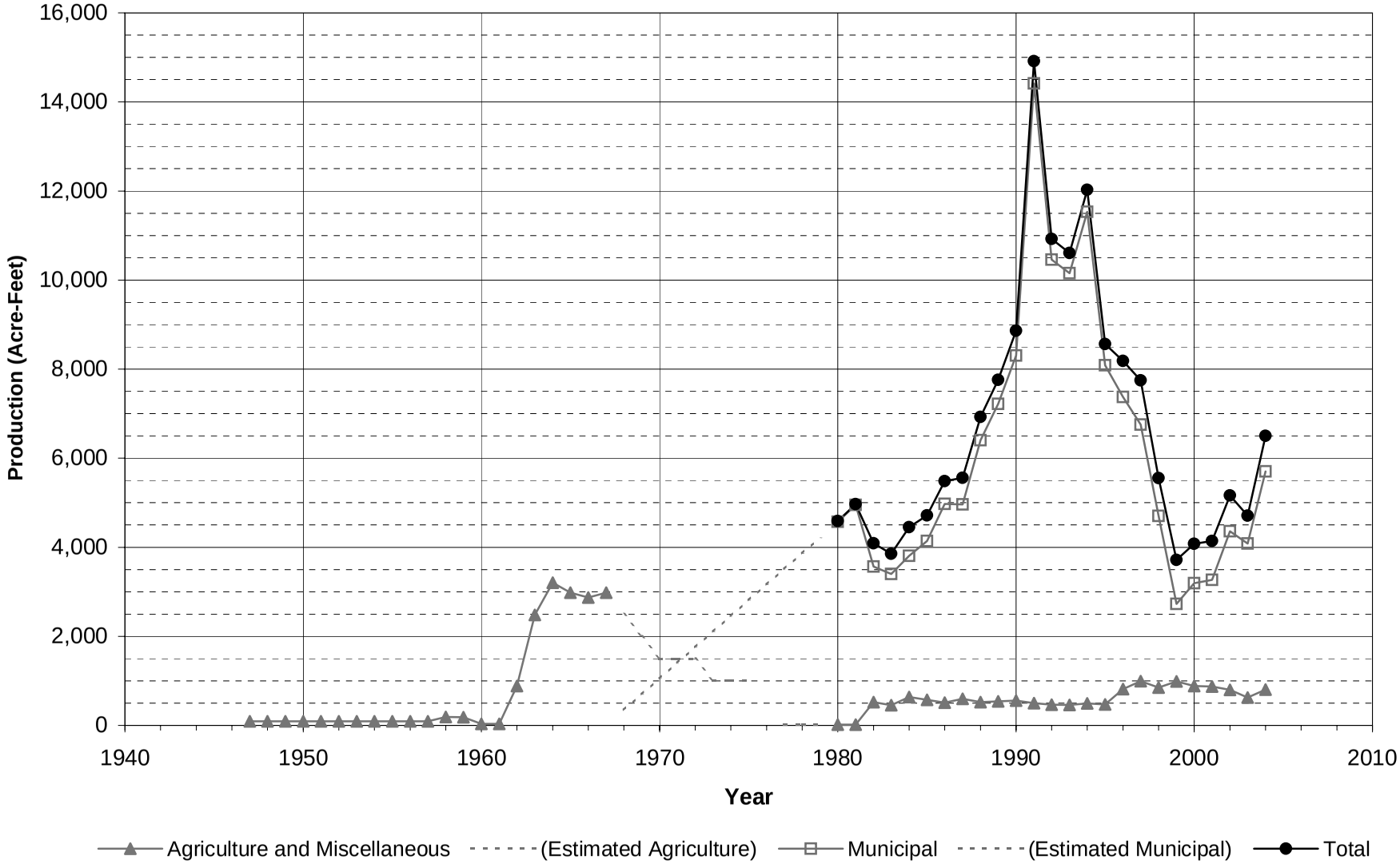


Figure C-9

to the mid-1960s indicate that groundwater levels in the Saugus Formation were highest in the mid-1980s and are currently higher than they were in the mid-1960s (Figure C-10). Based on these data, there is no evidence of any historic or recent trend toward permanent water level or storage decline.

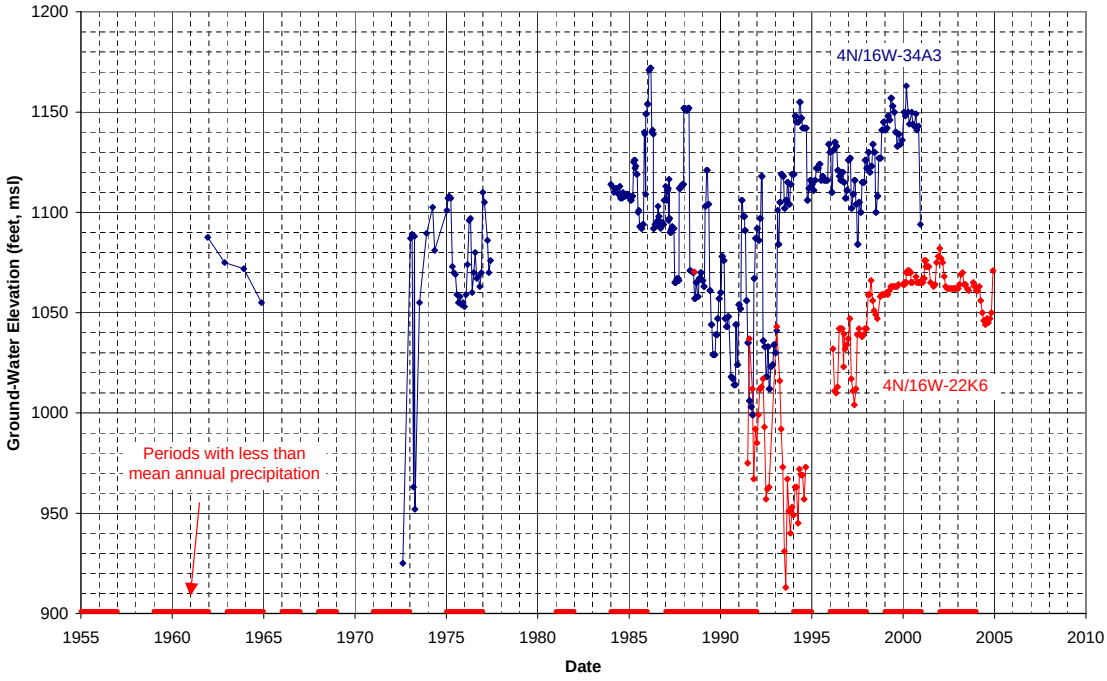
Records of groundwater levels, pumpage and precipitation suggest that declines and subsequent rises in groundwater levels in the Saugus Formation are more influenced by pumpage than by climatic fluctuations. Water levels in wells in the Saugus Formation are highly dependent on pumping in the respective wells. As opposed to the Alluvium, where pumpage is fairly evenly distributed among a number of wells in a given area, there are fewer active wells in the Saugus Formation. Consequently, pumping at one well can create a localized pumping depression that is evident in groundwater level hydrographs. Water levels in the Saugus Formation also exhibit stronger seasonal pumping fluctuations over a year than in the Alluvium (generally more than 20 feet in active Saugus wells, as opposed to generally less than ten feet in Alluvial wells). These responses to pumping are characteristic of the lower transmissivity of the Saugus Formation.

During the period from 1985 through 1991, which experienced consecutive years of lower than average precipitation (with one average year in the middle), pumpage from the Saugus increased from 4,700 afy to nearly 15,000 afy, and groundwater levels declined more than 100 feet in some cases. The subsequent rise in water levels at an individual well depended on pumping at that well. For example (as illustrated on Figure C-10), pumping of Saugus wells declined dramatically beginning between 1993 and 1995, and water levels in individual wells subsequently rose when pumping decreased. Since 1999, water levels in the Saugus have been stable and have exhibited very slight, if any, response to current less-than-average precipitation. A slight pumping depression is evident around active wells. Water levels in the Saugus remain at or above historic levels, and there is no trend toward a sustained decline in Saugus water levels or storage that would be indicative of overdraft.

Consistent with the 2001 Update Report (Slade, 2002), the current management practice of the retail water purveyors is to preserve the Saugus Formation so this supply is available during drought periods, when Alluvial groundwater and SWP supplies are anticipated to decrease. The period of increased pumpage during the late 1980s and early 1990s is a good example of this management strategy. Most notably, in 1991, when SWP deliveries were substantially reduced, increased pumpage from the Saugus made up almost half of the decrease in SWP deliveries. This increased Saugus pumpage resulted in a short-term decline in water levels reflecting the use of stored water. However, the water levels subsequently rose when pumping was reduced, reflecting recovery of groundwater storage in the Saugus Formation.

As with the Alluvial aquifer as introduced above, the response of the Saugus Formation to pumping in the operational yield ranges has been projected by use of a recently completed numerical groundwater flow model. Results of those projections, discussed in detail below,

Groundwater Elevation for Saugus Wells
(lowest and highest shown)



Groundwater Elevation for Saugus Wells
(long-term record)

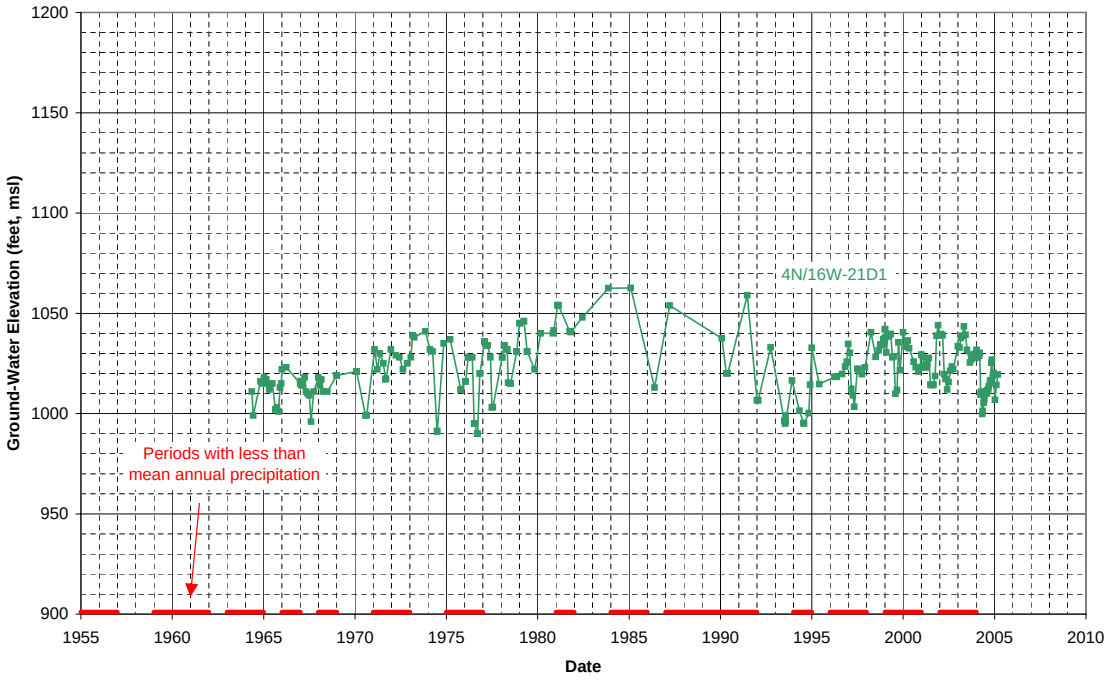


Figure C-10

show that fluctuations in pumping over multiple decades of varying hydrologic conditions will cause fluctuations in groundwater levels similar to what has historically occurred. Short-term declines during dry periods when Saugus pumping is temporarily increased are followed by recovery of water levels when pumping is reduced during wet/normal periods. The lack of any projected permanent decline in Saugus groundwater levels supports the reliability of the Saugus Formation as a long-term water supply at the capacities included in its operational yield.

Sustainability of Groundwater Supplies

Alluvial Aquifer – Based in part on historical operating experience, complemented by recent groundwater modeling work as described herein, it is planned that the Alluvial Aquifer can supply water on a long-term sustainable basis in the overall range of 30,000 to 40,000 afy, with a probable reduction in dry years to a range of 30,000 to 35,000 afy. Both of those ranges include about 15,000 afy of Alluvial pumping for current agricultural water uses and about 500 afy for small private water supply. The dry year reduction is a result of practical constraints in the eastern part of the Basin where lowered groundwater levels in dry periods have the effect of reducing pumping capacities in that shallower portion of the aquifer.

Until recently, the long-term renewability of Alluvial groundwater was empirically determined from approximately 60 years of recorded experience as previously described: long-term stability in groundwater levels and storage, with some dry period fluctuations in the eastern part of the Basin, over a historical range of Alluvial pumpage from as low as about 20,000 afy to as high as about 43,000 afy. Over the last couple of years, those empirical observations have been complemented by the development and application of a numerical groundwater flow model, has been used to predict aquifer response to the planned operating ranges of pumping. The numerical groundwater flow model has also been used to analyze the control of contaminant migration under selected pumping conditions that would restore, with treatment, pumping capacity that has been inactivated due to perchlorate contamination detected in some wells in the Basin.

To examine the yield of the Alluvium or, in other words, the sustainability of Alluvium on a renewable basis, the groundwater flow model was used to examine long-term projected response of the aquifer to pumping for municipal and agricultural uses in the 30,000 to 40,000 afy range under average/normal and wet conditions, and in the 30,000 to 35,000 afy range under locally dry conditions. To examine the response of the entire aquifer system, the model also incorporated pumping from the Saugus Formation in accordance with the normal (7,500-15,000 afy) and dry year (15,000-35,000 afy) operating plan for that aquifer. The model was run over a 78 year hydrologic period which was selected from actual historical hydrology (i.e., precipitation) to examine a number of hydrologic conditions that would be expected to affect both groundwater pumping and groundwater recharge. The selected 78-year simulation period was assembled from an assumed recurrence of 1980 to 2003 conditions, followed by an assumed

recurrence of 1950 to 2003 conditions. The 78-year period was analyzed to define both local hydrologic conditions (normal vs. dry), which affect the rate of pumping from the Alluvium, and hydrologic conditions that affect SWP operations, which in turn affect the rate of pumping from the Saugus. The resultant simulated pumping cycles included the distribution of pumping around the Basin for each of the existing wells, for normal and dry years respectively, shown in Tables C-1 and C-2.

The resultant pumping cycles are summarized as follows:

- Twenty-four years of dry year Alluvial pumping at 30,000 to 35,000 afy
- One drought of four consecutive dry years of Alluvial pumping at 30,000 to 35,000 afy
- Two droughts of three consecutive dry years each, with Alluvial pumping at 30,000 to 35,000 afy
- Three selected years with assigned dry-year Alluvial pumping despite near-normal or above-normal rainfall because each selected year was preceded by a multi-year drought
- Eighteen years of dry-year pumping from the Saugus, or an average of one dry year approximately every four years
- Two droughts lasting three years, plus (in both cases) a dry year that occurs two years before the beginning of each three-year drought and another dry year that begins one year after each three-year drought has ended; Saugus pumping was increased into the 15,000 to 35,000 afy range in all those years
- Two droughts lasting two years; Saugus pumping was increased into the 15,000 to 25,000 afy range in those years
- Sixty years of normal-year Saugus pumping, 7,500 to 15,000 afy

Simulated Alluvial aquifer response to the preceding range of hydrologic conditions and pumping stresses was essentially a long-term repeat of the historical conditions that have resulted from similar pumping over the last several decades. The resultant response consisted of (1) generally constant groundwater levels in the middle to western portion of the Alluvium, and fluctuating groundwater levels in the eastern portion of the Alluvium as a function of wet and dry hydrologic conditions, (2) variations in recharge that directly correlate with wet and dry hydrologic conditions, and (3) no long-term decline in groundwater levels or storage. Examples of projected groundwater levels and storage in various parts of the basin are illustrated in Figures C-11 through C-15. Based on the combination of actual experience with Alluvial aquifer pumping at capacities similar to those planned for the future and the resultant sustainability (recharge) of groundwater levels and storage, complemented by modeled projections of aquifer response to planned pumping rates that also show no depletion of groundwater, the Alluvial Aquifer is considered a sustainable water supply source to meet the Alluvial portion of the operating plan for the groundwater Basin.

TABLE C-1

Recent and Simulated Future Annual Groundwater Pumping Volumes from the Alluvial Aquifer

Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California

		Historical Pumping			UWMP Pumping	
Well Name	**Location[a]**	**2001**	**2002**	**2003**	**Normal Years**	**Dry Years**
NCWD-Castaic 1	Castaic Valley	345	385	561	385	345
NCWD-Castaic 2	Castaic Valley	166	0	123	166	125
NCWD-Castaic 3	Castaic Valley	0	0	0	0	0
NCWD-Castaic 4	Castaic Valley	100	47	56	100	45
NCWD-Pinetree 1	Mint Canyon	164	0	0	164	0
NCWD-Pinetree 2	Mint Canyon	0	0	0	0	0
NCWD-Pinetree 3	Mint Canyon	566	544	525	545	525
NCWD-Pinetree 4	Mint Canyon	300	5	0	300	0
NCWD Total		**1,641**	**981**	**1,265**	**1,660**	**1,040**
NLF-161	Downstream of Valencia WRP	496	485	2,021	485	485
NLF-B10	Downstream of Valencia WRP	1,240	534	344	344	344
NLF-B11	Downstream of Valencia WRP	205	232	271	232	232
NLF-B5	Downstream of Valencia WRP	1,680	2,280	1,582	1,582	1,582
NLF-B6	Downstream of Valencia WRP	1,312	2,175	1,766	1,766	1,766
NLF-B7	Downstream of Valencia WRP	474	584	402	584	584
NLF-C	Downstream of Valencia WRP	1,319	1,720	1,373	1,373	1,373
NLF-C3	Downstream of Valencia WRP	93	192	186	192	192
NLF-C4	Downstream of Valencia WRP	1,028	809	764	809	809
NLF-C5	Downstream of Valencia WRP	680	850	622	850	850
NLF-C6	Downstream of Valencia WRP	231	241	108	241	241
NLF-C7	Downstream of Valencia WRP	741	866	443	866	866
NLF-C8	Downstream of Valencia WRP	293	594	408	594	594
NLF-E	Castaic Valley	1,691	16	28	16	16
NLF-E2	Castaic Valley	141	55	14	55	55
NLF-E4	Downstream of Valencia WRP	0	0	0	0	0
NLF-E5	Downstream of Valencia WRP	172	679	537	679	679
NLF-E9	Downstream of Valencia WRP	238	814	47	814	814
NLF-G45	Downstream of Valencia WRP	291	283	60	283	283
NLF-W4	San Francisquito Canyon[b]	46	1	0	0	0
NLF-W5	San Francisquito Canyon	276	104	23	107	107
NLF-X3	Downstream of Valencia WRP	12	0	0	0	0
NLF Total		**12,659**	**13,514**	**10,999**	**11,872**	**11,872**
SCWD-Clark	Bouquet Canyon	696	782	712	782	700
SCWD-Guida	Bouquet Canyon	1,047	1,320	1,230	1,320	1,230
SCWD-Honby	Above Saugus WRP	721	696	874	696	870
SCWD-Lost Canyon 2	Mint Canyon	741	730	644	741	640
SCWD-Lost Canyon 2A	Mint Canyon	1,034	905	593	1,034	590
SCWD-Mitchell #5A	Mint Canyon	407	143	19	0	0
SCWD-Mitchell #5B	Mint Canyon	0	150	0	557	0
SCWD-N. Oaks Central	Mint Canyon	822	1,646	1,641	822	1,640
SCWD-N. Oaks East	Mint Canyon	1,234	448	485	1,234	485
SCWD-N. Oaks West	Mint Canyon	898	1,123	31	898	0
SCWD-Sand Canyon	Mint Canyon	930	705	195	930	195
SCWD-Sierra	Mint Canyon	846	87	0	846	0
SCWD-Stadium	Above Saugus WRP	565	778	0	800	800
SCWD Total		**9,941**	**9,513**	**6,424**	**10,660**	**7,150**

TABLE C-1

Recent and Simulated Future Annual Groundwater Pumping Volumes from the Alluvial Aquifer

Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California

		Historical Pumping			UWMP Pumping	
Well Name	**Location[a]**	**2001**	**2002**	**2003**	**Normal Years**	**Dry Years**
VWC-D	Castaic Valley	645	772	687	690	690
VWC-I	San Francisquito Canyon	0	0	0	0	0
VWC-K2	Downstream of Saugus WRP[c]	669	955	364	0	0
VWC-L2	Downstream of Saugus WRP[d]	349	490	71	0	0
VWC-N	Downstream of Saugus WRP	591	700	622	620	620
VWC-N3	Downstream of Saugus WRP[e]	226	857	255	0	0
VWC-N4	Downstream of Saugus WRP[f]	458	909	248	0	0
VWC-N7	Downstream of Saugus WRP				1,160	1,160
VWC-N8	Downstream of Saugus WRP				1,160	1,160
VWC-Q2	Downstream of Saugus WRP	923	1,167	1,451	985	985
VWC-S6	Downstream of Saugus WRP	1,490	1,320	2,134	865	865
VWC-S7	Downstream of Saugus WRP	564	419	1,095	865	865
VWC-S8	Downstream of Saugus WRP	327	190	409	865	865
VWC-T2	Above Saugus WRP	900	696	1,014	460	460
VWC-T4	Above Saugus WRP	690	831	799	460	460
VWC-U3	Above Saugus WRP[g]	956	572	823	0	0
VWC-U4	Above Saugus WRP	942	796	934	935	935
VWC-U6	Above Saugus WRP	0	0	0	825	825
VWC-W10	San Francisquito Canyon	182	0		0	0
VWC-W11	San Francisquito Canyon	806	939	764	600	600
VWC-W6	San Francisquito Canyon[h]	0	0	36	865	865
VWC-W9	San Francisquito Canyon				350	350
VWC Total		**10,718**	**11,613**	**11,706**	**11,705**	**11,705**
Robinson Ranch	Mint Canyon				932	400
WHR (All Wells)	Castaic Valley	1,604	1,602	2,273	1,600	1,600
Total Alluvial Aquifer Pumping		**36,563**	**37,223**	**32,667**	**38,429**	**33,767**

[a]See Figure 2-4 for well locations.

[b]Former well NLF-W4 was located approximately 900 feet west of existing production well VWC-11.

[c]Former well VWC-K2 was located approximately 210 feet south of existing production well VWC-N7.

[d]Former well VWC-L2 was located approximately 150 feet southeast of existing production well VWC-N7.

[e]Former well VWC-N3 was located approximately 440 feet northeast of existing production well VWC-N8.

[f]Former well VWC-N4 was located approximately 430 feet southeast of existing production well VWC-N8.

[g]Former well VWC-U3 was located approximately 2,300 feet northeast of existing production well VWC-U4.

[h]Former well VWC-W6 was located approximately 575 feet northeast of existing production well VWC-11.

Notes:

All pumping volumes are listed in AF/yr. Blank entries for historical pumping indicate that the well did not exist at that time.

Wells that are not listed are assumed to not be pumping in the future.

NLF = Newhall Land & Farming Company

UWMP = Urban Water Management Plan

VWC = Valencia Water Company

WHR = Wayside Honor Rancho, whose wells are owned by the Los Angeles County Waterworks District No. 36

TABLE C-2

Simulated Annual Groundwater Pumping from the Saugus Formation for the 78-year Simulation

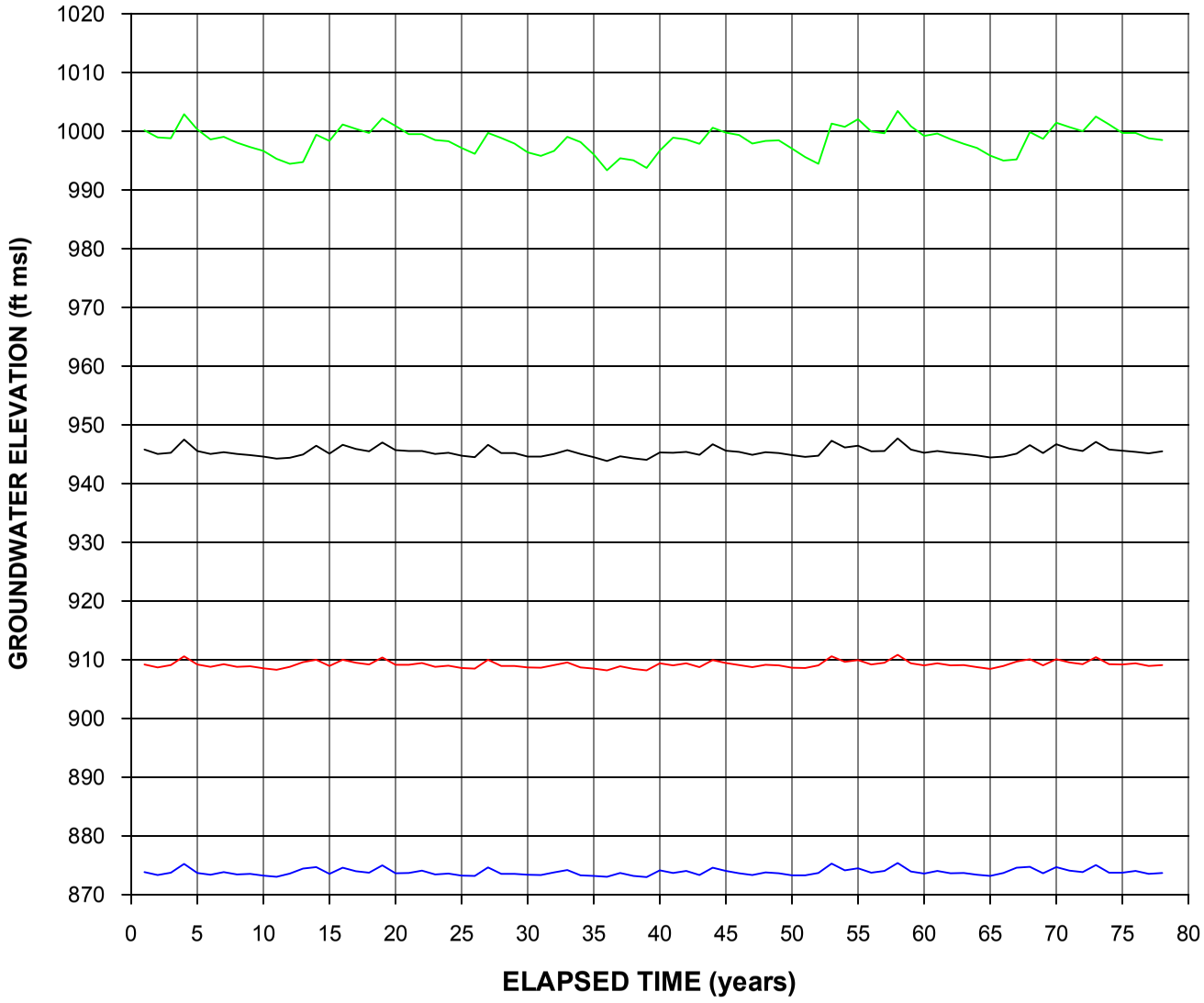
Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California

Owner	Well Name	Normal Years	Dry Year 1	Dry Year 2	Dry Year 3
NCWD	11	811	811	811	811
	12	1,315	2,044	2,044	2,044
	13	1,315	2,044	2,044	2,044
Total Pumping (NCWD)		**3,441**	**4,899**	**4,899**	**4,899**
NLF	156	369	369	369	369
Total Pumping (NLF)		**369**	**369**	**369**	**369**
SCWC	Saugus1	1,772	1,772	1,772	1,772
	Saugus2	1,772	1,772	1,772	1,772
Total Pumping (SCWC)		**3,544**	**3,544**	**3,544**	**3,544**
VWC	159	50	50	50	50
	160 (Municipal)	500	830	830	830
	160 (Valencia Country Club)	500	500	500	500
	201	100	100	3,577	3,577
	205	1,000	2,734	3,827	3,827
	206	1,175	2,734	3,500	3,500
Total Pumping (VWC)		**3,325**	**6,948**	**12,284**	**12,284**
To Be Determined	Future #1	0	0	3,250	3,250
	Future #2	0	0	0	3,250
	Future #3	0	0	0	3,250
	Future #4	0	0	0	3,250
Total Pumping (Future)		**0**	**0**	**3,250**	**13,000**
Total Saugus Formation Pumping		**10,679**	**15,760**	**24,346**	**34,096**

Notes:

All pumping volumes are listed in acre-feet.

Wells VWC-157 and NCWD-7, 8, 9, and 10 are assumed to no longer operate in the future.



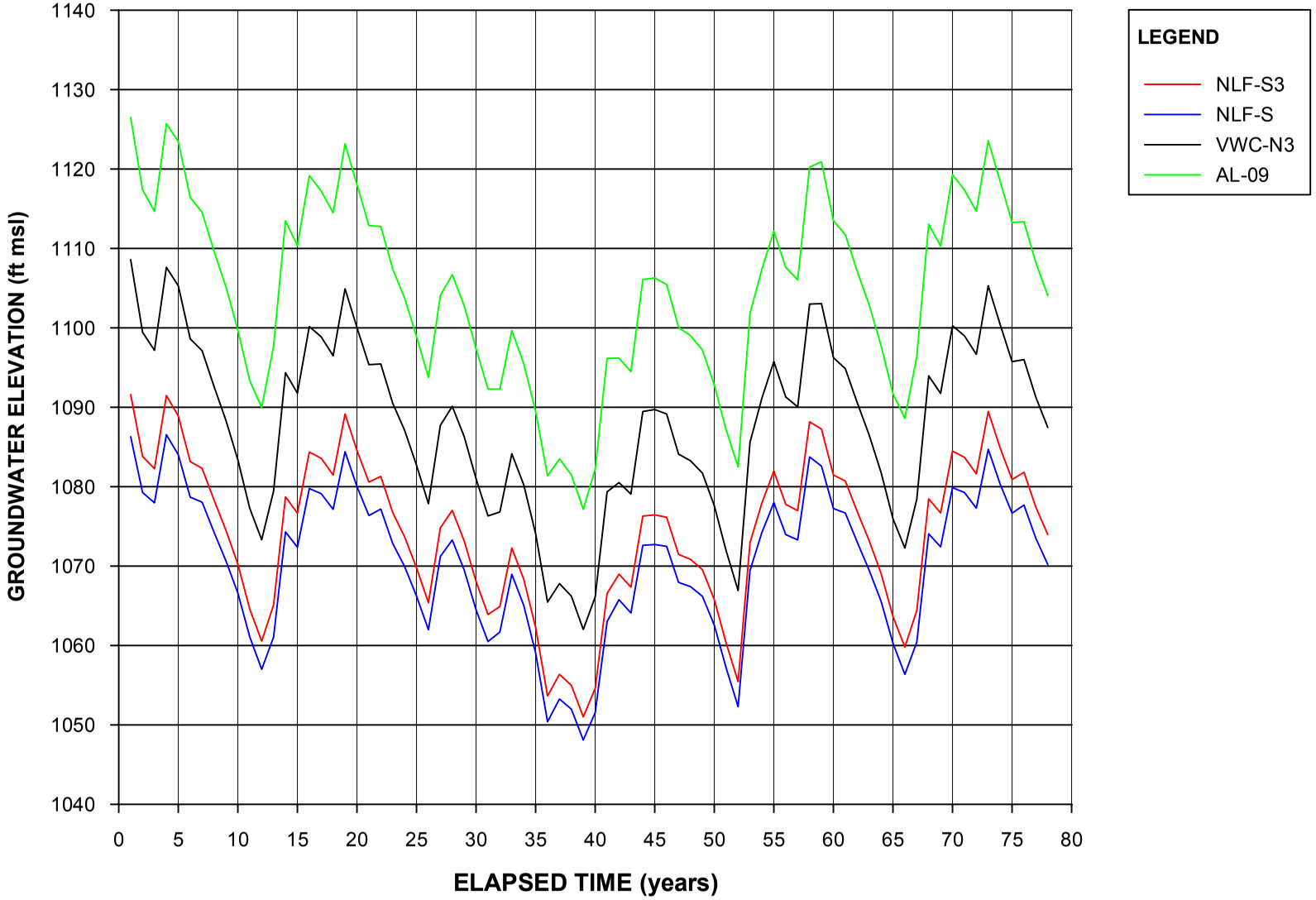
NOTE:

1. SEE FIGURE 2-4 FOR LOCATIONS OF WELLS. WELL NLF-TOPCO1 IS LOCATED 210 feet SOUTHWEST OF WELL NLF-B11.

FIGURE C-11
SIMULATED AVERAGE ANNUAL GROUNDWATER ELEVATIONS IN THE ALLUVIAL AQUIFER WEST OF INTERSTATE 5
ANALYSIS OF GROUNDWATER BASIN YIELD
UPPER SANTA CLARA RIVER GROUNDWATER BASIN
EAST SUBBASIN, LOS ANGELES COUNTY, CALIFORNIA

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NOTES:

1. AL09 IS A CLUSTER OF OBSERVATION WELLS LOCATED 845 feet SOUTHWEST OF PRODUCTION WELL VWC-Q2.

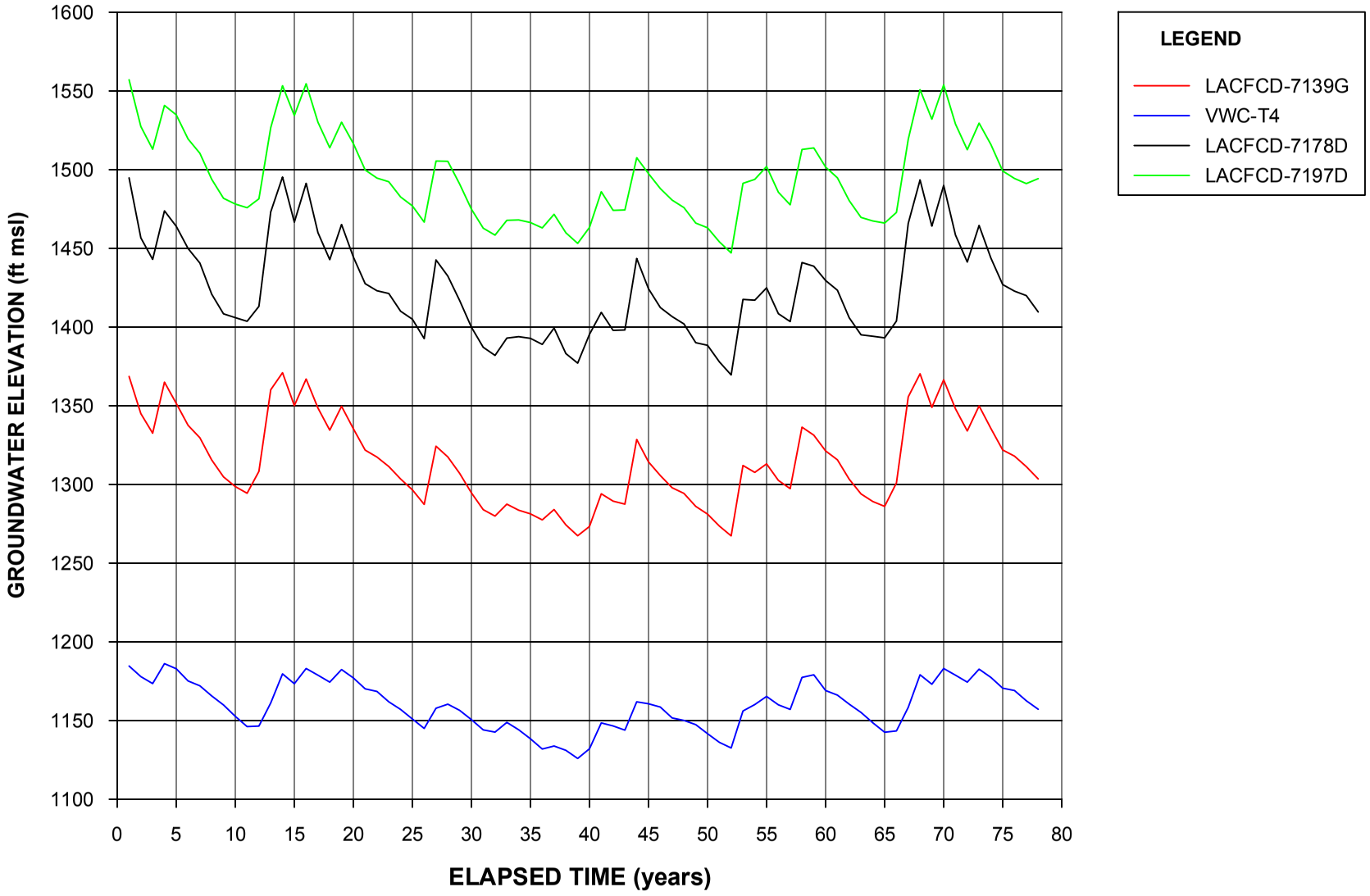
2. THE REMAINING HYDROGRAPHS REPRESENT FORMER ALLUVIAL AQUIFER WELLS THAT HAVE BEEN ABANDONED AND THEREFORE ARE NOT PUMPED IN THE MODEL SIMULATIONS. RELATIVE TO EXISTING WELLS SHOWN ON FIGURE 2-4, THESE FORMER WELLS WERE LOCATED AS FOLLOWS:

   – WELL NLF-S3 WAS LOCATED 305 feet EAST OF WELL VWC-S6
   – WELL NLF-S WAS LOCATED 940 feet SOUTHWEST OF WELL VWC-S6
   – WELL VWC-N3 WAS LOCATED 435 feet NORTHEAST OF WELL VWC-N8

FIGURE C-12
SIMULATED AVERAGE ANNUAL GROUNDWATER ELEVATIONS IN THE ALLUVIAL AQUIFER EAST OF INTERSTATE 5
ANALYSIS OF GROUNDWATER BASIN YIELD
UPPER SANTA CLARA RIVER GROUNDWATER BASIN
EAST SUBBASIN, LOS ANGELES COUNTY, CALIFORNIA

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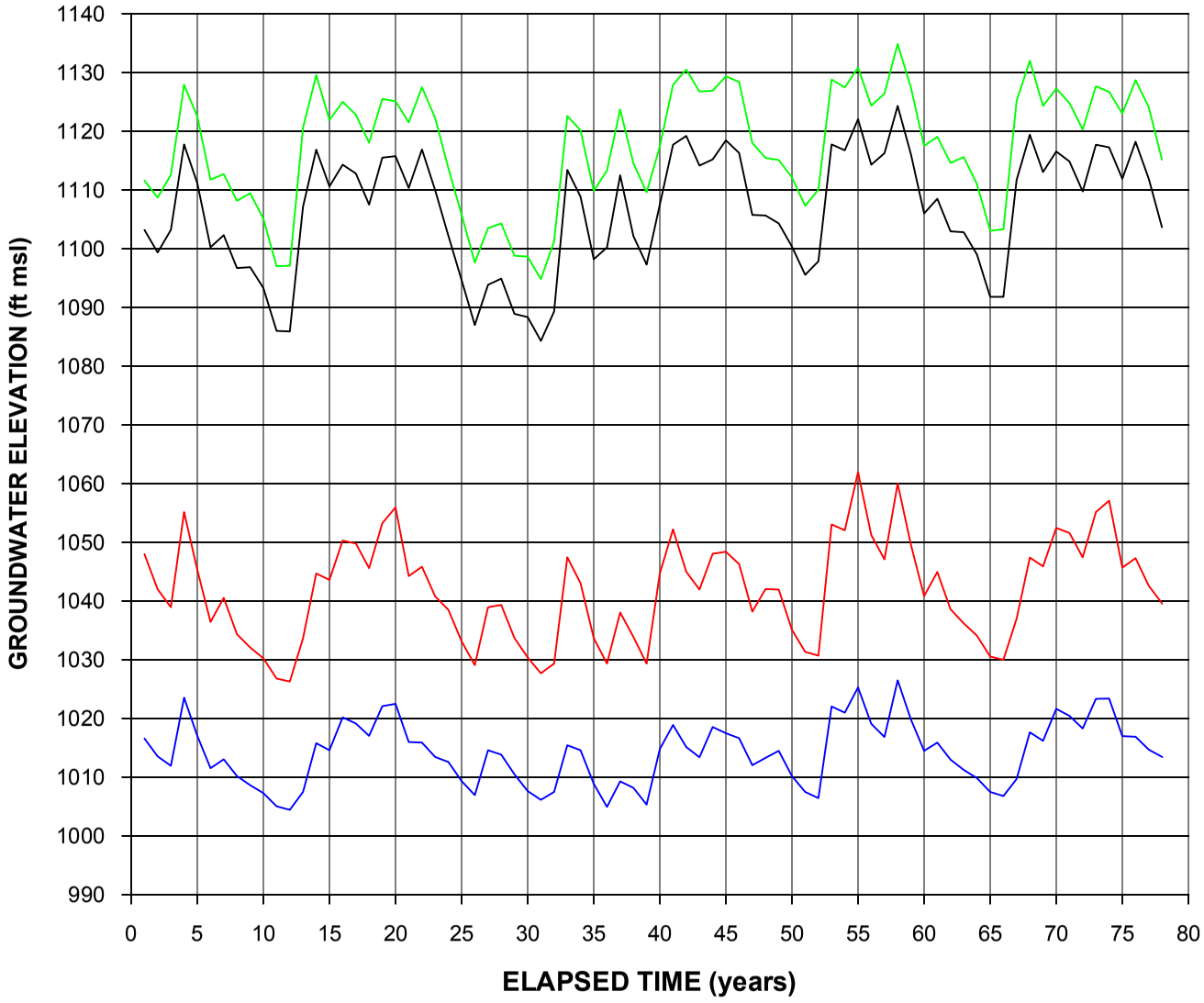
NOTES:

1. SEE FIGURE 2-4 FOR LOCATIONS OF WELLS.
2. LOWEST HISTORICAL GROUNDWATER ELEVATION FOR VWC- T4 = 1101 ft msl; ALLUVIUM BOTTOM ELEVATION ~1050 TO 1065 ft msl.
3. LOWEST HISTORICAL GROUNDWATER ELEVATION FOR LACFCD-7139G = 1289 ft msl; ALLUVIUM BOTTOM ELEVATION ~1256 ft msl OR LOWER.
4. LOWEST HISTORICAL GROUNDWATER ELEVATION FOR LACFCD-7178D = 1463 ft msl; ALLUVIUM BOTTOM ELEVATION ~1398 TO 1425 ft msl.
5. LOWEST HISTORICAL GROUNDWATER ELEVATION FOR LACFCD-7197D = 1474 ft msl; ALLUVIUM BOTTOM ELEVATION ~1423 TO 1447 ft msl.

FIGURE C-13
SIMULATED AVERAGE ANNUAL GROUNDWATER ELEVATIONS IN THE ALLUVIAL AQUIFER IN SOLEDAD CANYON
ANALYSIS OF GROUNDWATER BASIN YIELD
UPPER SANTA CLARA RIVER GROUNDWATER BASIN
EAST SUBBASIN, LOS ANGELES COUNTY, CALIFORNIA

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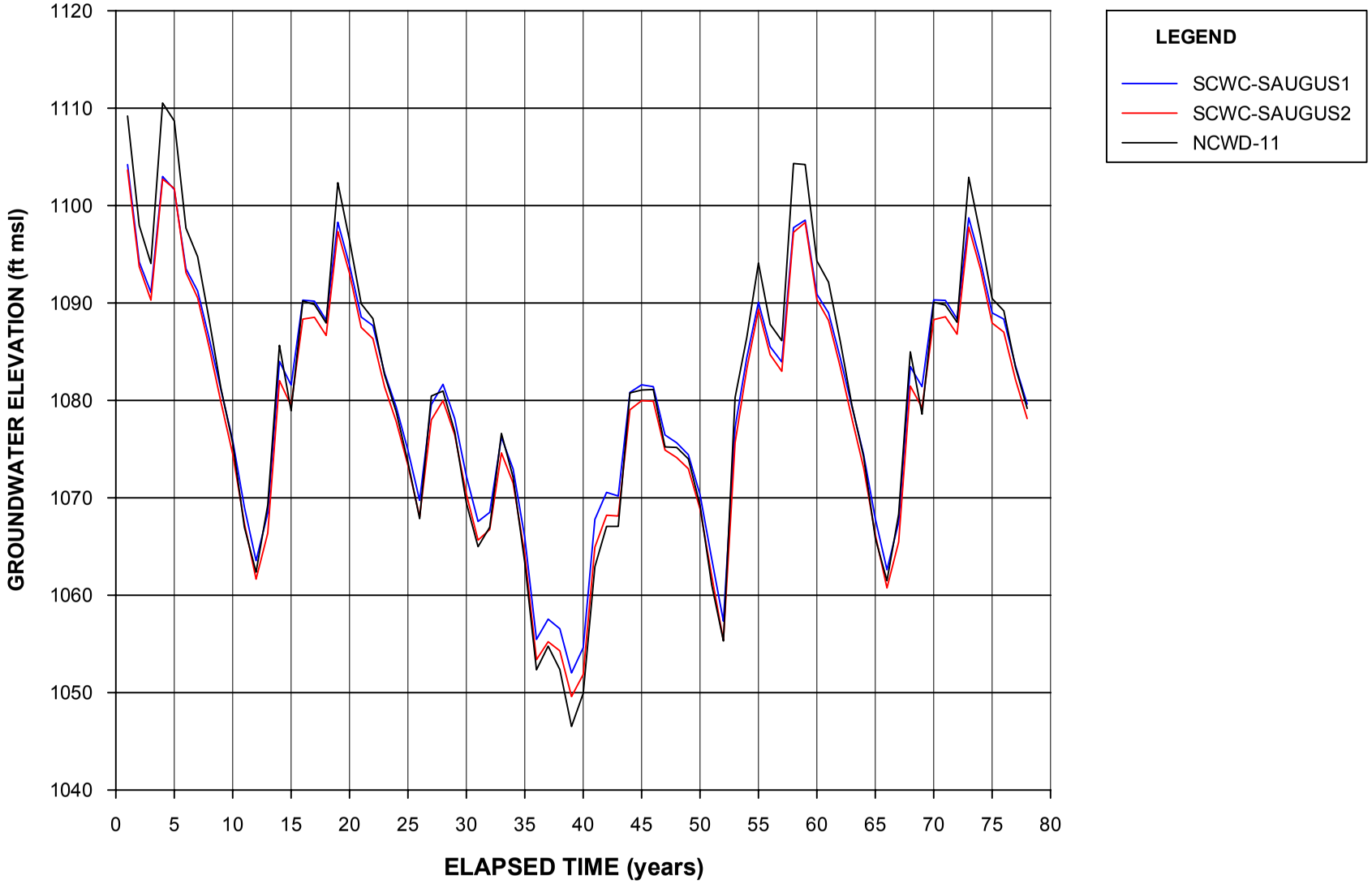
NOTE:

1. SEE FIGURE 2-4 FOR LOCATIONS OF WELLS.

FIGURE C-14
SIMULATED AVERAGE ANNUAL GROUNDWATER ELEVATIONS IN THE ALLUVIAL AQUIFER ALONG CASTAIC CREEK
ANALYSIS OF GROUNDWATER BASIN YIELD
UPPER SANTA CLARA RIVER GROUNDWATER BASIN
EAST SUBBASIN, LOS ANGELES COUNTY, CALIFORNIA

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NOTES:

1. SEE FIGURE 2-4 FOR LOCATIONS OF WELLS.
2. THESE WELLS ARE CONSTRUCTED IN THE SAUGUS FORMATION AND ARE NOT OPEN TO THE ALLUVIAL AQUIFER. THE SIMULATED HYDROGRAPHS AT THESE WELL LOCATIONS ARE FOR GROUNDWATER LEVELS IN THE ALLUVIAL AQUIFER, ABOVE THE OPEN INTERVALS OF THESE WELLS.

FIGURE C-15
SIMULATED AVERAGE ANNUAL GROUNDWATER ELEVATIONS IN THE ALLUVIAL AQUIFER ALONG THE SOUTH FORK SANTA CLARA RIVER
ANALYSIS OF GROUNDWATER BASIN YIELD
UPPER SANTA CLARA RIVER GROUNDWATER BASIN
EAST SUBBASIN, LOS ANGELES COUNTY, CALIFORNIA

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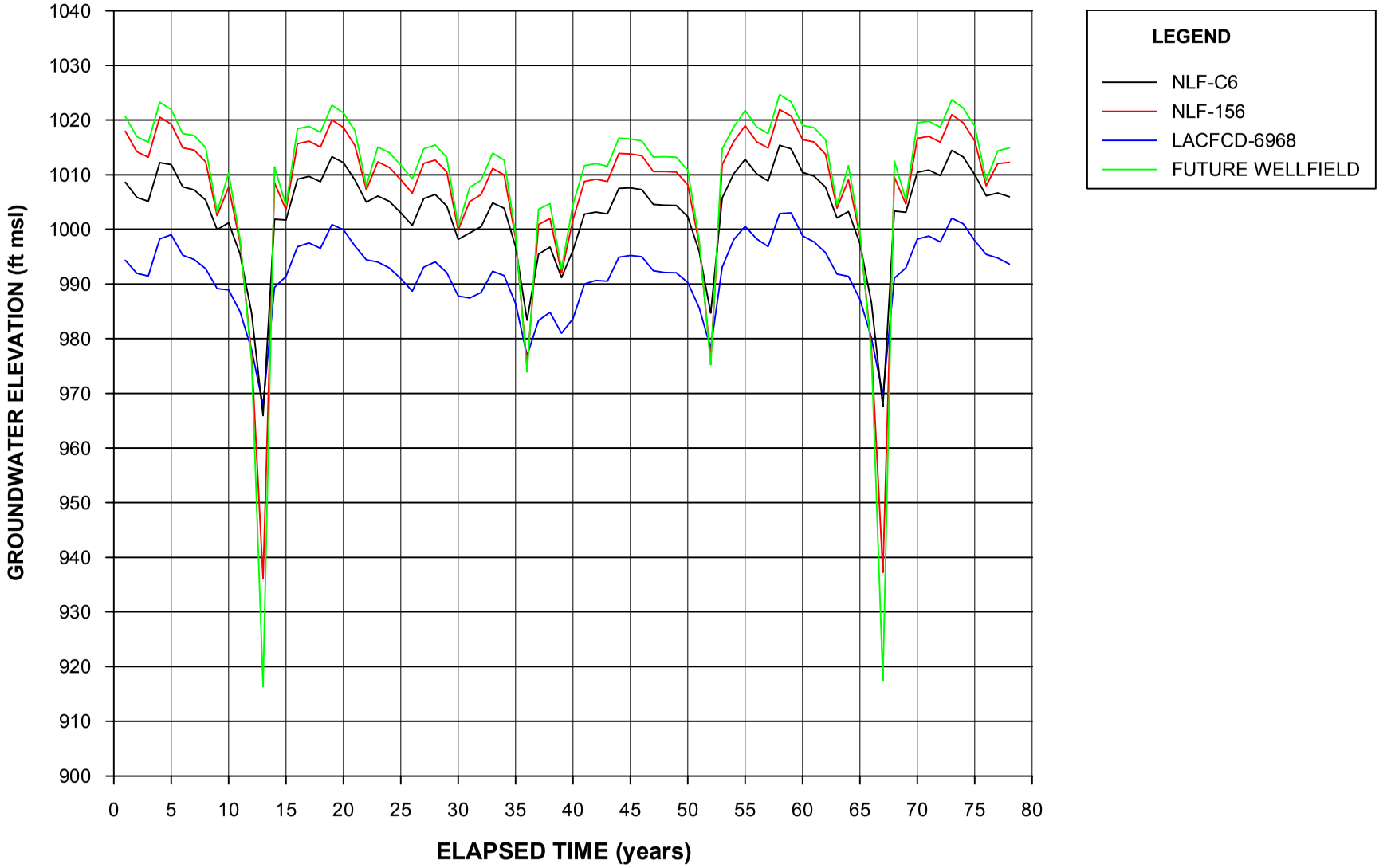
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Saugus Formation – Based partially on historical operating experience, complemented by extensive recent testing and groundwater modeling work as described herein, it is planned that the Saugus Formation aquifer can supply water on a long-term sustainable basis in a normal range of 7,500 to 15,000 afy, with intermittent increases to 25,000 to 35,000 af in multiple dry years. The dry-year increases result from limited historical observation, now complemented by modeled projections, that a small amount of the large groundwater storage in the Saugus Formation can be pumped over a relatively short (dry) period, followed by recharge (replenishment) of that storage during a subsequent wet to normal period when pumping would be reduced.

Until recently, the long-term sustainability of Saugus groundwater was empirically determined from limited historical experience. The historical record shows fairly low annual pumping in most years, with one four-year period of increased pumping up to about 15,000 afy, that produced no long-term depletion of the substantial groundwater storage in the Saugus. As with the Alluvium, those empirical observations have now been complemented by the development and application of the numerical groundwater flow model. The model has been used to examine aquifer response to the operating plan for pumping from both the Alluvium and the Saugus, and to examine the effectiveness of pumping for both contaminant extraction and control of contaminant migration within the Saugus Formation.

To examine the yield of the Saugus Formation or, in other words, its sustainability on a renewable basis, the groundwater flow model was used to examine long-term projected response to pumping from both the Alluvium and the Saugus, over the 78-year period of hydrologic conditions to introduce alternating wet and dry periods as have historically occurred. The pumping simulated in the model was in accordance with the operating plan for the Basin. For the Saugus, simulated pumpage included the planned restoration of recent historic pumping from the perchlorate-impacted wells. That pumping was analyzed to assess, in addition to the overall recharge of the Saugus, the effectiveness of controlling the migration of perchlorate by extracting and treating contaminated water close to the source of contamination.

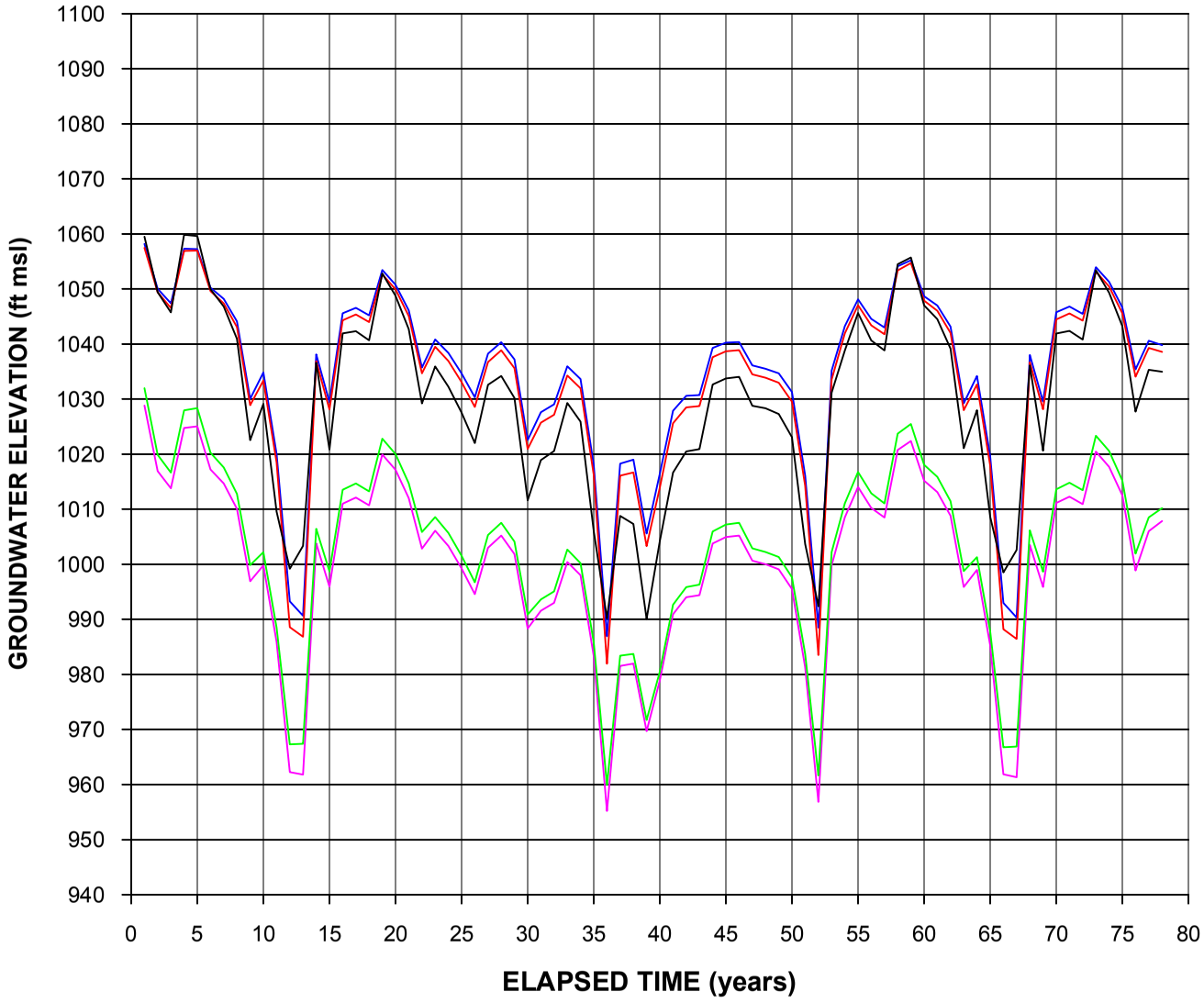
Simulated Saugus Formation response to the ranges of pumping under assumed recurrent historical hydrologic conditions was consistent with actual experience under smaller pumping rates. The response consisted of (1) short-term declines in groundwater levels and storage near pumped wells during dry-period pumping, (2) rapid recovery of groundwater levels and storage after cessation of dry-period pumping, and (3) no long-term decreases or depletion of groundwater levels or storage. Examples of projected groundwater levels and storage around the planned Saugus pumping areas are illustrated in Figures C-16 and C-17. The combination of actual experience with Saugus pumping and recharge up to about 15,000 afy, now complemented by modeled projections of aquifer response that show long-term utility of the Saugus at 7,500 to 15,000 afy in normal years and rapid recovery from higher pumping rates during intermittent dry periods, shows that the Saugus Formation can be considered a sustainable water supply source to meet the Saugus portion of the operating plan for the groundwater Basin.



NOTES:

1. SEE FIGURE 2-4 FOR LOCATIONS OF WELLS.
2. WELLS NLF-C6 AND LACFCD-6968 ARE CONSTRUCTED IN THE ALLUVIAL AQUIFER AND ARE NOT OPEN TO THE SAUGUS FORMATION. THE SIMULATED HYDROGRAPHS SHOWN AT THESE WELL LOCATIONS ARE FOR GROUNDWATER LEVELS IN THE SAUGUS FORMATION, BELOW THE OPEN INTERVALS OF THESE WELLS.
3. THE SIMULATED HYDROGRAPH FOR THE FUTURE WELLFIELD IS FOR A MODEL NODE WITH NO ASSIGNED PUMPING, LOCATED INSIDE THE WELLFIELD NEAR VWC-206.

FIGURE C-16
SIMULATED AVERAGE ANNUAL GROUNDWATER ELEVATIONS IN THE SAUGUS FORMATION WEST OF INTERSTATE 5
ANALYSIS OF GROUNDWATER BASIN YIELD
UPPER SANTA CLARA RIVER GROUNDWATER BASIN
EAST SUBBASIN, LOS ANGELES COUNTY, CALIFORNIA



NOTE:

1. SEE FIGURE 2-4 FOR LOCATIONS OF WELLS.

FIGURE C-17
SIMULATED AVERAGE ANNUAL GROUNDWATER ELEVATIONS IN THE SAUGUS FORMATION EAST OF INTERSTATE 5
ANALYSIS OF GROUNDWATER BASIN YIELD
UPPER SANTA CLARA RIVER GROUNDWATER BASIN
EAST SUBBASIN, LOS ANGELES COUNTY, CALIFORNIA

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Appendix D

Contamination and Impact on Groundwater Supplies in the Santa Clarita Valley

Appendix D

Perchlorate Contamination and Impact on Groundwater Supplies in the Santa Clarita Valley

Introduction

The detection of perchlorate in Santa Clarita Valley groundwater supplies has raised concerns over the reliability of those supplies, in particular the Saugus Formation where four wells have been removed from active service as a result of perchlorate. As discussed below, planning for remediation of the perchlorate and restoration of the impacted well capacity is substantially underway. While that work is being completed, non-impacted production facilities can be relied upon for the quantities of water projected to be available from the Alluvial Aquifer and Saugus Formation during the time necessary to restore perchlorate-impacted wells. CLWA, the local retail water purveyors, the California Department of Toxic Substances Control (DTSC), and the U.S. Army Corps of Engineers (ACOE) continue to work closely on the perchlorate contamination issue, which reasonably ensures a prompt response to any significant changes in conditions.

The following is a discussion of pertinent events related to perchlorate contamination. This discussion is provided to illustrate that work toward the ultimate remediation of the perchlorate contamination, including the reactivation of impacted groundwater supply wells, has progressed on several integrated fronts over the last four years. The following discussion is organized into a section which summarizes the on-site investigations and clean-up activities which are under the regulatory control of DTSC, followed by several sections that focus on various aspects of the off-site impacts of perchlorate on water supply wells, and the ongoing activities to remediate that problem and restore the impacted water supply.

On-Site Investigations and Clean-up

On-site investigation is substantially underway and clean-up is in the planning stages at the former Whittaker-Bermite facility. The on-site investigation and clean-up activities at the source of the contamination are under the regulatory authority and control of DTSC.

Brief History[1]

The Whittaker-Bermite site is located in the center of the Santa Clarita Valley and was operated as an explosives and munitions manufacturing, testing, and storage facility since the late 1930's. It was first owned by the Los Angeles Powder Company and later by Golden State Fireworks, the Halifax Explosives Company, the Bermite Powder Company, and the Whittaker Corporation (Whittaker), which assumed ownership of the site in 1967. Under contracts with the U.S. Department of Defense, Whittaker Corporation used perchlorate in the manufacture of solid propellants for rockets and missiles until operations ceased in 1987. There is a long history of

[1] See, "General Site History," Whittaker Bermite Clean-Up, http://www.whittaker-bermite.com/history.html, pp. 1-3.

perchlorate use and other chemical use at the site, and recent surface and subsurface investigations at the site have revealed the presence of perchlorate and other contaminants in soil and groundwater.

The contaminants found in the soil that require clean-up are perchlorate and volatile organic compounds (VOCs). These chemicals were used in the manufacturing and testing of fireworks, dynamite, oil-field explosives, and munitions. The site consists of about 996 acres, with actual production facilities occupying approximately 50 acres. The property is characterized by chaparral covering the undisturbed portions of the site, fire breaks, dirt roads and remnants of facility foundations and buildings. The surrounding areas include commercial, light industrial, and residential land uses. The facility was closed in 1987 and most of the structures on the property were removed at or about that time.

Between 1987 and 1998, Whittaker conducted environmental investigations and clean-up activities under the supervision of DTSC and its predecessor agency. In 1994, Whittaker entered into an enforceable agreement with DTSC to conduct a comprehensive site-wide investigation of areas of concern. In early 1997, with the remedial investigations underway, DTSC informed Whittaker that the soils, groundwater, and surface runoff would have to be reassessed for the presence of perchlorate, a compound that had been unregulated during the entire period of manufacturing at the site.

In 1998, Whittaker sold the property to Santa Clarita LLC, a brownfield development company. In addition to assuming all clean-up responsibilities, Santa Clarita LLC acquired the right to develop the property contingent upon the full cleanup and certification of the property's reuse by DTSC. Between 1999 and 2001, Santa Clarita LLC continued and expanded the site investigation and clean-up programs that had been initiated by Whittaker under the 1994 agreement. In 2002, however, with Santa Clarita LLC unable to fund additional site work due to financial difficulties, DTSC opened negotiations with Whittaker to resume site investigation and clean-up work. In November 2002, DTSC issued an Order that required Whittaker to complete the site investigations and feasibility studies for all contaminants of concern under a tight time schedule.

Recent Site Activities[2]

Because the site is so large, DTSC has divided the property into separate and distinct areas called Operable Units (OUs), which are defined largely by topographic features as shown in Figure D-1. OUs 1 through 6 comprise soils and perched groundwater zones from the ground surface to 200 feet below grade. OU-7 comprises soils below 200 feet from grade and site-wide groundwater and surface water, including any off-site migration of contaminants.

[2] See, "Recent Site Activities," http://www.whittaker-bermite.com/recent.html, pp. 1-5; see also, letter from Hassan Amini, Ph.D., C.HG., Geomatrix Consultants, Inc., to Sayareh Amir, DTSC, dated August 20, 2004, pp. 1-20; and letters from Hassan Amini, Ph.D., C.HG., Geomatrix Consultants, Inc., to Sayareh Amir, DTSC, dated August 25 and 26, 2004.

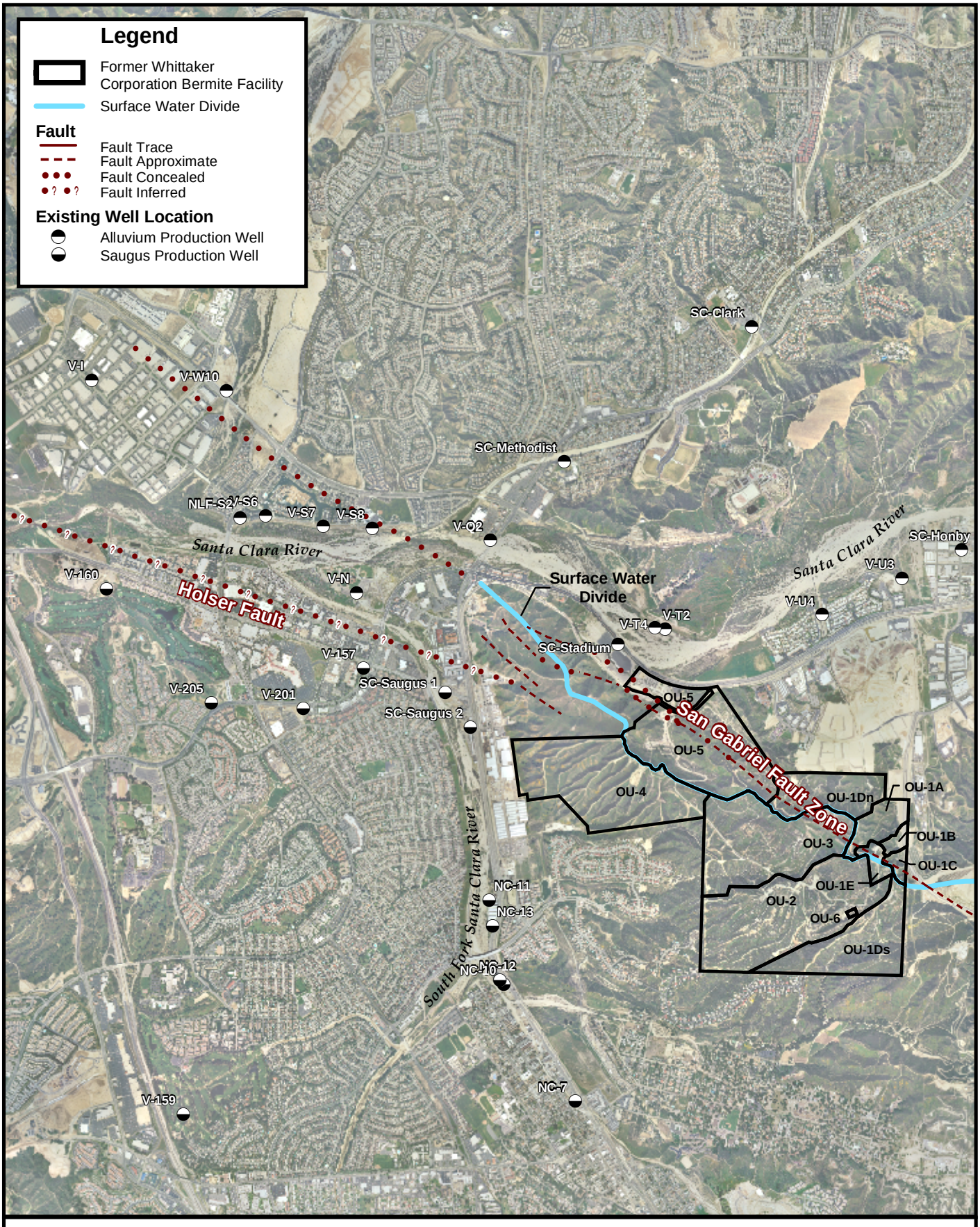


Figure D-1
Site Location
Former Whittaker-Bermite Facility

In complying with DTSC's Order, Whittaker consultants and contractors have conducted a significant amount of work since December 2002. The work has been performed pursuant to workplans submitted to and approved by DTSC. The principal activities, summarized by OU, include (1) additional remedial investigations, including soil samples, borings, exploratory trenching, and groundwater monitoring wells, (2) feasibility reports, treatability studies, and pilot tests, and (3) remedial action plans.[3] These efforts have included expediting the final remedial investigation reports, feasibility studies and remedial action plan for OU-1 soils. The final draft remedial action plan for OU-1 was submitted to DTSC in May 2004, and represents the results of efforts to initiate soil remediation work this year in some of the key source areas.[4]

In October 2004, DTSC issued a second public notice requesting comments on DTSC's proposal to clean-up perchlorate and other contaminants in the soil at OU-1.[5] Because of the different chemical and physical properties of the contaminants and the different types of soils in the impacted areas, DTSC has evaluated seven soil remediation alternatives that would protect human health and the environment. DTSC proposes to clean up perchlorate and VOCs in the soil by using a combination of the identified remediation alternatives.[6]

In addition, remedial investigation field work for the soil in OUs 2, 3, 4, 5 and 6 is almost complete, with the investigation results indicating it would be most expedient to conduct the remaining remedial response work for soils by modifying DTSC's Order to allow Whittaker to prepare and submit comprehensive site-wide documents for soil clean-up (e.g., remedial investigation, feasibility study, baseline risk assessment, and remedial action plan), rather than OU-specific documents.[7]

Whittaker also recently submitted a letter to DTSC requesting modifications to DTSC's Order, as it relates to the groundwater remedial response work for the area designated OU-7.[8] Although substantial progress has been made in OU-7, the remedial investigation and feasibility study field work for OU-7 is still ongoing.[9] Whittaker has proposed a tentative schedule for completing site-wide investigation and groundwater remediation work. The work is scheduled to be completed in 2005.[10]

In OU-7, in close coordination with the ACOE, CLWA, and local retail water purveyors, Whittaker has been conducting remedial investigation and clean-up work with respect to production wells impacted by the perchlorate contamination.[11] As part of that effort, ACOE has

[3] See, "Recent Site Activities," http://www.whittaker-bermite.com/recent.html, pp. 1-4.
[4] See, letter from Hassan Amini, Ph.D., C.HG., Geomatrix Consultants, Inc., to Sayareh Amir, DTSC, dated August 20, 2004, p. 1.
[5] See, DTSC: Site Cleanup, Whittaker-Bermite Facility (former), Fact Sheet - October 2004, http://www.dtsc.ca.gov/SiteCleanup/Whittaker_Bermite/, p. 2.
[6] See, DTSC: Site Cleanup, Whittaker-Bermite Facility (former), Fact Sheet - May 2004, http://www.dtsc.ca.gov/SiteCleanup/Whittaker_Bermite/, p. 2.
[7] See, letter from Hassan Amini, Ph.D., C.HG., Geomatrix Consultants, Inc., to Sayareh Amir, DTSC, dated August 25, 2004, pp. 1-2.
[8] See, letter from Hassan Amini, Ph.D., C.HG., Geomatrix Consultants, Inc., to Sayareh Amir, DTSC, dated August 26, 2004, pp. 1-2.
[9] *Id.*
[10] *Id.*
[11] See, "Recent Site Activities," http://www.whittaker-bermite.com/recent.html, p. 4.

been investigating the nature and extent of the perchlorate contamination impacting the production wells. In OU-7, Whittaker, CLWA, the local retail water purveyors, and ACOE have conducted the following remedial investigation and feasibility study work in 2002-2004:

- Installed and sampled approximately 30 temporary Alluvial Aquifer monitoring wells
- Installed 12 permanent Alluvial Aquifer monitoring wells
- Installed and sampled six temporary Saugus monitoring wells on and off the site
- Installed five deep multi-port Saugus monitoring wells, four within the site boundaries and one off-site
- Installed one deep single-port Saugus monitoring well within the site boundaries
- Installed cluster wells at four locations to monitor discrete Saugus Formation zones, two within and two outside the site boundaries
- Conducted several rounds of groundwater monitoring for new and existing wells
- Constructed and calibrated a computer model capable of simulating aquifer conditions for development and evaluation of plume containment and treatment strategies
- Conducted aquifer pumping and permeability tests
- Conducted sampling of some of the impacted production wells
- Conducted pilot-scale testing of above-ground treatment options for removing perchlorate from drinking water, including ion exchange and bioremediation.[12]

Remedial response actions for groundwater is continuing through 2005. The schedule contemplates additional remedial investigations, feasibility studies, interim remedial measures, and a remedial action plan for groundwater. The remedial action plan will include the design, construction, and commencement of treatment of perchlorate-contaminated groundwater from two of the retail water purveyors' impacted production wells, which would concurrently provide treated potable water and contain and capture the OU-7 perchlorate plume along its downgradient edges. [13]

For contaminated surface waters on site, Whittaker updated the site-wide surface water sampling plan subject to the approval of DTSC and the Regional Water Quality Control Board (RWQCB).[14] Whittaker collected surface water samples from the primary site drainages during winter storm events in 2003 and 2004. In addition, Whittaker updated the site's stormwater pollution plan and devised and implemented erosion control measures in various areas of the site. Whittaker also conducted a sediment sampling program for the principal drainage areas.[15]

[12] *Id.* at pp. 4-5.
[13] See, letter from Hassan Amini, Ph.D., C.HG., Geomatrix Consultants, Inc., to Sayareh Amir, DTSC, dated August 20, 2004, pp. 16-19.
[14] See, "Recent Site Activities," http://www.whittaker-bermite.com/recent.html, p. 5.
[15] *Id.*

In short, the investigation of on-site sources of the perchlorate contamination and evaluation of clean-up options are substantially underway and closely monitored by DTSC (soils and groundwater), RWQCB (surface water), and ACOE (groundwater).

Perchlorate Impacted Water Purveyor Wells

As previously noted, in 1997, perchlorate was detected in four Saugus Formation production wells operating near the former Whittaker-Bermite site. These wells, CLWA Santa Clarita Water Division's (SCWD) Wells Saugus 1 and Saugus 2, Newhall County Water District's (NCWD) Well NC-11 and Valencia Water Company's (VWC) Well V-157, were removed from service. In 2002, perchlorate was detected in the SCWD Stadium well located directly adjacent to the Whittaker-Bermite site. This Alluvial well was also removed from service. Locations of the impacted wells, and other nearby non-impacted wells, relative to the Whittaker-Bermite site are shown on Figure D-1.

Since the detection of perchlorate and resultant inactivation of impacted wells, the retail water purveyors have been conducting regular monitoring of active wells near the Whittaker-Bermite site. In late March 2005, that monitoring detected the presence of perchlorate in VWC's Well Q2, an Alluvial well located immediately northwest of the confluent of Bouquet Creek and the Santa Clara River. As a result of the detection and confirmation of perchlorate in its Well Q2, VWC removed the well from active service and pursued rapid permitting and installation of wellhead treatment. The well was returned to water supply service in October 2005.

Regulatory Standards for Perchlorate

Perchlorate is a chemical salt and is very soluble in water. It is also very mobile in water and is persistent (i.e., doesn't degrade) under typical environmental conditions. The applicable drinking water standards for perchlorate are summarized below.

On December 6, 2002, the California Office of Environmental Health Hazard Assessment (OEHHA) proposed a public health goal (PHG) for the amount of perchlorate present in drinking water. OEHHA's proposal suggested a range of 2 to 6 micrograms per liter (µg/l). A proposed PHG is a theoretical calculation that initiates a thorough, multi-year standard-setting process by DHS. An adopted PHG reflects a very stringent health standard and is not an enforceable drinking water standard. A final PHG contributes to DHS' development of a Maximum Contaminant Level (MCL), which is an enforceable drinking water standard. DHS is required to establish an MCL at a level as close as is technically and economically feasible to the PHG.

In addition to OEHHA's proposal, DHS was required to adopt an MCL for perchlorate by January 1, 2004. However, this date has been extended into 2005 to allow additional review and study by DHS. Presently, there is no drinking water standard, or MCL, for perchlorate, only a provisional limit called an "action level". The perchlorate advisory action level is currently 6 µg/l, and is not an enforceable standard.

When perchlorate was first discovered in California drinking water supplies in 1997, DHS set the advisory action level at 18 µg/l. It was revised to 4 µg/l in January 2002 and then finally to its current level of 6 µg/l in March 2004. In September 2004, Assembly Bill 2528 was signed into law by Governor Schwarzenegger. This bill eliminates the term "action level" and replaces it with two new terms, "notification level" and "response level". This new terminology became

effective January 2005. However, DHS has advised public water systems that they may use the new terminology in advance of the effective date. Using this new approach, the term "notification level" is the same as the "action level". With respect to perchlorate, the notification level would be 6 µg/l and DHS recommends that the utility provide information to its customers about the presence of the contaminant using its annual consumer confidence report. The response level for perchlorate is 10 times the notification level, or 60 µg/l. At this level, DHS recommends the source be removed from service. At perchlorate levels greater than ten times the action level (or 60 µg/l), DHS recommends (or may require) that a water system remove the source(s) of supply with that concentrations from service. However, with the primary interest of protecting public health from those contaminants regulated by an action level, water utilities normally employ conservative operations by limiting use of the contaminated source, or elect to deliver an alternate source of supply until DHS establishes an enforceable drinking water standard (i.e., MCL). Accordingly, the local retail water purveyors removed all the perchlorate-impacted wells from active water supply service. At present, while prepared to comply with evolving terms, the retail water purveyors have adopted an intended goal in restoring impacted capacity to utilize groundwater for water supply at non-detect concentrations of perchlorate. This goal is consistent with the DHS Policy 97-005 for use of impaired water sources.

Water Purveyor Litigation and Interim Settlement

On November 29, 2000, CLWA and the local retail water purveyors filed suit against the current and prior owners of the Whittaker-Bermite facility. The lawsuit includes causes of action relating to payment of all necessary costs of response, removal of the perchlorate contamination, payment of remediation action costs, and compensation for other damages associated with the perchlorate contamination. CLWA and the local retail water purveyors have incurred substantial response costs and other expenses as a result of production lost on account of the contamination. As a result, CLWA's purveyors have used SWP water to make up for lost groundwater production.

In late summer 2003, CLWA, the local retail water purveyors, Whittaker and Remediation Financial, Inc. (RFI) and Santa Clarita LLC (SCLLC) entered into an interim settlement agreement, in which the parties agreed to work cooperatively for a minimum of one year to further define long-term costs and possibly achieve a long-term settlement. The interim settlement agreement specifies that Whittaker, RFI, and SCLLC and/or their insurers will reimburse certain past costs as well as fund studies and prepare cost estimates for the clean-up plan that will restore water production and capacity of the impacted wells and protect other wells from future contamination. The interim settlement provided for a one-year stay of the lawsuit between the parties and was subsequently amended to extend the stay through January 31, 2005. This has allowed the parties to focus on the final elements of the clean-up plan, which will be submitted to the regulatory agencies in early 2005. The parties continue negotiations to reach a complete settlement.

United States Army Corps of Engineers (ACOE) Groundwater Study

In early 2002, the owner of the Whittaker-Bermite property and CLWA initiated efforts to obtain federal assistance to conduct onsite and off-site groundwater investigations. Through Congressman McKeon, an initial federal authorization of seven million dollars was provided in the form of participation by the ACOE.

Toward that end, on April 11, 2002, ACOE and CLWA entered into a Feasibility Cost-Sharing Agreement to study and locate the source of perchlorate contamination, and other contaminants of interest (COI), in the groundwater in the Santa Clarita Valley. The main objective of the ACOE/CLWA study is to sufficiently characterize the existing groundwater conditions, develop and evaluate both interim and long-term solutions to the contamination and address the contaminated groundwater in the study area, which includes the former Whittaker-Bermite facility and areas adjacent to the property. The project is being implemented pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and in October 2004, the ACOE issued its report entitled, "Draft Final Conceptual Hydrology Memorandum, Eastern Santa Clara Subbasin Study, Santa Clarita, California".[16]

ACOE is actively testing the groundwater in the region in two major phases. ACOE completed five rounds of groundwater sampling in the Saugus Formation and the Alluvial Aquifer between October 2002 and April 2004.[17] ACOE drilled over 8,500 linear feet in the study area, and installed 41 groundwater monitoring wells at 11 different locations. Groundwater sampling was performed at all 41 wells, collecting a total of 149 groundwater samples. The testing began with an initial baseline assessment of each well[18] and was followed by additional groundwater sampling events of each well.[19] As a result of the testing program, ACOE identified the concentrated source areas, began tracing and understanding the contaminant plume, and developed two-dimensional geologic cross-sectional drawings of the study area.[20]

As a result of the sampling program, ACOE determined that perchlorate appears to be one of the primary COIs in the groundwater.[21] Perchlorate was detected in a monitoring well and reconnaissance sampling points in the Alluvial Aquifer approximately one mile west of the former Whittaker-Bermite facility at Bouquet Junction.[22] Additionally, ACOE found perchlorate in a monitoring well in the Alluvial Aquifer at the mouth of Oakdale Canyon in the South Fork of the Santa Clara River, apparently caused by surface water runoff from the former Whittaker-Bermite facility.[23] Testing at this monitoring well has revealed that perchlorate may have migrated vertically into the Saugus Formation at this location, which may have caused the contamination of the NC-11 well, one of the wells that has been inactivated.[24]

[16] See, ACOE, Los Angeles District, Draft Final Conceptual Hydrogeology Technical Memorandum (Memorandum), October, 2004, p.ES-1.
[17] See, Memorandum, p.ES-2; see also, ACOE, Los Angeles District, Citizens Advisory Group Update on City of Santa Clarita Eastern Santa Clara Subbasin Groundwater Study (Update), June 9, 2004, p.6.
[18] The initial baseline sampling tested for perchlorate, volatile organic compounds (VOCs), explosive compounds, nitrosamines and other contaminants of interest (COIs) (i.e., 1,4-dioxane, semivolatile organic compounds (SVOCs), chlorate, gross alpha and gross beta, cyanide and hexavalent chromium). The wells were also tested for metals (including major cations), major anions, alkalinity, total Kjedahl nitrogen (TKN), nitrate, ammonia, total dissolved solids (TDS), biochemical oxygen demand (BOD), chemical oxygen demand (COD) and total organic compound (TOC). See, Memorandum, p.ES-3.
[19] See, Memorandum, p.ES-3; Section 6.1.
[20] See, Update, p.7.
[21] See, Memorandum, p.ES-5; Section 6.1.
[22] See, Memorandum, p.ES-5; Section 6.1; see also, Update, p.15.
[23] See, Memorandum, p. ES-5; see also, Update, p.16.
[24] See, Memorandum, p.ES-5; Section 6.1.

In the Saugus Formation, ACOE found perchlorate in a monitoring well west of Bouquet Junction, over two miles from the former Whittaker-Bermite facility.[25] However, it appears that the impact on groundwater in this area of the Saugus Formation may be limited to the upper portions of the Saugus Formation, as the contamination was not detected below hydrostratigraphic unit (HSU) SIII. The contamination of the V-157 and SC-Saugus 1 and 2 wells, which also have been deactivated, appears to be caused by the vertical downward migration of perchlorate in HSU SIII, and lateral migration away from the source areas. It also appears that the NC-11 well also may have been impacted by this contaminant plume.[26]

As a result of ACOE's work to date, the extent of perchlorate contamination in the Santa Clara region is better understood. Further work will continue to define the lateral and vertical extent of the contaminated groundwater in the Saugus Formation and Alluvial Aquifer, and evaluate potential changes in groundwater contaminants over time.[27] Therefore, ACOE plans to continue integrating its current study results with other ongoing investigations in the area, including the remedial investigation by the Whittaker Company and the response activities undertaken by CLWA and the local retail water purveyors for impacted production wells.[28] ACOE also intends to complete further focused sampling programs and prepare follow-up technical memoranda of those test results.[29]

Based on the knowledge obtained by its testing and analysis, ACOE plans to implement interim remedial measures at selected locations to reduce the perchlorate concentration before it can disperse and/or interfere with the known transportation pathways. By these efforts, ACOE, in coordination with response actions of the property with oversight from DTSC, anticipates preventing further contamination and establishing source control.[30]

DTSC/CLWA/Purveyor Environmental Oversight Agreement

In February 2003, DTSC and CLWA, NCWD, SCWD, and VWC entered into an Environmental Oversight Agreement (Agreement) whereby DTSC provides review and oversight of the response activities being undertaken by CLWA and the local retail water purveyors relating to the detection of perchlorate in the five impacted wells.

The significance of the Agreement lies in the response actions to be undertaken in its "Scope of Work" (Exhibit B to the Agreement). Under the Scope of Work, CLWA and the retail water purveyors will prepare (1) Well Characterization Reports, (2) a Health-Based Risk Assessment, (3) a Regional Groundwater Flow Model, and (4) a Treatment Technology Evaluation Report. The regional groundwater flow model and the treatment technology evaluation are key inputs to the permitting for restoring the impacted wells by returning them to water supply service as described below. Both have been completed and are being utilized in conjunction to control contamination migration and restore impacted water supply well capacity. Most importantly, under the Scope of Work, CLWA and the retail water purveyors will prepare and implement a

[25] See, Memorandum, P.ES-5; see also, Update, p.9.
[26] See, Memorandum, p. ES-5; Section 6.1.
[27] See, Memorandum, p.ES-6; Section 6.2.
[28] See, Memorandum, p.ES-1.
[29] See, Update, p.17.
[30] See, ACOE, Los Angeles District, "Citizens Advisory Group Update on City of Santa Clarita Eastern Santa Clara Subbasin Groundwater Study," June 9, 2004, p.18.

Remedial Action Plan (RAP) that will be used in connection with water treatment programs and/or well relocation. The RAP is important to the retail water purveyors, who have been working cooperatively with DTSC to implement the groundwater clean-up. CLWA is planning to submit the RAP to DTSC for its review in early 2005.

Treatment Technology

A number of full scale perchlorate treatment systems have been implemented in California and other states. In an effort to evaluate the various available treatment technologies, CLWA commissioned an investigation to identify and evaluate alternative treatment processes effective in removing perchlorate. The scope of that investigation includes resolving permitting issues pertaining to the construction and certification of a treatment facility, conducting bench-scale and pilot-scale tests to determine treatment process performance, and preparing preliminary capital and operations and maintenance cost estimates.

Three treatment technologies, an ion exchange system and two biological systems, were selected for study. The report "Treatment of Perchlorate Contaminated Groundwater from the Saugus Aquifer, TM 3 Bench and Pilot Test Results" (Carollo Engineers, February 2004), concluded that all three systems were effective in removing perchlorate. However, there was considerable uncertainty with respect to the capital and operations and maintenance costs associated with each process. Therefore, a technical group comprised of representatives from CLWA, the retail water purveyors, and consultants retained by Whittaker-Bermite agreed to solicit competitive bids for the design, construction, and operation of both ion exchange and biological treatment systems. After thorough evaluation of several bids, the technical group determined that ion exchange is the preferred technology based upon treatment performance, ease of regulatory compliance, and comparison of costs associated with construction and operations and maintenance.

The preferred single-pass ion exchange treatment technology does not generate a concentrated perchlorate waste stream that would require additional treatment before discharge to a sanitary sewer or a brine line (if one is available). This technology incorporates an active resin (a material that attracts perchlorate molecules) that safely removes the perchlorate from water. The resin is contained in pressure vessels and the water is pumped through the vessel. The resin is eventually replaced with new resin after a period of time. The old resin is removed and transported by truck to an approved waste disposal site where it is safely destroyed. This technology is robust and reliable for use in drinking water systems. DHS has approved operation of the perchlorate treatment plants currently in operation at the following locations:

- La Puente Valley Water District (2,500 gpm)
- San Gabriel Valley Water Company, El Monte (7,800 gpm)
- California Domestic Water Company, Whittier (5,000 gpm)
- City of Riverside (2,000 gpm)
- West San Bernardino Water District, Rialto (2,000 gpm)
- City of Rialto (2,000 gpm)
- City of Colton (3,500 gpm)
- Fontana Union WC (5,000 gpm)
- City of Pomona (10,000 gpm)

Based on (1) the results of CLWA's investigation of perchlorate removal technologies, (2) the technical group's evaluation, and (3) DHS' approval of single-pass ion exchange for treatment in other settings, CLWA and the local retail water purveyors are planning single-pass ion exchange for the treatment technology for restoration of impacted capacity (wells) in accordance with the permitting, testing, and installation process as currently scheduled and described in the next section. The wellhead treatment installed at VWC Well Q2 is the same single-pass ion exchange as is planned for restoration of impacted Saugus well capacity.

Restoration of Perchlorate Impacted Water Supply

Since the detection of perchlorate in the four Saugus wells in 1997, CLWA and the retail water purveyors have recognized that one element of an overall remediation program would most likely include pumping from impacted wells, or from other wells in the immediate area, to establish hydraulic conditions that would control the migration of contamination from further impacting the aquifer in a downgradient (westerly) direction. Thus, CLWA and the retail water purveyors expect that the overall perchlorate remediation program could include dedicated pumping from some or all of the impacted wells, with appropriate treatment, such that two desirable objectives could both be achieved. The first objective is control of subsurface flow and protection of downgradient wells and the second is restoration of some or all of the contaminated water supply. Not all impacted capacity is required for control of groundwater flow. The remaining capacity would be replaced by construction of replacement wells at other non-impacted locations.

In cooperation with state regulatory agencies and investigators working for Whittaker-Bermite, CLWA and the local retail water purveyors developed an off-site plan that focuses on the above concepts of groundwater flow control and restored pumping capacity and is compatible with on-site and possibly other off-site remediation activities. Specifically relating to water supply, the plan includes the following:

- Constructing and operating a water treatment process that removes perchlorate from two impacted wells such that the produced water can be used for municipal supply
- Hydraulically containing the perchlorate contamination moving from the Whittaker-Bermite site toward the impacted wells by pumping the wells at rates that will capture water from all directions around them
- Protecting the downgradient non-impacted wells through the same hydraulic containment that results from pumping two of the impacted wells
- Restoring the annual volumes of water that were pumped from the impacted wells before they were inactivated, and also restoring the wells' total capacity to produce water in a manner consistent with the retail water purveyor's operational plan for groundwater supply

The current schedule for implementation of the plan to restore contaminated water supply (wells) is illustrated in Figure D-2. Included in the schedule is a planned extended test of the wells that will be returned to service as part of restoring contaminated water supply and that will also be operated to extract contaminated water and control the migration of contamination in the aquifer. Concurrent with the testing of the wells, several specific ion exchange resins will also be tested to evaluate their performance and longevity. The two key activities that comprise the majority of

effort required for implementation of the plan are general facilities-related work (design and construction of well facilities, treatment equipment, pipelines, etc.) and permitting work. Both activities are planned and scheduled concurrently resulting in planned completion (i.e., restoration of all impacted capacity) in 2006. Notable recent accomplishments toward implementation include completion of the Final Draft Interim Remedial Action Plan (RAP) in August 2005 and completion of environmental review with the adoption of a Mitigated Negative Declaration in September 2005.

In light of the preceding, with regard to the adequacy of groundwater as the local component of water supply in this UWMP, the impacted capacity will remain unavailable into 2006, during which time the non-impacted groundwater supply will be sufficient to meet near-term water requirements. Afterwards, the total groundwater capacity will be sufficient to meet the full range of normal and dry-year conditions as provided in the operating plan for groundwater supply, as described in Chapter 3 of this UWMP.

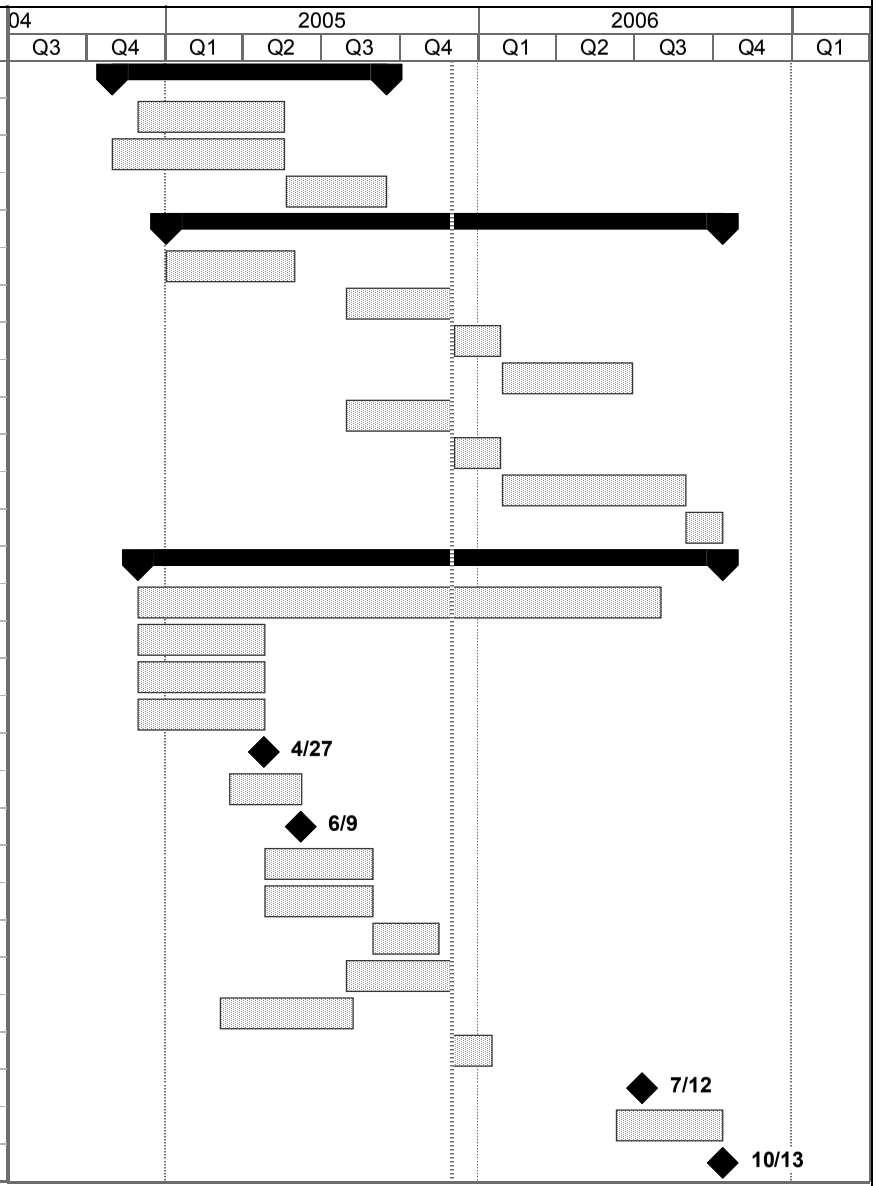
Returning contaminated wells to municipal water supply service by installing treatment requires issuance of permit from DHS before the water can be considered potable and safe for delivery to customers. The permit requirements are contained in DHS Policy Memo 97-005 for direct domestic use of impaired water sources. Before issuing a permit to a water utility for use of an impaired source as part of the utility's overall water supply permit, DHS requires that studies and engineering work be performed to demonstrate that pumping the wells and treating the water will be protective of public health for users of the water. The Policy Memo requires that DHS review the local retail water purveyor's plan, establish appropriate permit conditions for the wells and treatment system, and provide overall approval of returning the impacted wells to service for potable use. Ultimately, CLWA and the local retail water purveyor's plan and the DHS requirements are intended to ensure that the water introduced to the potable water distribution system has no detectable concentration of perchlorate.

The DHS 97-005 Policy Memo requires, among other things, the completion of a source water assessment for the impacted wells intended to be returned to service. The purpose of the assessment is to determine the extent to which the aquifer is vulnerable to continued migration of perchlorate and other contaminants of interest from the Whittaker-Bermite site. The assessment will include the following:

- Delineation of the groundwater capture zone caused by operating the impacted wells
- Identification of contaminants found in the groundwater at or near the impacted wells
- Identification of chemicals or contaminants used or generated at the Whittaker-Bermite facility
- Determination of the vulnerability of pumping the impacted wells to these contaminant sources

Figure D-2
Preliminary 97-005 Implementation Schedule
Castaic Lake Water Agency

ID	Task Name	Duration	Start	Finish
1	**DTSC Approval Activities**	**230 days**	**Mon 11/1/04**	**Fri 9/16/05**
2	Feasibility Study	6.15 mons	Wed 12/1/04	Fri 5/20/05
3	Draft RAP	29 wks	Mon 11/1/04	Fri 5/20/05
4	Final RAP	4.25 mons	Mon 5/23/05	Fri 9/16/05
5	**Implementation Activities**	**465 days**	**Mon 1/3/05**	**Fri 10/13/06**
6	Easements and ROW	5.4 mons	Mon 1/3/05	Wed 6/1/05
7	Treatment Design	4.4 mons	Mon 8/1/05	Wed 11/30/05
8	Treatment Bidding & Contracting	2 mons	Mon 12/5/05	Fri 1/27/06
9	Treatment Construction	5.5 mons	Mon 1/30/06	Fri 6/30/06
10	Pipeline Design	4.4 mons	Mon 8/1/05	Wed 11/30/05
11	Pipeline Bidding & Contracting	2 mons	Mon 12/5/05	Fri 1/27/06
12	Pipeline Construction	7.7 mons	Mon 1/30/06	Thu 8/31/06
13	System Startup	1.55 mons	Fri 9/1/06	Fri 10/13/06
14	**DHS Approval Activities (97-005)**	**488 days**	**Wed 12/1/04**	**Fri 10/13/06**
15	DHS Coordination	21.8 mons	Wed 12/1/04	Wed 8/2/06
16	TM1: Source Water Assessment	5.3 mons	Wed 12/1/04	Wed 4/27/05
17	TM2: Raw Water Quality Characterization	5.3 mons	Wed 12/1/04	Wed 4/27/05
18	TM3: Source Water Protection	5.3 mons	Wed 12/1/04	Wed 4/27/05
19	DHS Workshop No. 1	0 days	Wed 4/27/05	Wed 4/27/05
20	TM4: Effective Monitoring & Treatment	3 mons	Fri 3/18/05	Thu 6/9/05
21	DHS Workshop No. 2	0 days	Thu 6/9/05	Thu 6/9/05
22	TM5: Human Health Risk Assessment	4.5 mons	Thu 4/28/05	Wed 8/31/05
23	TM6: Alternative Source Assessment	4.5 mons	Thu 4/28/05	Wed 8/31/05
24	DHS Review of TMs 5 & 6	2.75 mons	Thu 9/1/05	Wed 11/16/05
25	Prepare 97-005 Engineer's Report	4.4 mons	Mon 8/1/05	Wed 11/30/05
26	CEQA Initial Study and Draft MND	5.55 mons	Mon 3/7/05	Mon 8/8/05
27	Permit Application	1.7 mons	Thu 12/1/05	Tue 1/17/06
28	Public Hearing	0 days	Wed 7/12/06	Wed 7/12/06
29	DHS Evaluation	4.5 mons	Mon 6/12/06	Fri 10/13/06
30	Obtain DHS Permit	0 days	Fri 10/13/06	Fri 10/13/06



Project: CLWA 97-005_r2
Date: Thu 12/1/05

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

CLWA is currently working directly with the retail water purveyors and its consultants on development of the DHS 97-005 Policy Memo permit application. Two coordination workshops have already been held with DHS. Drafts of all six elements of the 97-005 Policy Memo have been submitted to DHS and the retail purveyors for review, including: the Source Water Assessment, Raw Water Quality Characterization, Source Protection Plan, Effective Monitoring and Treatment Evaluation, Human Health Risk Assessment, and the Alternatives Sources Evaluation. The Engineer's Report, which summarizes these six elements for the 97-005 process, is anticipated to be complete by the end of November 2005.

As noted above, CLWA and the local retail water purveyors have recognized the probable need for some form of pumping in or near the impacted wells to extract contamination and protect downgradient non-impacted wells. As part of the permitting for use of impacted wells with treatment, DHS 97-005 Policy Memo requires an analysis to demonstrate contaminant capture and protection of other nearby water supply wells. The development and calibration of a numerical groundwater flow model of the entire basin was initiated as a result of a 2001 Memorandum of Understanding among the Upper Basin Water Purveyors (CLWA, CLWA SCWD, LACWWD #36, NCWD, and VWC) and the United Water Conservation District in Ventura County.

The groundwater model was initially intended for use in analyzing the yield and sustainability of groundwater in the Basin. Use of the model for that analysis is described in Chapter 3. The model was adaptable to analyze both the sustainability of groundwater under an operational scenario that includes full restoration of perchlorate-contaminated supply and the containment of perchlorate near the Whittaker-Bermite property (i.e., by pumping some of the contaminated wells), including preventing movement of perchlorate contamination to other portions of the aquifer system. DTSC reviewed and approved the construction and calibration of the regional model as described in the final model report "Regional Groundwater Flow Model for the Santa Clarita Valley, Model Development and Calibration" (CH2M Hill, April 2004).

After DTSC's approval of the model, it was used to simulate the capture and control of perchlorate by restoring impacted wells, with treatment, as described above. The results of that work were summarized in a second report "Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California" (CH2M Hill, December 2004). The modeling analysis indicate that the pumping of impacted wells SCWD-Saugus 1 and SCWD-Saugus 2 at rates of 1,200 gpm each on a nearly continual basis will effectively contain perchlorate migrating westward in the Saugus Formation from the Whittaker-Bermite property. The analysis also indicates that (1) no new production wells are needed in the Saugus Formation to meet the perchlorate containment objective, (2) impacted well NCWD-11 is not a required component of the containment program, and (3) pumping at SCWC-Saugus 1 and SCWC-Saugus 2 is necessary to prevent migration of perchlorate to other portions of the Saugus Formation.

This report also includes the general design of a sentinel groundwater monitoring network and program required by DHS as part of its 97-005 Policy Memo permitting. The perchlorate containment report was approved by DTSC in November 2004. With that approval, the model is now being used to support the source water assessment and the remainder of the permitting process required by DHS under its 97-005 Policy Memo.

Somewhat independent of the focus on impacted Saugus wells and restoration of that impacted water supply has been the Alluvial Stadium well. On-site investigations by Whittaker-Bermite since late 2003 have resulted in the completion, in June 2005, of a Workplan for a Pilot Remediation Pumping Program in the Northern Alluvium and certain on-site sub-areas that are east/southeast, or generally upgradient, of the impacted Stadium well. That program basically involves the establishment of containment, generally along the northern boundary of the Whittaker-Bermite site, upgradient of the Stadium well, by continuous pumping of a former Whittaker-Bermite facility well, at a continuous low capacity, complemented by pumping at several groundwater "hot spots" that are also generally upgradient of the Stadium well. Due to the low conductivity nature of the aquifer materials at the various "hot spots", pumping for containment at those locations would be from several wells at low pumping capacities. Extracted water would be treated at Whittaker-Bermite's existing on-site treatment system. Generally consistent with the Saugus restoration concept, the Northern Alluvium pumping program would have the concurrent objectives of preventing site-related contaminants from leaving the site and removing some contamination from groundwater such that it can be removed in the on-site treatment process prior to discharge of the water back to the groundwater Basin.

Appendix E

Project Description Excerpt from August 2005 "CLWA Groundwater Containment, Treatment, and Restoration Project" Mitigated Negative Declaration

Appendix E

Project Description Excerpt from August 2005 "CLWA Groundwater Containment, Treatment, and Restoration Project" Mitigated Negative Declaration

Containment/Treatment Facilities

The Proposed Project for containment/treatment is based on analysis of temporal and spatial variations in groundwater flow patterns using the Regional Groundwater Flow Model for Santa Clarita Valley ("*Draft Interim Feasibility Study*," Kennedy/Jenks 2005). Model development and calibration are described in the "*Regional Groundwater Flow Model for the Santa Clarita Valley: Model Development and Calibration*," CH2M HILL 2004. Based on the model, the movement of contaminated water from the Whittaker-Bermite Property in the Saugus Formation was in a westerly direction. The San Gabriel Fault Zone, which runs east-west through the northern portion of the Whittaker-Bermite Property, was determined to provide a partial barrier to northward migration of the perchlorate-contaminated groundwater, and perchlorate-contaminated water could therefore be intercepted at the existing Saugus 1 and Saugus 2 wells, which are located near the intersection of Magic Mountain Parkway and San Fernando Road. Pumping of groundwater along the leading edge of the plume at these wells would effectively create a cone of depression adjacent to the wells. Perchlorate-contaminated water would then flow into this cone of depression where it would be extracted. The volume of extraction was evaluated to match it to the inflow of perchlorate-contaminated water, thereby maintaining a cone of depression that does not induce migration of better quality groundwater from the Alluvial Aquifer into the cone of depression. An extraction rate of from 1,100 gpm to 1,250 gpm is proposed.

Once extracted, the contaminated water would then be treated to remove the perchlorate and utilized. Over time, this interception of the contaminated plume would (a) reduce downstream migration of the plume and (b) collect the perchlorate and permanently remove it from the groundwater basin. Given that no new contamination would occur up-gradient from the interceptor wells, this strategy should eventually remediate the perchlorate problem.

The primary elements of the Containment Facilities to be constructed and operated (Figure 4 [not included]; Table E-1) are new pumps for existing production wells, new monitoring wells, new pipelines, and a new treatment plant for perchlorate removal. In addition, several existing wells would be removed. These facilities would provide for extraction of contaminated groundwater, conveyance of this water to a treatment facility, and treatment to remove perchlorates. The treatment plant would be tied into existing CLWA distribution pipelines to deliver treated water. Containment facility elements and specifications are shown on Table E-1.

Table E-1
Proposed Project Perchlorate Containment Facilities

FACILITY	SITE	DESCRIPTION (SEE FIGURE 4 [Not Included])
New pumps	Saugus-1 and Saugus-2 wells	**New** variable speed up to 1200 gpm each, installed at existing well site.
Network of monitoring wells	North of Saugus-2 and adjacent to alluvial basin	**New** Small-diameter wells not used for production, located to characterize the contaminant plume and to monitor program effectiveness; included up gradient wells managed in cooperation with other entities.
Conveyance to Treatment Plant	Road rights of way and bike trail	**Segment 1: New** 10" pipeline from Saugus-2, along San Fernando Road to connect with an existing 14-21 inch pipeline on the east side of the South Fork of the Santa Clara River.
		Segment 2: **Connection** of segment 1 to an existing 14-21" pipeline under the Santa Clara River, along Magic Mountain Parkway, and north along Valencia Blvd. to the bridge at the South Fork of the Santa Clara River.
		Segment 3. **New** 16" pipeline under the Valencia Blvd. bridge at the South Fork of the Santa Clara River, along the north/west right-of-way of Valencia Boulevard, along a bike path around the gas station at Bouquet Canyon Bridge, suspended on the west side of Bouquet Canyon Bridge, then west along a bike path to the Rio Vista Intake Pump Station.
Treatment Plant	At Rio Vista Intake Pump Station	**New** one-train, two vessel ion exchange system using Amberlite PWA2 strong-base anion exchange resin followed by chloramination disinfection with a rated capacity of 2400 gpm.
Conveyance from Treatment Plant	West of Treatment Plant	**Connect new Treatment Plant to existing Rio Vista Intake Pump Plant** and CLWA's existing treated water pipeline.

Containment Facility Operation

Containment wells would initially be operated at 1,100 gpm, and then adjusted based on monitoring well data to achieve effective containment of perchlorates. Adjustments would be made in consultation with the Department of Toxic Substance Control (DTSC). Contaminants would be treated in accordance with DHS requirements.

The containment treatment facility utilizes disposable filters to remove perchlorates (US Filter). The dual vessel design of the facility would provide for continuous operation. Primary filtration would occur in Vessel 1, with Vessel 2 providing a final "polishing." When the filter in Vessel 1 requires replacement, primary filtration would switch to Vessel 2 while the filter in Vessel 1 is removed and replaced. Filters would then be collected from the facility and transported off site to an approved commercial disposal facility. The perchlorate treatment plant would be monitored on a continuous 24-hour basis at the adjacent Rio Vista Intake Pump Station using a Supervisory Control and Data Acquisition (SCADA) program.

Facilities for Restoration of Service

The containment element of the Proposed Project would restore up to 43% of production from the Saugus-1 and Saugus-2 wells. The permanent closure of VWC's V-157 well (V-157), NCWD's well number 11 (NC 11), and the Stadium well operated by CLWA's Santa Clara Water Division has created a deficit in local groundwater production of 6,300 gpm capacity, or about 3,838 afy. The containment project would also convert several existing pipelines from treated water use for conveyance of perchlorate-contaminated water to the treatment plant.

To restore local well production to pre-contamination levels and to restore service affected by conversion of existing facilities to carry untreated water, CLWA proposes to relocate production wells to areas outside of the zone of perchlorate contamination and to construct new conveyance facilities to replace the existing treated water pipelines that will be converted to convey water from Saugus 1 and Saugus 2 to the new treatment plant. This involves two elements (Figures 5 and 6 [not included]).

First, to replace lost production east of the confluence of the Santa Clara River and the South Fork of the Santa Clara River from closure of the Stadium Well, CLWA would relocate the Stadium Well from its location adjacent to the Stadium along the south bank of the Santa Clara River to a location about 0.6 miles upstream from the Stadium site to an existing CLWA facility at Furnivall Avenue and Santa Clara Street and would construct a short (50-100 foot) pipeline from the well to an existing 8-inch distribution line.

Second, in addition to VWC's new 2,500 gpm well northwest of Magic Mountain Amusement Park (hereafter MMA Park), CLWA would:

- Construct a new multiple-well 4,000 gpm facility (with chloramination facilities) along a dirt road to the west of the MMA Park), with wells connected via a 12-inch pipeline;
- Construct a new 18-inch treated water pipeline from CLWA's 48-inch pipeline at the McBean Parkway Bridge to a site opposite from NC 11; and
- Construct a new 18-inch groundwater pipeline along new road alignments that would connect these new wells directly to CLWA's existing 42-inch pipeline.

Long-term planning for CLWA's water storage and conveyance facilities includes potential development of a regulating reservoir southwest of the two proposed new wells. The regulating reservoir and the pipelines, which may be developed to connect it to the Proposed Project, are shown on Figure 6 [not included] for informational purposes and because they are addressed in the cumulative impacts discussion in this Initial Study. However, this reservoir facility and the pipelines needed to connect it to the Proposed Project are not a part of the Proposed Project and the Proposed Project does not depend upon them.

The wells, 12-inch connecting pipeline, chloramination facility, and 12-inch to 18-inch pipeline would be constructed within the road alignments of future planned roads. CLWA facilities would be constructed following the initial grading for these roads and the adjacent development. In combination with yield from the Saugus-1 and Saugus-2 wells and associated treatment plant, these actions would restore production lost due to perchlorate contamination and would restore service to areas previously served by the NC-11, V-157, and Stadium wells. Siting and details of the proposed restoration-of-service facilities are summarized on Table E-2. Note that the planned reservoir is not a part of the Proposed Project.

Chloramination Facilities

Chloramination facilities would be constructed at two sites: (a) at the new perchlorate treatment facility and (b) at the new well field west of MMA Park. Chloramines are formed by mixing sodium hypochlorate and ammonia, which are produced or stored in separate areas prior to mixing into the water stream. Several types of facilities would be considered during final design. Regardless of facility type, these facilities would be fully contained, and storage of water treatment chemicals would be within double-walled containers with separate containment back-up systems capable of holding 1.5 times the capacity of each chemical tank.

Table E-2
Proposed Project facilities for Restoration of Service

FACILITY	SITE	DESCRIPTION (SEE FIGURES 5 AND 6 [Not Included])
To replace Stadium Well		
New alluvial well	Furnivall Ave. & Santa Clara St.	**New** 800 gpm well and up to 100 foot long pipeline to connect to existing 8" pipeline.
To replace pumping capacity from contaminated wells to restore local dry year water supplies		
Well field and chloramination facility	West of MMA Park	**New** wells with a combined capacity of 4,000 gpm to be constructed along the unpaved perimeter road on the west boundary of the MMA Park, with a chloramination facility located at the last well along the 12" to 18" pipeline connecting these wells.
Pipeline from new wells to Existing 42" CLWA	West Magic Mountain Parkway to I-5	**Segment 4: New** 18" pipeline from the chloramination facility to Magic Mountain Parkway and then east along Magic Mountain Parkway to the terminus of CLWA's 42" pipeline at I-5.
Pipeline to serve area west of McBean Parkway	McBean Parkway to NC-11	**Segment 5. New** 33" pipeline along bikeway on south levee of the South Fork of the Santa Clara River to Valencia Boulevard; **Segment 6. New** 39" pipeline along Valencia Blvd. and Magic Mountain Parkway with a turnout west of San Fernando Road. **Segment 7. New** 18" pipeline from the Segment 5 turnout to San Fernando Road; and **Segment 8. New** turnout, connection to the CLWA existing 21" pipeline along the west side of the South Fork of the Santa Clara River, and 18" pipeline from the turnout parallel to CLWA's existing 21" pipeline along an access road to a site opposite NC-11, connecting to existing turnouts.

Appendix F
Best Management Practices

Reported as of 5/7/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2003**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	44418
b. Determine other system verifiable uses (AF)	0
c. Determine total supply into the system (AF)	44838
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.99
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	no
6. Does your agency operate a system leak detection program?	yes
a. If yes, describe the leak detection program:	
monthly review of metered sales vs. supply	

B. Survey Data

1. Total number of miles of distribution system line.	26
2. Number of miles of distribution system line surveyed.	26

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	5000	6000
2. Actual Expenditures	5000	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 5/7/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2003**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Agency provides a quarterly community newsletter to approx. 2,000 people/organizatioms/elected officials. Utilize paid advertising, public and media events and Agency conservation garden to promote water conservation in service area.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	10
b. Public Service Announcement	yes	0
c. Bill Inserts / Newsletters / Brochures	yes	4
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	15
f. Special Events, Media Events	yes	10
g. Speaker's Bureau	yes	3
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	147102	100000
2. Actual Expenditures	144283	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

A2d. Retailers are billed based on usage and are shown last year's usage of Agency wholesale production. B1 and B2. After 2003, began new accounting system, also re-organized personnel.

Reported as of 5/7/05

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2003**

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	147	3033	0
Grades 4th-6th	yes	67	2421	0
Grades 7th-8th	yes	0	0	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 09/01/1995

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	114670	115000
2. Actual Expenditures	110979	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Have expanded program to include more workshops, career days and job fairs. PROBLEM: increased school district emphasis on testing has made entry into Grades 7-12 very difficult.

Reported as of 5/7/05

BMP 10: Wholesale Agency Assistance Programs

Reporting Unit: **Castaic Lake Water Agency**

BMP Form Status: **100% Complete**

Year: **2003**

A. Implementation

1. Financial Support by BMP

BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded	BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded
1	No	0	0	8	yes	165852	162161
2	yes	10000	10000	9	No		
3	No			10	yes	93659	72659
4	No			11	No		
5	No			12	yes	58000	58000
6	No			13	No		
7	yes	147102	144283	14	yes	20000	20000

2. Technical Support

a. Has your agency conducted or funded workshops addressing CUWCC procedures for calculating program savings, costs and cost-effectiveness?	yes
b. Has your agency conducted or funded workshops addressing retail agencies' BMP implementation reporting requirements?	yes
c. Has your agency conducted or funded workshops addressing:	
1) ULFT replacement	yes
2) Residential retrofits	yes
3) Commercial, industrial, and institutional surveys	No
4) Residential and large turf irrigation	No
5) Conservation-related rates and pricing	No

3. Staff Resources by BMP

BMP	Qualified Staff Available for BMP?	No. FTE Staff Assigned to BMP	BMP	Qualified Staff Available for BMP?	No. FTE Staff Assigned to BMP
1	yes	.5	8	yes	10
2	yes	.5	9	yes	.5
3	yes	1	10	yes	2
4	yes	.5	11	yes	.5
5	yes	2.5	12	yes	2
6	yes	.5	13	yes	.5
7	yes	3	14	yes	.5

4. Regional Programs by BMP

BMP	Implementation/ Management Program?	BMP	Implementation/ Management Program?
1	No	8	yes
2	yes	9	yes
3	No	10	yes
4	No	11	No
5	yes	12	yes
6	No	13	No
7	yes	14	yes

B. Wholesale Agency Assistance Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	494613	500000
2. Actual Expenditures	467103	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2003**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$6049713
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$3264000
2. Commercial	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
3. Industrial	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
4. Institutional / Government	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
5. Irrigation	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
6. Other	
a. Water Rate Structure	

b. Sewer Rate Structure

c. Total Revenue from Volumetric Rates $

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources $

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2003**

A. Implementation

1. Does your Agency have a conservation coordinator? yes
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
4. Partner agency's name:
5. If your agency supplies the conservation coordinator:
   - a. What percent is this conservation coordinator's position? 50%
   - b. Coordinator's Name Mary Lou Cotton
   - c. Coordinator's Title Water Resources Manager
   - d. Coordinator's Experience and Number of Years 11
   - e. Date Coordinator's position was created (mm/dd/yyyy) 02/15/2001
6. Number of conservation staff, including Conservation Coordinator. 3

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	68497	59000
2. Actual Expenditures	68497	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
   - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

One position filled for only part of calendar year.

Reported as of 5/7/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2004**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	46669
b. Determine other system verifiable uses (AF)	0
c. Determine total supply into the system (AF)	47088
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.99
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	no
6. Does your agency operate a system leak detection program?	yes
a. If yes, describe the leak detection program:	
monthly review of metered sales vs. supply	

B. Survey Data

1. Total number of miles of distribution system line.	26
2. Number of miles of distribution system line surveyed.	26

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	6000	6000
2. Actual Expenditures	6000	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 5/7/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2004**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Agency provides a quarterly community newsletter to approx. 50,000 people/organizatioms/elected officials. Utilize paid advertising, public and media events and Agency conservation garden to promote water conservation in service area.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	15
b. Public Service Announcement	yes	0
c. Bill Inserts / Newsletters / Brochures	yes	5
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	15
f. Special Events, Media Events	yes	3
g. Speaker's Bureau	yes	8
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	235163	200000
2. Actual Expenditures	241461	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

A2d. Retailers are billed based on usage and are shown last year's usage of Agency wholesale production. B1 and B2. Relects new accounting process and reorganization.

Reported as of 5/7/05

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2004**

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	54	1080	0
Grades 4th-6th	yes	21	732	0
Grades 7th-8th	yes	0	0	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 09/01/1995

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	207270	200000
2. Actual Expenditures	219362	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Continuing difficulty gaining entry into Grades 7-12. B1 and B2. Reflects additonal staff hired in 2004.

Reported as of 5/7/05

BMP 10: Wholesale Agency Assistance Programs

Reporting Unit: **Castaic Lake Water Agency**

BMP Form Status: **100% Complete**

Year: **2004**

A. Implementation

1. Financial Support by BMP

BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded	BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded
1	No			8	yes	235163	241461
2	yes	20000	21000	9	No		
3	No			10	yes	88659	86621
4	No			11	No		
5	No			12	yes	58000	58000
6	No			13	No		
7	yes	207270	219362	14	yes	25000	25000

2. Technical Support

a. Has your agency conducted or funded workshops addressing CUWCC procedures for calculating program savings, costs and cost-effectiveness?	yes
b. Has your agency conducted or funded workshops addressing retail agencies' BMP implementation reporting requirements?	yes
c. Has your agency conducted or funded workshops addressing:	
1) ULFT replacement	yes
2) Residential retrofits	yes
3) Commercial, industrial, and institutional surveys	No
4) Residential and large turf irrigation	No
5) Conservation-related rates and pricing	No

3. Staff Resources by BMP

BMP	Qualified Staff Available for BMP?	No. FTE Staff Assigned to BMP	BMP	Qualified Staff Available for BMP?	No. FTE Staff Assigned to BMP
1	yes	.5	**8**	yes	10
2	yes	.5	**9**	yes	.5
3	yes	1	**10**	yes	2
4	yes	.5	**11**	yes	.5
5	yes	2.5	**12**	yes	2
6	yes	.5	**13**	yes	.5
7	yes	3	**14**	yes	.5

4. Regional Programs by BMP

BMP	Implementation/ Management Program?	BMP	Implementation/ Management Program?
1	No	**8**	yes
2	yes	**9**	yes
3	No	**10**	yes
4	No	**11**	No
5	yes	**12**	yes
6	No	**13**	No
7	yes	**14**	yes

B. Wholesale Agency Assistance Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	634092	650000
2. Actual Expenditures	651444	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

all budget numbers reflect new accounting process started in 2004.

Reported as of 5/7/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2004**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$8561300
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0
2. Commercial	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
3. Industrial	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
4. Institutional / Government	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
5. Irrigation	
a. Water Rate Structure	
b. Sewer Rate Structure	
c. Total Revenue from Volumetric Rates	$
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$
6. Other	
a. Water Rate Structure	

b. Sewer Rate Structure

c. Total Revenue from Volumetric Rates $

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources $

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Castaic Lake Water Agency	**100% Complete**	**2004**

A. Implementation

1. Does your Agency have a conservation coordinator? yes
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
4. Partner agency's name:
5. If your agency supplies the conservation coordinator:
   - a. What percent is this conservation coordinator's position? 50%
   - b. Coordinator's Name Mary Lou Cotton
   - c. Coordinator's Title Water Resources Manager
   - d. Coordinator's Experience and Number of Years 11
   - e. Date Coordinator's position was created (mm/dd/yyyy) 02/18/2001
6. Number of conservation staff, including Conservation Coordinator. 3

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	80503	80000
2. Actual Expenditures	80503	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
   - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

CUWCC

Best Management Practices Report Filing

Base Year Data

Reporting Unit: **Santa Clarita Water Division**	**Submitted to CUWCC** 04/19/2003

INSTRUCTIONS: This form MUST BE completed and submitted to the CUWCC prior to filing any BMP reports. The data provided on this form is used in determining coverage requirements for specific BMPs as indicated. If some of the data requested is not available, make reasonable estimates. You can update and edit values, if more precise information becomes available in the future.

For Customer Classification Definitions (i.e. Single Family, Multi-Family) click HERE.

	1. Your **BASE YEAR is 2001**. NOTE: Many calculations in determining credit history and coverage requirements are contingent on your BASE YEAR, which is calculated based on the following criteria. If a Signatory signed the MOU in 1997 or earlier, then the Base Year is 1997. If a Signatory signed the MOU after 1997, then the Base Year is the year the MOU was signed. The same holds true for USBR Contractors, except the date their Base Year is calculated from is the date that their Plan was noticed in the Federal Register.	
	BMP 1	
	2. Number of single-family customers in 2001	20802
	3. Number of multi-family units in 2001	1892
	BMPs 2 and 14	
	4. Number of single-family housing units constructed prior to 1992	14457
	5. Number of multi-family units prior to 1992	3401
	BMP 4	
	6. Number of unmetered accounts in 2001	0
	BMPs 5 and 9	
	7. Number of commercial accounts in 2001	582
	8. Number of industrial accounts in 2001	19
	9. Number of institutional accounts in 2001	89
	10. Total water use (AF) by commercial, industrial and institutional accounts in 2001	2850
	BMP 14	
	11. Average number of toilets per single-family household	2
	12. Average number of toilets per multi-family household	2
	13. Five-year average resale rate of single-family households	10.6

	14. Five-year average resale rate of multi-family households	19.1
	15. Average persons per single-family household	3.3
	16. Average persons per multi-family household	3.3

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Webmaster

Reported as of 5/7/05

Accounts & Water Use

Reporting Unit Name:	Submitted to	Year:
Santa Clarita Water Division	CUWCC **02/15/2005**	**2003**

A. Service Area Population Information:

1. Total service area population 82200

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	21754	16006	0	0
2. Multi-Family	4216	2594	0	0
3. Commercial	617	888	0	0
4. Industrial	19	135	0	0
5. Institutional	95	764	0	0
6. Dedicated Irrigation	731	4231	0	0
7. Recycled Water	0	0	0	0
8. Other	0	0	0	0
9. Unaccounted	NA	0	NA	0
Total	27432	24618	0	0
	Metered		**Unmetered**	

Reported as of 5/7/05

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Based on your signed MOU date, 02/07/2001, your Agency STRATEGY DUE DATE is:	02/07/2003
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	0	0
2. Number of surveys completed:	0	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	no	no
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	no
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	no	no
Outdoor Survey:		
6. Check irrigation system and timers	no	no
7. Review or develop customer irrigation schedule	no	no
8. Measure landscaped area (Recommended but not required for surveys)	no	no
9. Measure total irrigable area (Recommended but not required for surveys)	no	no
10. Which measurement method is typically used (Recommended but not required for surveys)		None
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	no	no
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	no	no
a. If yes, in what form are surveys tracked?		None

b. Describe how your agency tracks this information.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Waiting on BMP revision before beginning implementation.

Reported as of 5/7/05

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? — no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? — no

3. Estimated percent of single-family households with low-flow showerheads: — %

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? — no

5. Estimated percent of multi-family households with low-flow showerheads: — %

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? — yes

   a. If YES, when did your agency begin implementing this strategy? — 5/12/2002

   b. Describe your targeting/ marketing strategy.

   Newspaper ads, flyers and newsletter notifications of distrbution events.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	83	4
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	25	15

6. Does your agency track the distribution and cost of low-flow devices? — yes

   a. If YES, in what format are low-flow devices tracked? — Manual Activity

   b. If yes, describe your tracking and distribution system :

   Keep records of which account addresses received low-flow devices.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0

2. Actual Expenditures 0

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

All funding provided by CLWA on behalf of retailers.

Reported as of 5/7/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	no
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	
b. Determine other system verifiable uses (AF)	
c. Determine total supply into the system (AF)	
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	no
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	no
6. Does your agency operate a system leak detection program?	yes
a. If yes, describe the leak detection program:	
Visual inpsections/response to customers.	

B. Survey Data

1. Total number of miles of distribution system line.	286
2. Number of miles of distribution system line surveyed.	0

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 5/7/05

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	
b. Describe the program:	
3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters.	700
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

All connections are metered.

Reported as of 5/7/05

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	731
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	no
a. If YES, when did your agency begin implementing this strategy?	
b. Description of marketing / targeting strategy:	
2. Number of Surveys Offered.	0
3. Number of Surveys Completed.	0
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	no
b. Distribution Uniformity Analysis	no
c. Review / Develop Irrigation Schedules	no
d. Measure Landscape Area	no
e. Measure Total Irrigable Area	no
f. Provide Customer Report / Information	no
5. Do you track survey offers and results?	no
6. Does your agency provide follow-up surveys for previously completed surveys?	no
a. If YES, describe below:	

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	no
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve	no

landscape water use efficiency?

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates			
b. Loans			
c. Grants			

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

Information and training provided by Castaic Lake WA

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? no

8. Do you provide customer notices at the end of the irrigation season? no

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 5/7/05

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — no

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

2. Does your agency offer rebates for high-efficiency washers? — no
3. What is the level of the rebate? — 0
4. Number of rebates awarded. — 0

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? — no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? no

a. If YES, describe the program and how it's organized.

CLWA as wholesaler runs program for retailers. See CLWA form.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	
b. Public Service Announcement	no	
c. Bill Inserts / Newsletters / Brochures	no	
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	no	
f. Special Events, Media Events	no	
g. Speaker's Bureau	no	
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program provided by Castaic Lake WA.

Reported as of 5/7/05

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? no

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd				
Grades 4th-6th				
Grades 7th-8th				
High School				

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program?

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program provided by CLWA on behalf of retailers.

Reported as of 5/7/05

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? no

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered			
b. Number of New Surveys Completed			
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)			
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)			

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no	no	no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	no
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	no
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Not implementing BMP.

Reported as of 5/7/05

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — No

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.)

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency?

3. What is the total number of customer accounts participating in the program during the last year ?

CII Subsector	Number of Toilets Replaced			
4.	**Standard Gravity Tank**	**Air Assisted**	**Valve Floor Mount**	**Valve Wall Mount**
a. Offices				
b. Retail / Wholesale				
c. Hotels				
d. Health				
e. Industrial				
f. Schools: K to 12				
g. Eating				
h. Govern-ment				
i. Churches				
j. Other				

5. Program design.

6. Does your agency use outside services to implement this program?

a. If yes, check all that apply.

7. Participant tracking and follow-up.

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business

b. Inadequate payback

c. Inadequate ULFT performance

d. Lack of funding

e. American's with Disabilities Act

f. Permitting

g. Other. Please describe in B. 9.

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Not implementing BMP.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	
b. State agency contribution	
c. Federal agency contribution	
d. Other contribution	
e. Total	0

Reported as of 5/7/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$6968914
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$2740750
2. Commercial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$337293
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$122163
3. Industrial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$51278
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$9310
4. Institutional / Government	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$290286
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$42691
5. Irrigation	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$1606562
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$215115
6. Other	
a. Water Rate Structure	Service Not Provided

b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

2003 revenues reflect new accounting process.

Reported as of 5/7/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

1. Does your Agency have a conservation coordinator?	no
2. Is this a full-time position?	no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	yes
4. Partner agency's name:	Castaic Lake WA
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	%
b. Coordinator's Name	
c. Coordinator's Title	
d. Coordinator's Experience and Number of Years	
e. Date Coordinator's position was created (mm/dd/yyyy)	
6. Number of conservation staff, including Conservation Coordinator.	0

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

Reported as of 5/7/05

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — no

   a. If YES, describe the ordinance:

2. Is a copy of the most current ordinance(s) on file with CUWCC? — no

   a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

   a. Gutter flooding — no

   b. Single-pass cooling systems for new connections — no

   c. Non-recirculating systems in all new conveyor or car wash systems — yes

   d. Non-recirculating systems in all new commercial laundry systems — no

   e. Non-recirculating systems in all new decorative fountains — yes

   f. Other, please name — no

2. Describe measures that prohibit water uses listed above:

   Recirculating systems required in all car washes and fountains (city/san district ordinance).

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

   a. Allow the sale of more efficient, demand-initiated regenerating DIR models. — no

   b. Develop minimum appliance efficiency standards that:

      i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. — no

      ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. — no

   c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. — no

4. Does your agency include water softener checks in home water audit programs? — no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Agency supported San District water softener ban ordinance adopted in 2003.

Reported as of 5/7/05

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2003**

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	60	9
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	**60**	**9**

6. Describe your agency's ULFT program for single-family residences.

publicly advertised rebate program

7. Describe your agency's ULFT program for multi-family residences.

publicly advertised rebate program

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	10000	20000
2. Actual Expenditures	10000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program run by CLWA on behalf of retailers

Reported as of 5/7/05

Accounts & Water Use

Reporting Unit Name:
Santa Clarita Water Division

Submitted to CUWCC
02/15/2005

Year:
2004

A. Service Area Population Information:

1. Total service area population 85300

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	22404	16922	0	0
2. Multi-Family	4351	2538	0	0
3. Commercial	627	917	0	0
4. Industrial	19	127	0	0
5. Institutional	97	790	0	0
6. Dedicated Irrigation	773	4828	0	0
7. Recycled Water	0	0	0	0
8. Other	0	0	0	0
9. Unaccounted	NA	0	NA	0
Total	28271	26122	0	0
	Metered		**Unmetered**	

Reported as of 5/7/05

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Based on your signed MOU date, 02/07/2001, your Agency STRATEGY DUE DATE is:	02/07/2003
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	0	0
2. Number of surveys completed:	0	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	no	no
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	no
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	no	no
Outdoor Survey:		
6. Check irrigation system and timers	no	no
7. Review or develop customer irrigation schedule	no	no
8. Measure landscaped area (Recommended but not required for surveys)	no	no
9. Measure total irrigable area (Recommended but not required for surveys)	no	no
10. Which measurement method is typically used (Recommended but not required for surveys)		None
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	no	no
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	no	no
a. If yes, in what form are surveys tracked?		None

b. Describe how your agency tracks this information.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Waiting on BMP revision before beginning implementation.

Reported as of 5/7/05

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? no

3. Estimated percent of single-family households with low-flow showerheads: %

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? no

5. Estimated percent of multi-family households with low-flow showerheads: %

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

   a. If YES, when did your agency begin implementing this strategy? 5/12/2002

   b. Describe your targeting/ marketing strategy.

   Newspaper ads, flyers and newsletter notifications of distrbution events.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	41	3
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	25	10

6. Does your agency track the distribution and cost of low-flow devices? yes

   a. If YES, in what format are low-flow devices tracked? Manual Activity

   b. If yes, describe your tracking and distribution system :

   Keep records of which account addresses received low-flow devices.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0

2. Actual Expenditures 0

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

All funding provided by CLWA on behalf of retailers.

Reported as of 5/7/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	no
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	
b. Determine other system verifiable uses (AF)	
c. Determine total supply into the system (AF)	
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	no
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	no
6. Does your agency operate a system leak detection program?	yes
a. If yes, describe the leak detection program:	
Visual inpsections/response to customers.	

B. Survey Data

1. Total number of miles of distribution system line.	299
2. Number of miles of distribution system line surveyed.	0

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 5/7/05

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	
b. Describe the program:	
3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters.	715
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

All connections are metered.

Reported as of 5/7/05

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	773
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	no
a. If YES, when did your agency begin implementing this strategy?	
b. Description of marketing / targeting strategy:	
2. Number of Surveys Offered.	0
3. Number of Surveys Completed.	0
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	no
b. Distribution Uniformity Analysis	no
c. Review / Develop Irrigation Schedules	no
d. Measure Landscape Area	no
e. Measure Total Irrigable Area	no
f. Provide Customer Report / Information	no
5. Do you track survey offers and results?	no
6. Does your agency provide follow-up surveys for previously completed surveys?	no
a. If YES, describe below:	

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	no
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve	no

landscape water use efficiency?

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates			
b. Loans			
c. Grants			

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

Information and training provided by Castaic Lake WA

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? no

8. Do you provide customer notices at the end of the irrigation season? no

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 5/7/05

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — no

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

2. Does your agency offer rebates for high-efficiency washers? — no
3. What is the level of the rebate? — 0
4. Number of rebates awarded. — 0

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? — no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? no

a. If YES, describe the program and how it's organized.

CLWA as wholesaler runs program for retailers. See CLWA form.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	
b. Public Service Announcement	no	
c. Bill Inserts / Newsletters / Brochures	no	
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	no	
f. Special Events, Media Events	no	
g. Speaker's Bureau	no	
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program provided by Castaic Lake WA.

Reported as of 5/7/05

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? no

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd				
Grades 4th-6th				
Grades 7th-8th				
High School				

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program?

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program provided by CLWA on behalf of retailers.

Reported as of 5/7/05

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	no

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered			
b. Number of New Surveys Completed			
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)			
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)			

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no		no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	no
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	no
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Not implementing BMP.

Reported as of 5/7/05

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — No

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.)

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency?

3. What is the total number of customer accounts participating in the program during the last year ?

CII Subsector	Number of Toilets Replaced			
4.	**Standard Gravity Tank**	**Air Assisted**	**Valve Floor Mount**	**Valve Wall Mount**
a. Offices				
b. Retail / Wholesale				
c. Hotels				
d. Health				
e. Industrial				
f. Schools: K to 12				
g. Eating				
h. Govern-ment				
i. Churches				
j. Other				

5. Program design.

6. Does your agency use outside services to implement this program?

a. If yes, check all that apply.

7. Participant tracking and follow-up.

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business

b. Inadequate payback

c. Inadequate ULFT performance

d. Lack of funding

e. American's with Disabilities Act

f. Permitting

g. Other. Please describe in B. 9.

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Not implementing BMP.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor		
b. Materials		
c. Marketing & Advertising		
d. Administration & Overhead		
e. Outside Services		
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	
b. State agency contribution	
c. Federal agency contribution	
d. Other contribution	
e. Total	0

Reported as of 5/7/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$8082631
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$3716432
2. Commercial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$374628
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$166423
3. Industrial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$52330
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$12265
4. Institutional / Government	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$339935
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$57314
5. Irrigation	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$2072553
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$299384
6. Other	
a. Water Rate Structure	Service Not Provided

b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

CII revenues are combined and shown in Commercial

Reported as of 5/7/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

1. Does your Agency have a conservation coordinator? no
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? yes
4. Partner agency's name: Castaic Lake WA
5. If your agency supplies the conservation coordinator:
   - a. What percent is this conservation coordinator's position? %
   - b. Coordinator's Name
   - c. Coordinator's Title
   - d. Coordinator's Experience and Number of Years
   - e. Date Coordinator's position was created (mm/dd/yyyy)
6. Number of conservation staff, including Conservation Coordinator. 0

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
   - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — no

   a. If YES, describe the ordinance:

2. Is a copy of the most current ordinance(s) on file with CUWCC? — no

   a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

   a. Gutter flooding — no

   b. Single-pass cooling systems for new connections — no

   c. Non-recirculating systems in all new conveyor or car wash systems — no

   d. Non-recirculating systems in all new commercial laundry systems — no

   e. Non-recirculating systems in all new decorative fountains — no

   f. Other, please name — no

2. Describe measures that prohibit water uses listed above:

   Recirculating systems required in all car washes and fountains (city/san district ordinance).

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

   a. Allow the sale of more efficient, demand-initiated regenerating DIR models. — no

   b. Develop minimum appliance efficiency standards that:

      i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. — no

      ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. — no

   c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. — no

4. Does your agency include water softener checks in home water audit programs? — no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Agency supported San District water softener ban ordinance adopted in 2003.

Reported as of 5/7/05

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Santa Clarita Water Division	**100% Complete**	**2004**

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	125	10
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	**125**	**10**

6. Describe your agency's ULFT program for single-family residences.

publicly advertised rebate program

7. Describe your agency's ULFT program for multi-family residences.

publicly advertised rebate program

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	20000	20000
2. Actual Expenditures	20000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program run by CLWA on behalf of retailers

CUWCC

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Memorandum of Understanding

Base Year Data

Reporting Unit: **Valencia Water Company**	**Submitted to CUWCC** 04/19/2003

INSTRUCTIONS: This form MUST BE completed and submitted to the CUWCC prior to filing any BMP reports. The data provided on this form is used in determining coverage requirements for specific BMPs as indicated. If some of the data requested is not available, make reasonable estimates. You can update and edit values, if more precise information becomes available in the future.

For Customer Classification Definitions (i.e. Single Family, Multi-Family) click HERE.

	1. Your **BASE YEAR is 2001.** NOTE: Many calculations in determining credit history and coverage requirements are contingent on your BASE YEAR, which is calculated based on the following criteria. If a Signatory signed the MOU in 1997 or earlier, then the Base Year is 1997. If a Signatory signed the MOU after 1997, then the Base Year is the year the MOU was signed. The same holds true for USBR Contractors, except the date their Base Year is calculated from is the date that their Plan was noticed in the Federal Register.	
	BMP 1	
	2. Number of single-family customers in 2001	19565
	3. Number of multi-family units in 2001	219
	BMPs 2 and 14	
	4. Number of single-family housing units constructed prior to 1992	12871
	5. Number of multi-family units prior to 1992	152
	BMP 4	
	6. Number of unmetered accounts in 2001	0
	BMPs 5 and 9	
	7. Number of commercial accounts in 2001	567
	8. Number of industrial accounts in 2001	901
	9. Number of institutional accounts in 2001	52
	10. Total water use (AF) by commercial, industrial and institutional accounts in 2001	6650
	BMP 14	
	11. Average number of toilets per single-family household	2
	12. Average number of toilets per multi-family household	2
	13. Five-year average resale rate of single-family households	8.6

	14. Five-year average resale rate of multi-family households	8.9
	15. Average persons per single-family household	3.3
	16. Average persons per multi-family household	3.3

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Webmaster

Reported as of 5/7/05

Accounts & Water Use

Reporting Unit Name:
Valencia Water Company

Submitted to CUWCC
02/15/2005

Year:
2003

A. Service Area Population Information:

1. Total service area population 89000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	23365	14191	0	0
2. Multi-Family	277	1186	0	0
3. Commercial	854	5110	0	0
4. Industrial	441	1825	0	0
5. Institutional	59	1101	0	0
6. Dedicated Irrigation	400	2952	0	0
7. Recycled Water	1	96	0	0
8. Other	0	0	0	0
9. Unaccounted	NA	0	NA	0
Total	25397	26461	0	0
	Metered		**Unmetered**	

Reported as of 5/7/05

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Based on your signed MOU date, 02/07/2001, your Agency STRATEGY DUE DATE is:	02/07/2003
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	0	0
2. Number of surveys completed:	0	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	no	no
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	no
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	no	no
Outdoor Survey:		
6. Check irrigation system and timers	no	no
7. Review or develop customer irrigation schedule	no	no
8. Measure landscaped area (Recommended but not required for surveys)	no	no
9. Measure total irrigable area (Recommended but not required for surveys)	no	no
10. Which measurement method is typically used (Recommended but not required for surveys)		None
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	no	no
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	no	no
a. If yes, in what form are surveys tracked?		None

b. Describe how your agency tracks this information.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

waiting on BMP revision

Reported as of 5/7/05

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? — no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? — no

3. Estimated percent of single-family households with low-flow showerheads: — %

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? — no

5. Estimated percent of multi-family households with low-flow showerheads: — %

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? — yes

   a. If YES, when did your agency begin implementing this strategy? — 5/12/2002

   b. Describe your targeting/ marketing strategy.

   Distribution at public events, paid advertising.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	25	6
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	30	5

6. Does your agency track the distribution and cost of low-flow devices? — yes

   a. If YES, in what format are low-flow devices tracked? — Database

   b. If yes, describe your tracking and distribution system :

   Names and address of recipient.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0

2. Actual Expenditures 0

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

CLWA provides program and funding on behalf of retailers.

Reported as of 5/7/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	no
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	
b. Determine other system verifiable uses (AF)	
c. Determine total supply into the system (AF)	
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	yes
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	yes
6. Does your agency operate a system leak detection program?	no
a. If yes, describe the leak detection program:	

B. Survey Data

1. Total number of miles of distribution system line.	310
2. Number of miles of distribution system line surveyed.	310

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	yes
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	
see 2002 explanation	

E. Comments

Reported as of 5/7/05

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	
b. Describe the program:	
3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters.	0
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

All connections are metered.

Reported as of 5/7/05

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit: **Valencia Water Company**

BMP Form Status: **100% Complete**

Year: **2003**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	400
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	no
a. If YES, when did your agency begin implementing this strategy?	
b. Description of marketing / targeting strategy:	
2. Number of Surveys Offered.	0
3. Number of Surveys Completed.	0
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	no
b. Distribution Uniformity Analysis	no
c. Review / Develop Irrigation Schedules	no
d. Measure Landscape Area	no
e. Measure Total Irrigable Area	no
f. Provide Customer Report / Information	no
5. Do you track survey offers and results?	no
6. Does your agency provide follow-up surveys for previously completed surveys?	no
a. If YES, describe below:	

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	no
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve	no

landscape water use efficiency?

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? No

a. If YES, describe below:

CLWA provides training and information on behalf of retailers

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? no

8. Do you provide customer notices at the end of the irrigation season? no

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 5/7/05

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — no

    a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

2. Does your agency offer rebates for high-efficiency washers? — no

3. What is the level of the rebate?

4. Number of rebates awarded.

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? — no

    a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Newlsetters, bill inserts, website, coordination with wholesaler.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	3
b. Public Service Announcement	no	
c. Bill Inserts / Newsletters / Brochures	yes	4
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	2
f. Special Events, Media Events	yes	3
g. Speaker's Bureau	no	
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Coordinate public outreach with CLWA programs/part of CLWA budget

Reported as of 5/7/05

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? no

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd				
Grades 4th-6th				
Grades 7th-8th				
High School				

3. Did your Agency's materials meet state education framework requirements? no

4. When did your Agency begin implementing this program?

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program is run by CLWA on behalf of retailers

Reported as of 5/7/05

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? yes

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	16	4	4
b. Number of New Surveys Completed	12	2	4
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	no
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	no
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	0
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	40000	45000
2. Actual Expenditures	40000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Operating a pilot survey program while waiting on BMP revision.

Reported as of 5/7/05

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

1. Did your agency implement a CII ULFT replacement program in the reporting year? No

If No, please explain why on Line B. 10.

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.)

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency?

3. What is the total number of customer accounts participating in the program during the last year ?

CII Subsector	Number of Toilets Replaced			
4.	**Standard Gravity Tank**	**Air Assisted**	**Valve Floor Mount**	**Valve Wall Mount**
a. Offices				
b. Retail / Wholesale				
c. Hotels				
d. Health				
e. Industrial				
f. Schools: K to 12				
g. Eating				
h. Govern-ment				
i. Churches				
j. Other				

5. Program design.

6. Does your agency use outside services to implement this program?

a. If yes, check all that apply.

7. Participant tracking and follow-up.

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business

b. Inadequate payback

c. Inadequate ULFT performance

d. Lack of funding

e. American's with Disabilities Act

f. Permitting

g. Other. Please describe in B. 9.

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

ULFTs are part of a pilot CII survey program. Seemed well-accepted by those entities that accepted surveys

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor		
b. Materials		
c. Marketing & Advertising		
d. Administration & Overhead		
e. Outside Services		
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution

b. State agency contribution

c. Federal agency contribution

d. Other contribution

e. Total	0

D. Comments

Reported as of 5/7/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$5886000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$3181000
2. Commercial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$1984000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$468000
3. Industrial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$708000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$262000
4. Institutional / Government	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$426000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$426000
5. Irrigation	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$1152000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$238000
6. Other	
a. Water Rate Structure	Uniform

b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$33000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$1000

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

"Other" is recycled water service initiated in 2003.

Reported as of 5/7/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

1. Does your Agency have a conservation coordinator? no
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? yes
4. Partner agency's name: Castaic Lake WA
5. If your agency supplies the conservation coordinator:
   - a. What percent is this conservation coordinator's position? %
   - b. Coordinator's Name
   - c. Coordinator's Title
   - d. Coordinator's Experience and Number of Years
   - e. Date Coordinator's position was created (mm/dd/yyyy)
6. Number of conservation staff, including Conservation Coordinator. 2

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
   - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — no

   a. If YES, describe the ordinance:

2. Is a copy of the most current ordinance(s) on file with CUWCC? — no

   a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

   a. Gutter flooding — no

   b. Single-pass cooling systems for new connections — no

   c. Non-recirculating systems in all new conveyor or car wash systems — yes

   d. Non-recirculating systems in all new commercial laundry systems — no

   e. Non-recirculating systems in all new decorative fountains — yes

   f. Other, please name — no

2. Describe measures that prohibit water uses listed above:

   Local planning rules.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

   a. Allow the sale of more efficient, demand-initiated regenerating DIR models. — yes

   b. Develop minimum appliance efficiency standards that:

      i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. — yes

      ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. — yes

   c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. — yes

4. Does your agency include water softener checks in home water audit programs? — no

5. Does your agency include information about DIR and exchange-

type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 5/7/05

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2003**

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	40	7
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	**40**	**7**

6. Describe your agency's ULFT program for single-family residences.

publicly-advertised rebate program

7. Describe your agency's ULFT program for multi-family residences.

publicly-advertised rebate program

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	10000	20000
2. Actual Expenditures	10000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program run by CLWA on behalf of retailers

Reported as of 5/7/05

Water Supply & Reuse

Reporting Unit:

Year:
2004

Water Supply Source Information

Supply Source Name	Quantity (AF) Supplied	Supply Type

Total AF:

Reported as of 5/7/05

Accounts & Water Use

Reporting Unit Name:
Valencia Water Company

Submitted to CUWCC
02/15/2005

Year:
2004

A. Service Area Population Information:

1. Total service area population 93000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	24297	15522	0	0
2. Multi-Family	293	1288	0	0
3. Commercial	928	5827	0	0
4. Industrial	442	1957	0	0
5. Institutional	63	928	0	0
6. Dedicated Irrigation	405	3193	0	0
7. Recycled Water	8	420	0	0
8. Other	0	0	0	0
9. Unaccounted	NA	0	NA	0
Total	26436	29135	0	0
	Metered		**Unmetered**	

Reported as of 5/7/05

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Based on your signed MOU date, 02/07/2001, your Agency STRATEGY DUE DATE is:	02/07/2003
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	

B. Water Survey Data

Survey Counts:	**Single Family Accounts**	**Multi-Family Units**
1. Number of surveys offered:	0	0
2. Number of surveys completed:	0	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	no	no
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	no
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	no	no
Outdoor Survey:		
6. Check irrigation system and timers	no	no
7. Review or develop customer irrigation schedule	no	no
8. Measure landscaped area (Recommended but not required for surveys)	no	no
9. Measure total irrigable area (Recommended but not required for surveys)	no	no
10. Which measurement method is typically used (Recommended but not required for surveys)		None
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	no	no
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	no	no
a. If yes, in what form are surveys tracked?		None

b. Describe how your agency tracks this information.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

waiting on BMP revision

Reported as of 5/7/05

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? — no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? — no

3. Estimated percent of single-family households with low-flow showerheads: — %

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? — no

5. Estimated percent of multi-family households with low-flow showerheads: — %

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? — yes

   a. If YES, when did your agency begin implementing this strategy? — 5/12/2002

   b. Describe your targeting/ marketing strategy.

   Distribution at public events, paid advertising.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	20	5
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	25	5

6. Does your agency track the distribution and cost of low-flow devices? — yes

   a. If YES, in what format are low-flow devices tracked? — Database

   b. If yes, describe your tracking and distribution system :

   Names and address of recipient.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0

2. Actual Expenditures 0

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

CLWA provides program and funding on behalf of retailers.

Reported as of 5/7/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	no
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	
b. Determine other system verifiable uses (AF)	
c. Determine total supply into the system (AF)	
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	yes
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	yes
6. Does your agency operate a system leak detection program?	no
a. If yes, describe the leak detection program:	

B. Survey Data

1. Total number of miles of distribution system line.	323
2. Number of miles of distribution system line surveyed.	323

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	yes
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	
see 2002 explanation	

E. Comments

Reported as of 5/7/05

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	
b. Describe the program:	
3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters.	0
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 5/7/05

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	1119
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	no
a. If YES, when did your agency begin implementing this strategy?	
b. Description of marketing / targeting strategy:	
2. Number of Surveys Offered.	0
3. Number of Surveys Completed.	0
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	no
b. Distribution Uniformity Analysis	no
c. Review / Develop Irrigation Schedules	no
d. Measure Landscape Area	no
e. Measure Total Irrigable Area	no
f. Provide Customer Report / Information	no
5. Do you track survey offers and results?	no
6. Does your agency provide follow-up surveys for previously completed surveys?	no
a. If YES, describe below:	

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	no
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve	no

landscape water use efficiency?

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? No

a. If YES, describe below:

CLWA provides training on behalf of retailers

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? no

8. Do you provide customer notices at the end of the irrigation season? no

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 5/7/05

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — no

    a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

2. Does your agency offer rebates for high-efficiency washers? — no

3. What is the level of the rebate?

4. Number of rebates awarded.

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? — no

    a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 5/7/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Newlsetters, bill inserts, website, coordination with wholesaler.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	3
b. Public Service Announcement	no	
c. Bill Inserts / Newsletters / Brochures	yes	4
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	2
f. Special Events, Media Events	yes	3
g. Speaker's Bureau	no	
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Coordinate public outreach with CLWA programs/part of CLWA budget

Reported as of 5/7/05

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? no

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd				
Grades 4th-6th				
Grades 7th-8th				
High School				

3. Did your Agency's materials meet state education framework requirements? no

4. When did your Agency begin implementing this program?

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program is run by CLWA on behalf of retailers

Reported as of 5/7/05

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	yes

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	7	3	0
b. Number of New Surveys Completed	7	3	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	no
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	no
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	0
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	40000	40000
2. Actual Expenditures	45000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Operating a pilot survey prorgam while waiting on BMP revision.

Reported as of 5/7/05

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — No

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.)

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency?

3. What is the total number of customer accounts participating in the program during the last year ?

CII Subsector	Number of Toilets Replaced			
4.	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices				
b. Retail / Wholesale				
c. Hotels				
d. Health				
e. Industrial				
f. Schools: K to 12				
g. Eating				
h. Govern-ment				
i. Churches				
j. Other				

5. Program design.

6. Does your agency use outside services to implement this program?

a. If yes, check all that apply.

7. Participant tracking and follow-up.

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business

b. Inadequate payback

c. Inadequate ULFT performance

d. Lack of funding

e. American's with Disabilities Act

f. Permitting

g. Other. Please describe in B. 9.

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

ULFTs are part of a pilot CII survey program. Seemed well-accepted by those entities that accepted surveys

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor		
b. Materials		
c. Marketing & Advertising		
d. Administration & Overhead		
e. Outside Services		
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution

b. State agency contribution

c. Federal agency contribution

d. Other contribution

e. Total	0

D. Comments

Reported as of 5/7/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$6504000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$3190000
2. Commercial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$2420000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$489000
3. Industrial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$813000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$245000
4. Institutional / Government	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$385000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$58000
5. Irrigation	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$1331000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$231000
6. Other	
a. Water Rate Structure	Service Not Provided

b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$143000
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$7000

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

"Other" is recycled water

Reported as of 5/7/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

1. Does your Agency have a conservation coordinator?	no
2. Is this a full-time position?	no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	yes
4. Partner agency's name:	Castaic Lake WA
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	%
b. Coordinator's Name	
c. Coordinator's Title	
d. Coordinator's Experience and Number of Years	
e. Date Coordinator's position was created (mm/dd/yyyy)	
6. Number of conservation staff, including Conservation Coordinator.	2

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

Reported as of 5/7/05

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — no

   a. If YES, describe the ordinance:

2. Is a copy of the most current ordinance(s) on file with CUWCC? — no

   a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

   a. Gutter flooding — no

   b. Single-pass cooling systems for new connections — no

   c. Non-recirculating systems in all new conveyor or car wash systems — yes

   d. Non-recirculating systems in all new commercial laundry systems — no

   e. Non-recirculating systems in all new decorative fountains — yes

   f. Other, please name — no

2. Describe measures that prohibit water uses listed above:

   Local planning rules.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

   a. Allow the sale of more efficient, demand-initiated regenerating DIR models. — yes

   b. Develop minimum appliance efficiency standards that:

      i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. — yes

      ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. — yes

   c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. — yes

4. Does your agency include water softener checks in home water audit programs? — no

5. Does your agency include information about DIR and exchange-

type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 5/7/05

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Valencia Water Company	**100% Complete**	**2004**

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	90	4
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	**90**	**4**

6. Describe your agency's ULFT program for single-family residences.

publicly-advertised rebate program

7. Describe your agency's ULFT program for multi-family residences.

publicly-advertised rebate program

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	20000	20000
2. Actual Expenditures	20000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Program run by CLWA on behalf of retailers

CUWCC

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Memorandum of Understanding

Base Year Data

Reporting Unit: **Newhall County Water District**	**Submitted to CUWCC** 08/21/2003

INSTRUCTIONS: This form MUST BE completed and submitted to the CUWCC prior to filing any BMP reports. The data provided on this form is used in determining coverage requirements for specific BMPs as indicated. If some of the data requested is not available, make reasonable estimates. You can update and edit values, if more precise information becomes available in the future.

For Customer Classification Definitions (i.e. Single Family, Multi-Family) click HERE.

	1. Your **BASE YEAR is 2002.** NOTE: Many calculations in determining credit history and coverage requirements are contingent on your BASE YEAR, which is calculated based on the following criteria. If a Signatory signed the MOU in 1997 or earlier, then the Base Year is 1997. If a Signatory signed the MOU after 1997, then the Base Year is the year the MOU was signed. The same holds true for USBR Contractors, except the date their Base Year is calculated from is the date that their Plan was noticed in the Federal Register.	
	BMP 1	
	2. Number of single-family customers in 2002	6662
	3. Number of multi-family units in 2002	4812
	BMPs 2 and 14	
	4. Number of single-family housing units constructed prior to 1992	5522
	5. Number of multi-family units prior to 1992	4756
	BMP 4	
	6. Number of unmetered accounts in 2002	0
	BMPs 5 and 9	
	7. Number of commercial accounts in 2002	323
	8. Number of industrial accounts in 2002	8
	9. Number of institutional accounts in 2002	71
	10. Total water use (AF) by commercial, industrial and institutional accounts in 2002	2289.66
	BMP 14	
	11. Average number of toilets per single-family household	2.5
	12. Average number of toilets per multi-family household	1.2
	13. Five-year average resale rate of single-family households	4.46

	14. Five-year average resale rate of multi-family households	9.02
	15. Average persons per single-family household	3.35
	16. Average persons per multi-family household	2.51

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Webmaster

Accounts & Water Use

Reporting Unit Name:	Submitted to	Year:
Newhall County Water District	CUWCC **11/30/2004**	**2003**

A. Service Area Population Information:

1. Total service area population 32000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	6807	5687	0	0
2. Multi-Family	384	1803	0	0
3. Commercial	267	562	0	0
4. Industrial	7	76	0	0
5. Institutional	64	632	0	0
6. Dedicated Irrigation	70	945	0	0
7. Recycled Water	0	0	0	0
8. Other	72	130.4	0	0
9. Unaccounted	NA	21.55	NA	12.48
Total	7671	9856.95	0	12.48
	Metered		**Unmetered**	

Accounts & Water Use

Reporting Unit Name:	Submitted to	Year:
Newhall County Water District	CUWCC **11/30/2004**	**2004**

A. Service Area Population Information:

1. Total service area population 35000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	7544	6054	0	0
2. Multi-Family	367	1682	0	0
3. Commercial	283	524	0	0
4. Industrial	7	116	0	0
5. Institutional	63	613	0	0
6. Dedicated Irrigation	77	1457	0	0
7. Recycled Water	0	0	0	0
8. Other	81	54	0	0
9. Unaccounted	NA	6.62	NA	826.23
Total	8422	10506.62	0	826.23
	Metered		**Unmetered**	

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

1. Based on your signed MOU date, 03/05/2002, your Agency STRATEGY DUE DATE is:	03/04/2004
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	N/A
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	N/A

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	0	0
2. Number of surveys completed:	0	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	no	no
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	no
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	no	no
Outdoor Survey:		
6. Check irrigation system and timers	no	no
7. Review or develop customer irrigation schedule	no	no
8. Measure landscaped area (Recommended but not required for surveys)	no	no
9. Measure total irrigable area (Recommended but not required for surveys)	no	no
10. Which measurement method is typically used (Recommended but not required for surveys)		None
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	no	no
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	no	no
a. If yes, in what form are surveys tracked?		None

b. Describe how your agency tracks this information.

NCWD did not have a residential survey program from 7/2002 - 6/2003. However, in Fiscal Year 2002/2003 NCWD updated their database system

to Inhance which allowed for customer service to more easily identify and log customers based on their class code. Single-family and multi-family customers were classified in separate classes and homeowner association accounts, neighborhood recreation facilities, and other common irrigated areas were coded as landscape for future BMP 5 programs. The Inhance system also allowed NCWD to electronically sort residential customers by parcel groupings or books. From the listed books/groups, Customer Service was able to calculate the estimated number of single and multi-family dwelling units built before 1992. This data information can then be used for the development and marketing BMP 2 (Residential Plumbing Retrofit) and 14 (ULFT Rebate Program).

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

E. Comments

NCWD signed the MOU in 3/2002 and therefore was not required to implement a Residential Water Use Survey Program until 7/2003 which is the start of the 2004 reporting period. Although a residential water use survey program was not implemented in FY 2002/03, NCWD offered residential customers informative material and guidebooks to help them identify water waste or inefficiency and how they could conserve. All new residential customers were given Conservation Packets with information on water conservation for indoor and outdoor residential water usage. These packets included irrigation and gardening guidebooks (Sunset Magazine), 55 Quick Tips, recommendations to identify and prevent leaks, how to complete a self audit of your home, and other useful pamphlets and material.

Reported as of 5/18/05

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Based on your signed MOU date, 03/05/2002, your Agency STRATEGY DUE DATE is:	03/04/2004
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	N/A
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	no
a. If YES, when was it implemented?	N/A

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	0	0
2. Number of surveys completed:	0	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	no	no
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	no
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	no	no
Outdoor Survey:		
6. Check irrigation system and timers	no	no
7. Review or develop customer irrigation schedule	no	no
8. Measure landscaped area (Recommended but not required for surveys)	no	no
9. Measure total irrigable area (Recommended but not required for surveys)	no	no
10. Which measurement method is typically used (Recommended but not required for surveys)		None
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	no	no
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	yes	yes
a. If yes, in what form are surveys tracked?		database

b. Describe how your agency tracks this information.

A tracking system for monitoring participation in BMP 1 and other programs was created in NCWD's Inhance database in 2002/03 which is

connected to the customer service and billing database. In 2003/04, NCWDÌs Customer Service staff began connecting the BMP data to the district's GIS mapping software. With the GIS, NCWD is able to map out pre and post 1992 residential accounts so that the district could have additional information such as lot size, topographic conditions and other issues essential to identify ideal customers for a residential survey program. Furthermore, a new detailed BMP data section was added to the Inhance system to log customer participation in each of the BMP programs including residential surveys. Combining the new BMP data section and the GIS capabilities, NCWD was able to determine trends in customer behavior/participation so that BMP 1 and other programs can be better marketed and implemented. Specific data and information related to BMP 1 is also tracked in an excel database.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

E. Comments

NCWD filed a late exemption in November 2004 for the District's first year (2003/04 reporting period) for implementing BMP 1. NCWD did not have the staff or budgeted funds to implement a residential survey program. NCWD has begun development of a pilot survey program in late FY 2003/04 to evaluate the effectiveness (resulting water savings and cost savings achieved) of a district managed residential survey program. The pilot survey program is expected to begin in 2005. After the completion of 30-50 surveys and post-survey monitoring and assessments, NCWD will determine the most cost-effective method for reducing residential water usage out of the listed options below: 1. In-house (staff operated and maintained) survey program. 2. Outsourced (to outside consulting firm) large scale residential survey program. 3. Valley-wide survey program (with other local retailers and CLWA assistance). 4. Discontinuation of any and all residential survey programs. Although a residential water use survey program was not implemented in FY 2003/04, NCWD continued to offer residential customers informative material and guidebooks to help them identify water waste or inefficiency and how they could conserve. All new residential customers were given Conservation Packets with information on water conservation for indoor and outdoor residential water usage. These packets included irrigation and gardening guidebooks (Sunset Magazine), 55 Quick Tips, recommendations to identify and prevent leaks, how to complete a self audit of your home, and other useful pamphlets and material.

Reported as of 5/18/05

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

   The City of Santa Clarita requires the replacement of high flow plumbing fixtures and devices in high stage drought conditions only. No other local ordinance or code requiring installation or retrofit of low flow plumbing devices (for residential customers) is in place for NCWDís service area in the Santa Clarita Valley. NCWD is creating a Water Use Efficiency Ordinance (effective 12/2004) with listed recommendations to be water efficient including the installation of low flow plumbing devices. NCWD is considering requiring that customers/residents follow these recommendations during a DWR declared drought.

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? no

3. Estimated percent of single-family households with low-flow showerheads: 1.3%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? no

5. Estimated percent of multi-family households with low-flow showerheads: .15%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   N/A

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

   a. If YES, when did your agency begin implementing this strategy? 01/01/2003

   b. Describe your targeting/ marketing strategy.

   Showerheads and aerators were provided by the wholesaler (CLWA) to give out to customers at local events (i.e. Open House, River Rally, Emergency Expo). The program was mainly marketed by CLWA; however NCWD advertised the program in the quarterly newsletter and at the front office desk. In 2003/04 NCWD expanded the BMP 2 program to also include all pre-1992 multi-family homes in addition to the (pre-1992) single-family homes. This includes several mobile home parks and small apartment buildings built prior to 1992. Customers were allocated up to 4 devices per household unless they could prove additional low flow devices were necessary.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	21	4
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	29	27

6. Does your agency track the distribution and cost of low-flow devices? yes

a. If YES, in what format are low-flow devices tracked? Database

b. If yes, describe your tracking and distribution system :

In 2003/04 NCWD staff added data box in the customer service and billing database (Inhance) in order to accurately track customer participation. BMP participation was categorized by program and tracked based on the status or level of a customer's participation as follows: 1. Call or email of interest 2. Received Application Form (for rebate programs) 3. Participated in designated BMP program (example: received showerhead) 4. Customer on waiting list 5. Post program follow up completed For BMP 2, each low flow device (i.e. showerheads, faucet aerators and garden hose spray nozzles) was tracked as well. Using the database, NCWD was able to map the distribution of participation throughout the four service areas and easily identify patterns and trends. For example, participation in BMP 2 was clumped in neighborhoods most likely due to communication between neighbors regarding the programs.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	2228.4	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

E. Comments

In June of 2/004, NCWD offered the free devices to both single and multi-family customers to increase distribution and meet the requirements of BMP 2. NCWD also started providing the low flow devices to customers at the district's front office rather than strictly at public events. The estimated expenditures are for approximately 60 hours of staff time invested at $37.14/hour. Staff hours includes the time necessary to created the tracking database and maps, coordinating with CLWA, assisting customers, stocking front office inventory, and logging customer participation.

Reported as of 5/18/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year? yes

2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:

   a. Determine metered sales (AF) 9840.96

   b. Determine other system verifiable uses (AF) 0

   c. Determine total supply into the system (AF) 9869.43

   d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 1.00

3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? yes

4. Did your agency complete a full-scale audit during this report year? no

5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? no

6. Does your agency operate a system leak detection program? no

   a. If yes, describe the leak detection program:

   Although NCWD does not have a proactive leak detection program, the district monitors key data to quickly identify leaks and other necessary repairs in the distribution system. Monthly records of total water purchased from CLWA and water supply obtained through district wells (groundwater), as well as the total water sales and other verifiable usage for all 4 service areas is logged. The percent water loss is tracked to determine potential leaks or system misreads throughout the 4 service areas. The total (annual) water loss for the entire district averages around 7.5 to 9.0 percent.

B. Survey Data

1. Total number of miles of distribution system line. 134.93

2. Number of miles of distribution system line surveyed. 0

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	500000	382.343
2. Actual Expenditures	567444.49	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

   N/A

E. Comments

The listed budget and expenditures [Section C (1,2)] include all maintenance, leak and general repairs, upgrades and replacement of the distribution system in the four service areas. NCWD investigates

potential leaks and system damages as needed and monitors the collected data to detect major leaks and other irregularities in the system. The investigation of system leaks is classified under system maintenance in the 2002-03 Budget. A detailed breakdown of the budget and expenditures for Leak Detection, Repair and Distribution System Maintenance is attached (submitted separately to CUWCC).

Reported as of 5/18/05

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year? — no

2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:

a. Determine metered sales (AF)	10507.16
b. Determine other system verifiable uses (AF)	-4.04
c. Determine total supply into the system (AF)	11332.85
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.93

3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? — yes

4. Did your agency complete a full-scale audit during this report year? — yes

5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? — no

6. Does your agency operate a system leak detection program? — no

a. If yes, describe the leak detection program:

Refer to 2002-03 Submission

B. Survey Data

1. Total number of miles of distribution system line.	147.41
2. Number of miles of distribution system line surveyed.	0

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	382343	500000
2. Actual Expenditures	358475.08	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? — No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

E. Comments

The listed budget and expenditures [Section C (1,2)] include all maintenance, leak and general repairs, upgrades and replacement of the distribution system in the four service areas. NCWD investigates potential leaks and system damages as needed and monitors the collected data to detect major leaks and other irregularities in the system. The investigation of system leaks is classified under system maintenance in the 2002-03 Budget. A detailed breakdown of the budget and expenditures for Leak Detection, Repair and Distribution System Maintenance is attached (submitted separately to CUWCC).

Reported as of 5/18/05

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? yes

2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? no

a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? Always Metered

b. Describe the program:

All existing accounts are metered and have been for several years. All new connections are required to install the appropriate size meter and type (i.e. CII mixed or dedication irrigation meter) as determined necessary by the district's engineering department and approved by management.

3. Number of previously unmetered accounts fitted with meters during report year. 0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? no

a. If YES, when was the feasibility study conducted? (mm/dd/yy) N/A

b. Describe the feasibility study:

N/A - NCWD has an "at least as effective" district policy to assess the benefits of installing a dedicated irrigation meter on a case by case basis [see Section D(b)].

2. Number of CII accounts with mixed-use meters. 341

3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. 0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

NCWD meets the requirements under BMP 4 Sections A(a), C, and D as described in the BMP. A dedicated irrigation meter retrofit program [Section A(b)] and a feasibility study [Section a(c)] on the merits of an incentive program to switch mixed meters to dedicated landscape (irrigation) meters has not been completed. These two requirements have been meet through NCWD*s new water service connection policies and procedures. Currently, dedicated irrigation meters have been installed in all appropriate CII properties within the district and therefore there are no retrofit opportunities available. Like all CII and other meters, the dedicated irrigation meters are

billed based on monthly usage. The irrigation meters are also separately billed from a property*s main meter with a separate monthly service fee (based on the size of the meter), energy and water availability fees, and other standard monthly charges. Instead of a feasibility study to determine the potential merits of an incentive program, NCWD requires developers to install dedicated irrigation meters when appropriate (as determined by the district). NCWD evaluates the cost/benefits of installing a dedicated irrigation meter during a new projects* (or customer*s) water service application and installation process. The engineering staff work with the developer/customer to determine if a dedicated irrigation meter is necessary and will benefit the customer and the district to help conserve water. If the NCWD*s engineering department determines a dedicated irrigation meter is necessary, the developer/customer is required to install the separate meter and incur any related installation costs. As a result of these policies, NCWD has a significant number of dedicated irrigation meters in the CII sectors that will allow the district to better audit these accounts and establish water budgets (for BMP 5 requirements) to reduce district water usage.

E. Comments

NCWD has met the requirements stated under BMP 4 requiring meters for all existing and new customers. Furthermore, dedicated irrigation meters are installed at the time of initial service connection (when appropriate) to reduce water usage and minimize costs to the district and the customer. NCWD will assist any property owners in retrofitting their property with a dedicated irrigation meter if there is an increase in the landscape area(s) or other circumstance to constitute the need for a separate landscape/irrigation meter. However, NCWD does not offer any incentive for customers to retrofit and the associated installation costs are the responsibility of the customers.

Reported as of 5/18/05

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	N/A

b. Describe the program:

All existing accounts are metered and have been for several years. All new connections are required to install the appropriate size meter and type (i.e. CII mixed, residential, dedication irrigation meter, etc.) as determined necessary by the district's engineering department.

3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	N/ A

b. Describe the feasibility study:

N/A

2. Number of CII accounts with mixed-use meters.	358
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A ñ NCWD has an "at least as effective" district policy to assess the benefits of installing a dedicated irrigation meter on a case by case basis [see Section D(a) 2002-03 submission].

E. Comments

NCWD continues to meet the requirements under BMP 4 Sections A(a), C, D as described in the BMP, as well as Section A(b) (retrofit program) and Section A(c) (feasibility study) under the district*s úat least as effectiveî program in place. These two requirements are met through NCWD*s new water service connection policies and procedures. The incentives of installing a dedicated irrigation meter are evaluated during the initial service application process for each individual service application.

Dedicated irrigation meters are installed in all appropriate CII properties during the initial service connection to minimize retrofit costs to the district and the customer (refer to BMP 4 2002-03 Comment submission).

Reported as of 5/18/05

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	118
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	no
a. If YES, when did your agency begin implementing this strategy?	N/A
b. Description of marketing / targeting strategy:	
N/A	
2. Number of Surveys Offered.	0
3. Number of Surveys Completed.	0
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	no
b. Distribution Uniformity Analysis	no
c. Review / Develop Irrigation Schedules	no
d. Measure Landscape Area	no
e. Measure Total Irrigable Area	no
f. Provide Customer Report / Information	no
5. Do you track survey offers and results?	no
6. Does your agency provide follow-up surveys for previously completed surveys?	no
a. If YES, describe below:	
N/A	

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	no
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	no
4. Does your agency offer financial incentives to improve landscape water use efficiency?	no

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded

a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

NCWD offers basic landscape design manuals (published by AWWA) to help customers incorporate native and drought tolerant plants with consideration to the unique conditions found in the Santa Clarita Valley. Information on efficient gardening is also provided to children in the Culver and AWWA published coloring and activity books provided to customers at events and the NCWD office. The local water wholesaler (CLWA) also provides NCWD and the other local retailers with several sources and opportunities for all customers to learn more about water efficient landscape irrigation. Residents and businesses in the valley have access to an extensive list of plants and key information on planting and maintaining the recommended species on CLWAls website. CLWA also offers training courses to all Santa Clarita Valley residents (including NCWD customers), gardeners and business owners on creating and maintaining a water efficient landscape. Classes include organic gardening, drip irrigation, native and drought tolerant plants, among other classes available. NCWD further promotes water efficient landscape design and irrigation through newsletter articles, local newspaper articles and through the districtls Ordinance 101 (Water Conservation) that lists recommended watering hours and outdoor (and indoor) water wasting activities.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

F. Comments

There are no listed expenditures for BMP 5 for 2002/03 since any costs for landscape /irrigation educational material and guidebooks were included in expenditures for BMP 7 (Public Information Programs). Estimated expenditures specifically for educational material on water efficient landscape/irrigation are approximately $400 ordered from AWWA. Staff hours and miscellaneous costs are also calculated under BMP 7. NCWD signed the MOU in 3/2002 and therefore was not

required to implement a Landscape Survey Program until 7/2004 which is the start of the 2005 reporting period.

Reported as of 5/18/05

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	133
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	no
a. If YES, when did your agency begin implementing this strategy?	N/A
b. Description of marketing / targeting strategy:	
N/A	
2. Number of Surveys Offered.	0
3. Number of Surveys Completed.	0
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	no
b. Distribution Uniformity Analysis	no
c. Review / Develop Irrigation Schedules	no
d. Measure Landscape Area	no
e. Measure Total Irrigable Area	no
f. Provide Customer Report / Information	no
5. Do you track survey offers and results?	no
6. Does your agency provide follow-up surveys for previously completed surveys?	no
a. If YES, describe below:	
N/A	

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	no
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve landscape water use efficiency?	no

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded

a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

In 2003/04 NCWD expanded its library of water conservation information and resources to include more landscape and irrigation guidebooks, references and other helpful material for customers. The District provided the Sunset Magazine series to all new homeowners and made them available to customers attending public events and to customers at the NCWD office. The Sunset magazine series included; ìSmart Water & Energy Use in the West,î ìHow to Water Your Garden,î and ìWater-Wise Gardening for California.î NCWD also offers basic landscape design manuals (published by AWWA) to help customers incorporate native and drought tolerant plants with consideration to the unique conditions found in the Santa Clarita Valley. Information on efficient gardening is also provided to children in the Culver and AWWA published coloring and activity books provided to customers at events and the NCWD office. The local wholesaler (CLWA) continues to provide a list of native and drought tolerant vegetation on their website and offer various courses on water efficient landscape design and irrigation. The resources provided by CLWA are available to all NCWD customers and other residents of the Santa Clarita Valley. NCWD will continue to expand its efforts to promote water efficient landscape and irrigation practices throughout the district. At the end of 2003/04, The Engineering and Conservation Department began applying customer data to the districtís GIS mapping system to start gathering necessary information and data to establish water budgets. The information will also help the district in identify ideal candidates for landscape surveys and/or water budgets based on their lot size, location, topographic features and water usage history.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

There are no listed expenditures for BMP 5 for 2002/03 since any costs for landscape /irrigation educational material and guidebooks was included in expenditures for BMP 7 (Public Information Programs). Estimated expenditures specifically for educational material on water

efficient landscape/irrigation are $2,343.30 for the 3 Sunset Magazine guidebooks, and approximately $1,500 to $2,000 for various education materials from AWWA and the Culver Company. Staff hours and miscellaneous costs are also calculated under BMP 7. NCWD is investigating installing a CIMIS weather station for district customers to use to obtain accurate (local) ET values to improve the efficiency of their irrigation systems. The district will be increasing its efforts to promote water efficient irrigation and will be developing a landscape survey program targeting top water using meters (per square foot landscape area). NCWD filed a late exemption in November 2004 for the District's second reporting period (2005/06) for implementing BMP 5. The exemption was filed since NCWD currently does not have the staff or budgeted funds to implement a landscape survey program, however the district will actively seek funding sources for such a program.

Reported as of 5/18/05

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — no

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   NCWD did not offer a rebate program in 2002-03. Los Angeles County Sanitation Districts 32 & 26 (LACSD) and Southern California Edison did not offer any type of rebate for water efficient clothes washers.

2. Does your agency offer rebates for high-efficiency washers? — no
3. What is the level of the rebate? — 0
4. Number of rebates awarded. — 0

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? — no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

   N/A

D. Comments

N/A

Reported as of 5/18/05

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — no

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   Los Angeles County Sanitation Districts or LACSD, (specifically 32 & 26) offer a cost reduction of 20%, 40% or 60% for customers that reduce their wastewater (sewer) discharge by 20% or more. The reduction is calculated based on a 12 month comparison of water usage as shown on the customer's water bill (from NCWD). If they reduced their bill 20%, they receive a 20% reduction on their fees. Customers must reduce their water usage (and thus discharge) by at least 20% in order to qualify for the financial incentives. Installing a water efficient clothes washer could generate 20% water savings and therefore qualify the customer for a reduction. However, neither LACSD nor Southern California Edison offers a rebate specifically for high efficiency clothes washers. Thus, at this time NCWD is not offering a complementing rebate to customers.

2. Does your agency offer rebates for high-efficiency washers? — no
3. What is the level of the rebate? — 0
4. Number of rebates awarded. — 0

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? — no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

   N/A

D. Comments

NCWD currently does not have the staff or funds to implement a water efficient clothes washer rebate program. NCWD will reassess the cost-effectiveness of such a program as funding sources change and/or Southern California Edison or LACSD implement a specific clothes washer rebate program.

Reported as of 5/18/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

NCWD has a comprehensive public outreach and education program to promote water conservation and water use efficiency. The district efforts are designed to target the various classes of customers including (single & multi-family) residential, CII and large landscape. For several years the district has been releasing a quarterly newsletter to the entire customer base to inform customers on district upgrades and additions to improve the water quality and service, recognition of employee excellence, and education on new district policies and programs. Most importantly, the newsletter includes a "Water Awareness" section that provides customers with useful tips and recommendations to be water efficient and to reduce water waste. The newsletters also include a seasonal article describing how to increase water efficiency such as how to set your summer irrigation schedule or how to protect pipes from freezing temperatures in the winter. In addition to the newsletter, NCWD includes a bill notice (or by-line) with important reminders and water conservation tips. For example, the bill notice in May 2003 reminded customers to change out their old toilets and receive a ULFT rebate voucher from the district. NCWD also includes bill stuffers in the customer*s monthly water bill several times a year to promote conservation programs and/or to provide general information on conservation. NCWD participates in 4 major community events (River Rally, CLWA Open House, Emergency Expo and The Street Fair) to further reach out to the customers and the general public. At these events and at the district office, customers can obtain pamphlets, guidebooks, conservation promo items and children*s coloring and activities books on water conservation, and other informative material. NCWD maintains an extensive inventory of information resource material on conservation, leak detection, water safety, district operations, water quality (annual reports), and more. In FY 2002-03 NCWD expanded its website to include a úWater Conservationî section which includes easy tips for conserving water. NCWD continues to expand all areas of public outreach and education

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	0
b. Public Service Announcement	no	0
c. Bill Inserts / Newsletters / Brochures	yes	5
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	4
g. Speaker's Bureau	no	
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	14930.85	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

In 2002/03 the BMP 7 (Public Information Programs) budget was not separately defined and therefore only actual expenditures are provided. Expenditures were taken from a general account that is used for various uses including public outreach and education, employee supplies and uniforms, and other marketing uses. The expenditures were calculated based on the development and production (printing, mailing, etc.) costs associated with the PR material and events, as well as the employee time expended. Various levels of staff participated in public outreach efforts including management, customer service, accounting, and technical field staff. Therefore, an average hourly employee rate of $37.14 was used which includes auxiliary costs such as insurance, worker*s compensation, taxes and other fees. With a total of 7,715 meter accounts and an estimated population of 28,000, NCWD expended $1.94 per meter account or $0.53 per person.

Reported as of 5/18/05

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

NCWD continued to maintain a comprehensive public outreach and education program to promote water conservation and water use efficiency in FY 2003/04. In 2003/04 NCWD identified that irrigation constituted a significant portion of the districtÌs water usage and therefore added new information material to educate and promote water efficient irrigation (to residential customers). The District provided the Sunset Magazine series to all new homeowners and made them available to customers attending public events and to customers at the NCWD office. The Sunset magazine series included; Ìsmart Water & Energy Use in the West,Ó ÏHow to Water Your Garden,Ó and ÏWater-Wise Gardening for California.Ó NCWD continued to release a quarterly newsletter to the entire customer base to inform customers on district upgrades and additions to improve the water quality and service, recognition of employee excellence, education on new district policies and programs and water conservation. The newsletters also continued to include seasonal articles describing how to increase water efficiency for indoor and outdoor water usage. In May of 2003, NCWD included a bill notice (or by-line) in the customerÌs monthly water bill to remind customers to change out their old toilets and receive a ULFT rebate voucher from the district. A separate postcard was also sent to advertise the valley wide Residential ULFT Rebate Program sponsored and organized by the local wholesaler (CLWA). The district works with the wholesaler and the other local water retailers in the Santa Clarita Valley to promote water efficiency and conservation through various PR campaigns, advertising and newspaper articles. Since the annual city Street Fair was not held September 2003, NCWD only participated in 3 major community events (River Rally, CLWA Open House, and the Emergency Expo) to further reach out to the customers and the general public. At these events and at the district office, customers can obtain pamphlets, guidebooks, conservation promo items and childrenÌs coloring and activities books on water conservation, and other informative material. NCWD maintains an extensive inventory of information resource material on conservation, leak detection, water safety, district operations, water quality (annual reports), and more. NCWD continued to expand the ÏWater ConservationÓ section of the district website adding new easy tips for conserving water and links to useful information sites.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	0
b. Public Service Announcement	no	0
c. Bill Inserts / Newsletters / Brochures	yes	6
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	3

g. Speaker's Bureau	no	0
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	10000
2. Actual Expenditures	25692.01	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

In mid 2003/04 a separate BMP budget account was created to better record expenses related to the BMP programs. Therefore, the expenditures for BMP 7 in 2003/04 are recorded under two separate accounts in the districtÌs budget and expenditures report. Most of the recorded BMP expenses were for BMP 7 (Public Information Programs) such as design and printing costs, educational and promotional item purchases and other related costs. The expenditures were calculated based on the development and production (printing, mailing, etc.) costs associated with the PR material and events, as well as the employee time expended. Various levels of staff participated in public outreach efforts including management, customer service, accounting, and technical field staff. Therefore, an average hourly employee rate of $37.14 was used which includes auxiliary costs such as insurance, workerÌs compensation, taxes and other fees. With a total of 8,531 meter accounts and an estimated population of 32,000, NCWD expended $3.01 per meter account or $0.80 per person.

Reported as of 5/18/05

BMP 08: School Education Programs

Reporting Unit:
Newhall County Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	47	1410	0
Grades 4th-6th	yes	23	700	0
Grades 7th-8th	yes	0	0	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1993

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

The education program is provided entirely by our wholesaler (CLWA) on our behalf since 1993 for K-6 and 7-12, however the program has been unsuccessful at reach students and teachers in grades 7-12. Students travel to CLWA for their workshops and presentations which include a tour of CLWA's drought tolerant and native vegetation garden and classes how water science, conservation and composting. The actual number of workshops held was not provided to NCWD, therefore an estimated value is provided in this report. The estimated number of presentations was based on the total number of participating students assuming 30 students per workshop or presentation. Currently, CLWA does not offer curriculum workshops teachers on water conservation and related topics.

Reported as of 5/18/05

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	29	844	0
Grades 4th-6th	yes	22	650	0
Grades 7th-8th	yes	0	0	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1993

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

CLWA continues to organize and implement a school education program on our behalf of NCWD and the other water retailers in the Santa Clarita Valley since 1993 for K-6. In 2003-04, grades and 7-12 students and teachers did not participate. CLWA is working on developing a program in 2005 specifically targeted at grades 7-12. The actual number of workshops held was not provided to NCWD for 2003-04, therefore an estimated value is provided in this report. The estimated number of presentations was based on the total number of participating students assuming 30 students per workshop or presentation. Currently, CLWA does not offer curriculum workshops teachers on water conservation and related topics.

Reported as of 5/18/05

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? **no**

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no	no	no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water **no**

savings for the purpose of complying with BMP 9 under this option?	
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	no
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	0
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

Based on NCWD signatory date of the MOU, the district does not need to implement a CII conservation program until FY 2004-05. NCWD's Customer Service staff began preparations for a CII program in 2002-03 by sorting accounts by the BMP class codes such as commercial, industrial, large landscape, etc. The class codes were applied to the Inhance (customer service and billing database) System to use for future CII programs.

Reported as of 5/18/05

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? no

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no	no	no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water no

savings for the purpose of complying with BMP 9 under this option?	
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	no
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	0
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

NCWD did not have a CII Survey program in 2003-04 as the MOU was signed in March 2002. During 2003-04, NCWD began gather necessary data and information to implement a CII Survey or conservation program for the next reporting period (2005-06) as scheduled.

Reported as of 5/18/05

BMP 09a: CII ULFT Water Savings

Reporting Unit: **Newhall County Water District** | BMP Form Status: **100% Complete** | Year: **2003**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — No

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

Consumption ranking
Potential savings
Oldest meter

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

NCWD did not implement a CII ULFT program during the 2003-04 reporting period, however a program is in potential development (as part of a CII survey program) for the 2004-05 that will identify target customers based on the facilities water usage (consumption) volume, water savings potential and if the site has plumbing fixtures installed or replaced prior to January 1992.

2. How does your agency advertise this program? Check all that apply.

Direct letter
Bill insert
Bill message
Newsletter
Telephone
Web page
Radio PSAs
Newspapers
Trade publications
Other print media
Trade shows and events
Telemarketing

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

All BMP programs are advertised in our district newsletter, through newspaper articles, our website, customer calls, bill inserts and other applicable and other cost effective means. Although a CII toilet rebate program was not implemented in 2003-04 reporting period, the above marked advertising efforts were included for the residential ULFT rebate program (5/2003 & 5/2004).

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes

3. What is the total number of customer accounts participating in the program during the last year ? — 0

CII Subsector	Number of Toilets Replaced			
4.	Standard	Air	Valve Floor	Valve Wall

	Gravity Tank	Assisted	Mount	Mount
a. Offices	0	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Govern-ment	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design.

Rebate or voucher
Direct installation
Direct installation with customer co-payment
Direct distribution
Direct distribution with customer co-payment
Retrofit on resale

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply.

Community Based Organization
Plumbing contractors/subcontracts

7. Participant tracking and follow-up.

Letter
Telephone

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	4
b. Inadequate payback	5
c. Inadequate ULFT performance	2
d. Lack of funding	4
e. American's with Disabilities Act	1
f. Permitting	2
g. Other. Please describe in B. 9.	3

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

Although a specific program has not been implemented, several CII customers have been informally surveyed during customer service phone calls and at public events. regarding participation in district programs. From the provided customer input, the above rankings were determined for reasons for not participating in conservation and rebate programs.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and

budgeting?

N/A - CII ULFT Retrofit program was not implemented in NCWD.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	0
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	0

D. Comments

N/A - CII ULFT Retrofit program was not implemented in NCWD.

Reported as of 5/18/05

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — No

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   N/A

2. How does your agency advertise this program? Check all that apply.

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   N/A

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.)

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes

3. What is the total number of customer accounts participating in the program during the last year ? — 0

CII Subsector	Number of Toilets Replaced			
4.	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices	0	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Govern-ment	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design.

6. Does your agency use outside services to implement this program? — No

a. If yes, check all that apply.

7. Participant tracking and follow-up.

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	4
b. Inadequate payback	5
c. Inadequate ULFT performance	2
d. Lack of funding	4
e. American's with Disabilities Act	1
f. Permitting	2
g. Other. Please describe in B. 9.	3

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

N/A - NCWD did not implement a CII ULFT Rebate program in 2003/04. Refer to BMP 9(a) 2002/03 regarding general acceptance/resistance by customers for all BMP and other conservation programs within in NCWD.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

N/A

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	0
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	0

D. Comments

A CII ULFT Rebate Program was not implemented in 2003/04. The district is reviewing the cost-effectiveness of incorporating a ULFT Rebate program with the CII Survey project.

Reported as of 5/18/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$2610115.2
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$4971003.58
2. Commercial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$195845.76
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$426019.58
3. Industrial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$26484.48
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$37008.69
4. Institutional / Government	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$220239.36
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0
5. Irrigation	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$468008.64
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$605189.36
6. Other	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided

c. Total Revenue from Volumetric Rates	$48438.72
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$490129.57

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

All NCWD customers are metered and billed based on their usage and standard monthly fees and other miscellaneous charges. NCWD received $6,704,884.61 in revenue for volumetric and non-volumetric charges (as a total for all classes). Non-volumetric revenue collected from institutional customers is incorporated in the commercial class non-volumetric revenue. The volumetric revenue for each class was calculated using the flat rate of $0.80/ccf and the class usage values as provided in the Customer Account and Usage Worksheet.

Reported as of 5/18/05

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$2695841.28
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$5672106.46
2. Commercial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$182603.52
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$458349.06
3. Industrial	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$40423.68
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$67094.02
4. Institutional / Government	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$213618.24
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0
5. Irrigation	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	$507735.36
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$809294.6
6. Other	
a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric	

Rates	$18817.92
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$462445.13

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	30000
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

All NCWD customers are metered and billed based on their usage and standard monthly fees and other miscellaneous charges. NCWD received $7,603,691.87 in revenue for volumetric and non-volumetric charges (as a total for all classes). Non-volumetric revenue collected from institutional customers is incorporated in the commercial class non-volumetric revenue. The volumetric revenue for each class was calculated using the flat rate of $0.80/ccf and the class usage values as provided in the Customer Account and Usage Worksheet. NCWD budgeted for a water rate structure study to identify the most effective rate structure for residential customers to increase water conservation while meeting revenue goals. The study evaluated several water districts' and other retailers' rate structures based on the impact on conservation, revenue, customer service and satisfaction, and implementation and maintenance time and effort. The NCWD Board voted to implement a tiered rate structure for individually metered residential customers starting January 2005.

Reported as of 5/18/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

1. Does your Agency have a conservation coordinator?	yes
2. Is this a full-time position?	no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	yes
4. Partner agency's name:	Castaic Lake Water Agency (Wholesaler)
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	35%
b. Coordinator's Name	Paula Forsberg
c. Coordinator's Title	Customer Service Manager
d. Coordinator's Experience and Number of Years	Customer Service 22 years
e. Date Coordinator's position was created (mm/dd/yyyy)	03/01/2002
6. Number of conservation staff, including Conservation Coordinator.	5

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	30000	30000
2. Actual Expenditures	27000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

The budget and expenditures are strictly estimates based on the number of estimated staff hours used for BMP programs including gathering the Base Year data for the BMP reporting requirements. An estimated 535-550 hours of staff time went into BMP programs for 2002-03. An average employee per hour estimated cost including benefits and other miscellaneous charges is approximately $37.14, however management and supervisory level staff also participated in BMP efforts.

Reported as of 5/18/05

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

1. Does your Agency have a conservation coordinator?	yes
2. Is this a full-time position?	yes
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	no
4. Partner agency's name:	Castaic Lake Water Agency (CLWA)
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	85%
b. Coordinator's Name	Melinda Weinrich
c. Coordinator's Title	Environmental Conservation Specialist
d. Coordinator's Experience and Number of Years	Conservation/Program Management/Consulting 10 years
e. Date Coordinator's position was created (mm/dd/yyyy)	05/10/2004
6. Number of conservation staff, including Conservation Coordinator.	6

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	30000	60000
2. Actual Expenditures	35000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

A new position was created in May of 2004 in order to address the conservation issues within the district and to meet the requirements of the BMP under CUWCC. The Conservation Coordinator works with the Customer Service staf, field team, engineering and other departments as needed. As a small district, the entire staff works on some aspect of the BMP and other water conservation programs at the district such as working at public events, providing data and reports, mapping participation, etc.

Reported as of 5/18/05

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

NCWD's Ordinance (Water Conservation) was adopted in 2/1991 due to water supply conditions in the district's service area. The purpose of the ordinance is to provide a water conservation plan to minimize the effect of shortage of water supplies on the customers of the district. The ordinance sets parameters or irrigation hours and schedules to optimize water efficiency and prevent water waste. The ordinance also states that it is the duty of all persons to inspect for leaks and damages to indoor and outdoor plumbing and fixtures and to repair as necessary as soon as possible. The ordinance also lists prohibited use of water for washing vehicles, for cleaning and operating decorative fountains and for serving water in restaurants, cafeterias and other food service locations. A copy of the complete ordinance was submitted to the CUWCC as an attachment to this BMP report.

2. Is a copy of the most current ordinance(s) on file with CUWCC? no

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

1. LA County Sanitation District (32 & 26) 2. City of Santa Clarita 3. County of Los Angeles	1. Ordinance Prohibiting the Installation of Certain Water Softening Appliances 2. City Code, Title 9 Health & Safety, Chapter 9.38 (Water Conservation & Water Waste), Chapter 10.04 Runoff Water & Pollution 3. County Code, Title 11 Health & Safety, Chapter 11.38 (Water & Sewer) * All the above listed ordinances and codes were submitted to the CUWCC for reference.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	yes
b. Single-pass cooling systems for new connections	no
c. Non-recirculating systems in all new conveyor or car wash systems	no
d. Non-recirculating systems in all new commercial laundry systems	no
e. Non-recirculating systems in all new decorative fountains	yes
f. Other, please name See listed measures below (B2) & in attached Ordinance 101	yes

2. Describe measures that prohibit water uses listed above:

1. Watering lawns and landscaped areas more than once a day. 2.

Watering lawns and landscaped areas between 10am through 5pm 3. Causing water to runoff into the street, storm drains, gutters, parking lots, etc. 4. Not repairing leaks or broken indoor and outdoor plumbing and fixtures. 5. Serving water to customers in restaurants, cafeterias or other food service location unless the customer specifically request water

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	yes
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	yes
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	yes
c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.	yes
4. Does your agency include water softener checks in home water audit programs?	no
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	yes

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

E. Comments

Copies of NCWD's Ordinance 101 as well as the LA County, Los Angeles County Sanitation District (LACSD) and city of Santa Clarita's ordinances and codes related to water waste were submitted to the CUWCC as an attachment to these 2003-04 BMP reports.

Reported as of 5/18/05

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

NCWD's Ordinance (Water Conservation) was adopted in 2/1991 due to water supply conditions in the district's service area. The purpose of the ordinance is to provide a water conservation plan to minimize the effect of shortage of water supplies on the customers of the district. The ordinance sets parameters or irrigation hours and schedules to optimize water efficiency and prevent water waste. The ordinance also states that it is the duty of all persons to inspect for leaks and damages to indoor and outdoor plumbing and fixtures and to repair as necessary as soon as possible. The ordinance also lists prohibited use of water for washing vehicles, for cleaning and operating decorative fountains and for serving water in restaurants, cafeterias and other food service locations. A copy of the complete ordinance was submitted to the CUWCC as an attachment to this BMP report.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

1. City of Santa Clarita 2. County of Los Angeles	1. Title 9 Health & Safety, Chapter 9.38 & Chapter 10.4 Stormwater & Urban Runoff Pollution Control (see submitted documents) 2. County Codes, Title 11 Health & Safety, Chapter 11.38 (Water & Sewers)

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	yes
b. Single-pass cooling systems for new connections	no
c. Non-recirculating systems in all new conveyor or car wash systems	no
d. Non-recirculating systems in all new commercial laundry systems	no
e. Non-recirculating systems in all new decorative fountains	yes
f. Other, please name See list of measures below & in Ordinance 101 (attached)	yes

2. Describe measures that prohibit water uses listed above:

1. Watering lawns and landscaped areas more than once a day. 2. Watering lawns and landscaped areas between 10am through 5pm 3. Causing water to runoff into the street, storm drains, gutters, parking lots, etc. 4. Not repairing leaks or broken indoor and outdoor plumbing and fixtures. 5. Serving water to customers in restaurants, cafeterias or other food service location unless the customer specifically request water.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models. yes

b. Develop minimum appliance efficiency standards that:

i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. yes

ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. yes

c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. yes

4. Does your agency include water softener checks in home water audit programs? no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? yes

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

E. Comments

Copies of NCWD's Ordinance 101 as well as the LA County and city of Santa ClaritaÃs ordinances and codes related to water waste were submitted to the CUWCC as an attachment to these 2003-04 BMP reports.

Reported as of 5/18/05

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2003**

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	no

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	69	0
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	**69**	**0**

6. Describe your agency's ULFT program for single-family residences.

The ULFT (residential) Rebate program was conducted by the area wholesaler (CLWA) for pre-1993 single family homes in the Santa Clarita Valley. All the local retailers participated including Valencia Water Company, Santa Clarita Water District and LA County District 36. CLWA promoted the program in the local paper and throughout the community. NCWD released additional PR notices to district customers in the quarterly newsletter, on the monthly water bill (by-line) and with a postcard notices regarding the program. The program started May 1, 2003. Customers were required to contact the district (by phone or in person) to receive a rebate form to complete. NCWD made a copy of the rebate form for district records and to log which customers received rebates and those who also returned the voucher forms. Customers had 30 days upon receiving their voucher sheet and rebate number to purchase a ULFT and return the voucher form and their receipt to NCWD or the wholesaler. NCWD forwarded all forms to CLWA for final processing. Santa Clarita Water District coordinated the processing of the rebate checks and tallied participation. Once a customer returned their voucher form and ULFT receipt, they were mailed a rebate check for either $20 or $40. Customers who purchased ULFT between $50 and $75 received a $20 rebate and $40 for ULFT above $75. There was no limit on the number of rebates allocated per customers, however no customer took more than 3 voucher forms. The program lasted until the end of May 2003 with NCWD customers receiving 69 total rebates.

7. Describe your agency's ULFT program for multi-family residences.

CLWA selected to only target single-family residents for the 2003 ULFT Rebate Program.

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

1. City of Santa Clarita 2. Los Angeles County	There is currently no ordinance requiring retrofit of toilets (to ULFT) upon resale in the Santa Clarita Valley.

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	5000
2. Actual Expenditures	3946.57	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

The 2003-03 ULFT Rebate Program Budget was based on the employee time and effort, program marketing and PR efforts and miscellaneous supplies and costs. The costs are as follows: 1. Printing cost for ULFT Rebate Program notification postcard - $393.21 2. Postcard Postage to 3,500 qualified customers (at $0.23/postcard) - $805.00 3. Staff Time of 74 hours at $37.14/hour (average wage with benefit costs) - $2,748.36 Total Costs $3,946.57

Reported as of 5/18/05

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Newhall County Water District	**100% Complete**	**2004**

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	104	5
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	**104**	**5**

6. Describe your agency's ULFT program for single-family residences.

CLWA coordinated a residential ULFT rebate program for all the local retailers in the Santa Clarita Valley (including NCWD). The rebate program starts on May 1st offering rebates to eligible customers (with toilets installed prior to 1992) to receive a rebate for purchasing a ULFT. Customers received a $30 rebate for ULFT from $50 to $75, and $60 rebate for ULFTs over $75. Retailers receive a percentage of the available rebate funds ($20,000 for entire program) based on their customer population or eligible residents. Customers had 30 days to return their voucher form with their ULFT receipt in order to receive their rebate check. NCWD had such a high demand from customers that a waiting list had to be created. Over 135 customers were signed up on the waiting list to receive a voucher form if additional program funding became available.

7. Describe your agency's ULFT program for multi-family residences.

NCWD allowed multi-family residents to receive a rebate for the purchase of a ULFT through the CLWA. Previously, the rebate was only offered to single-family residents. Two landlords (or property owners) received rebates to update their rental facilities and two tenants received rebates. There was no limit on the number of rebates allocated per person; however District staff confirmed the number of toilets needed for any customers who request more than 3 rebates.

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

City of Santa Clarita & LA County	There is no retrofit on resale ordinance in the Santa Clarita Valley.

B. Residential ULFT Program Expenditures

	This Year	Next Year

1. Budgeted Expenditures	5000	3000
2. Actual Expenditures	4417.31	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

N/A

D. Comments

Budget for Residential ULFT Rebate Program includes the following calculated costs: 1. Staff time (approximately 50 hours) - Preparation & implementation - Planning meetings - PR efforts, mail outs, bill stuffers, etc. - Creating rebate forms and database - Translating program documents into Spanish 2. Printing and postage cost for postcard notice to customers 3. Creating & incorporating bill stuffers 4. Miscellaneous Costs (supplies & materials & other costs)

Reported as of 5/18/05

Appendix G
Draft Water Shortage Contingency Resolution/Ordinance

(This appendix contains examples that were adopted in 1991 to address water shortage conditions and will be used as the model for future water shortage contingency ordinance.)

Appendix I

DROUGHT EMERGENCY WATER SHARING AGREEMENT

1. Parties. The parties to this agreement are: Valencia Water Company, Santa Clarita Water Company, Los Angeles County Waterworks District No. 36-Val Verde, Newhall County Water District, and the Castaic Lake Water Agency.

2. Critical Water Shortage Conditions. The State of California is experiencing a fifth year of drought, which has caused critical water shortages in many areas of the state, including the service area of the Castaic Lake Water Agency. The Agency has recently been informed that the State Water Project will have insufficient water to meet its demands for the coming year.

3. Water Sharing Agreement. In order to alleviate the emergency water shortage caused by the Drought and by insufficient agency water to meet demands, the undersigned parties agree to cooperate in sharing available water from all sources among themselves without regard to water, contractual or other rights for the duration of the emergency, and to facilitate among themselves water transfers, exchanges, and wheeling arrangements.

4. Preservation of Rights. By entering into this emergency water pooling and transfer, the parties do not waive their individual claims to water rights, or to contractual or other claims to water or the use of water. Each party agrees that no party hereto will lose any water right, contract right, or other entitlement to water by entering into this agreement,

nor shall any party attempt to use this agreement or the emergency exchange of water as a basis for a claim against any other party of a continued right to the use of that water. This agreement shall not be construed as constituting any alteration in the respective priorities or terms of any of the rights held by any party, nor as an admission with respect to any rights or claims. Each party further agrees that no party hereto will lose any water or other right by a claim of non-use by another party, prescription, or dedication to public use by entering into this agreement.

5. Termination. This agreement shall terminate upon the cessation of drought conditions affecting the service area of the Castaic Lake Water Agency, or January 1, 1992, whichever is sooner, but may be extended by mutual consent of all the parties.

6. Counterparts. This agreement shall be executed in counterparts, each of which shall be deemed an original.

7. Effective Date. The effective date of this agreement shall be that date upon which all the parties hereto have executed the agreement.

Valencia Water Company

Date: FEBRUARY 13, 1991

Attest:

by _____

_____

Santa Clarita Water Company

by W. J. Manthei

Date: February 26, 1991

Attest:

Benjamin L. Borelli

Los Angeles County Waterworks
District No. 36

by ORIGINAL SIGNED BY

Date: 8/27/91

Attest:

~~Pg~~ 21

Newhall County Water District

by ORIGINAL SIGNED BY

Date: 2/19/91

Attest:

~~Pg~~ 22

Castaic Lake Water Agency

by ORIGINAL SIGNED BY

Date: 2/28/91

Attest:

~~Pg~~ 23

s/Los Angeles County Waterworks District No. 36

Date: AUG 27 1991

by Michael D. Antonovich

Attest:
ATTEST: LARRY J. MONTEILH
EXECUTIVE OFFICER —
CLERK OF THE BOARD OF SUPERVISORS
By Lynne C. Valle, Deputy

s/Newhall County Water District

Date:

Attest:

by

s/Castaic Lake Water Agency

Date: 2/28/91

Attest:

by

APPROVED AS TO FORM
DE WITT W. CLINTON, County Counsel

BY
DEPUTY

ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

S 9 1 AUG 27 1991

LARRY J. MONTEILH
EXECUTIVE OFFICER

s/ Newhall County Water District Date: 2/19/71

Attest:

by [signature] President [signature] Secy

s/ Castaic Lake Water Agency Date: _____

Attest:

by _____ _____

s/Los Angeles County Waterworks
District No. 36

Date:

Attest:

by

s/Newhall County Water District

Date:

Attest:

by

s/Castaic Lake Water Agency

Date: 2/28/91

Attest:

by

Appendix II

RESOLUTION NO.804

RESOLUTION OF THE BOARD OF DIRECTORS OF CASTAIC LAKE WATER AGENCY RECOGNIZING REDUCTIONS IN REQUESTED DELIVERY OF STATE WATER PROJECT SUPPLY FOR YEAR 1991 AND MANDATING A PROGRAM OF WATER CONSERVATION IN THE SANTA CLARITA VALLEY

WHEREAS, the Castaic Lake Water Agency is a public entity organized and operating pursuant to the California Water Code, Appendix, Chapter 103, and is primarily empowered to supply water at wholesale to retail water distributors within the Santa Clarita Valley; and

WHEREAS, the Agency's source of water is by contract with the State Water Project of the California Department of Water Resources; and

WHEREAS, the State Water Project, and the entire State of California is experiencing protracted drought conditions of unprecedented recent duration; and

WHEREAS, the California Department of Water Resources in a letter dated February 2, 1991 advised the Agency to plan for "severe reductions" in its State Water Project supply; and

WHEREAS, the letter further reported, "there is a 50% probability that the Department will only be able to deliver about half of the water requested for municipal and industrial use in 1991"; and

WHEREAS, half of the requested State Water Project supply of the Castaic Lake Water Agency would be 13,050 acre feet: and

WHEREAS, the retail water distributors within the Santa Clarita Valley operate ground water production facilities that have been planned to make up some portion of the delivery reductions in State Project Water; and

WHEREAS, the retail water distributors and the Agency, have pursuant to Water Code, Sections 10610 through 10656, adopted a URBAN WATER MANAGEMENT PROGRAM for retail sales which contains water conservation measures including, metering, leak detection, public education, public information, home retrofit devices, drip and sprinkler irrigation restrictions, and a landscape suggestion for use of drought tolerant plantings; and

WHEREAS, heretofore, the Castaic Lake Water Agency adopted Resolution No. 667 relating to a voluntary water conservation program to reduce water consumption by 10 percent; and

WHEREAS, it is now essential to enact a mandatory program;

NOW, THEREFORE, BE IT RESOLVED that this Agency's Board of Directors does hereby find and determine the following:

1. That the General Manager of the Agency be authorized to execute a "Drought Emergency Water Sharing Agreement" with the local water purveyors to make it clear that emergency drought sharing of Agency water supplies during year 1991 not result in any waiver of contractual or other right to use of Agency water.

2. That the General Manager confer with the retail water purveyors to coordinate the distribution and use of the limited State Project Water supply to maximize the distribution of the ground water production capacity of the combined facilities operated by the retail water purveyors.

3. That the Agency request both the City of Santa Clarita and the County of Los Angeles to adopt mandatory water use ordinances with terms generally as follows:

I. A WATER CONSERVATION ORDINANCE WHICH SHALL TERMINATE ON JANUARY 1, 1992 UNLESS RENEWED OR TERMINATED EARLIER

A. Hose Watering-Prohibition.

No person shall hose-water or wash down any sidewalks, walkways, driveways, parking areas, or other paved surfaces. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infraction.

B. Watering of Lawns and Landscaping

1. No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

2. No person shall water or cause to be watered any lawn or landscaping more than once a day.

3. No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

4. It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

5. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

C. Indoor Plumbing and Fixtures.

1. It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

2. Any new or replacement toilets installed in any residence or business shall be of a low-flow variety.

3. Willful violation hereof shall be an infraction punishable by a fine of $500.00.

D. Washing Vehicles

No vehicle of any type may be washed, except at a commercial car wash, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infraction.

E. Public Eating Places

No restaurant, cafeteria, coffee shop, or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to do so by such customer. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

F. Decorative Fountains

No person shall use water to clean, fill, or maintain levels in decorative fountains unless such water flows through a recycling system. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

4. That the above cited three paragraphs are deemed appropriate as PHASE ONE of the Agency's mandatory conservation program with recognition of the possibility that the California Department of Water Resources may declare deeper finite reductions for the municipal and industrial water supplies of the State Water Project. Residents of the Agency are put on notice that further and additional phases of the mandatory conservation program may be enacted by the Agency and could include the following:

A. Odd/Even landscape irrigation restriction, based upon address

B. A financial penalty of say triple the water rate for metered water service that exceeds historic use

C. Complete prohibition of landscape irrigation

I, the undersigned, hereby certify: That I am the duly appointed and acting Secretary of the Castaic Lake Water Agency, and that at a special meeting of the Board of Directors of said Agency held on Monday, February 11, 1991, the foregoing Resolution No. 804 was duly and regularly adopted by said Board, and that said resolution has not been rescinded or amended since the date of its adoption, and that it is now in full force and effect.

Betty L. Castleberry
Secretary

DATED: 2/12/91

Appendix III

ORDINANCE NO. 101

WATER CONSERVATION ORDINANCE OF
NEWHALL COUNTY WATER DISTRICT

* * * * * * * * * * * * * * *

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF NEWHALL COUNTY WATER DISTRICT, LOS ANGELES COUNTY, CALIFORNIA AS FOLLOWS:

Section 1: Because of the water supply conditions prevailing within the District's service area, the general welfare requires that water resources available to the District be put to the maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water be prevented, and that the conservation of such water be practiced with the view to the reasonable and beneficial use thereof in the interest of the people of the District, and for the public welfare. The purpose of this Ordinance is to provide a water conservation plan to minimize the effect of a shortage of water supplies on the customers of the District.

Section 2: No customer of the District shall make, cause, use or permit the use of water from the District in a manner contrary to any provision of this Ordinance.

Section 3: Watering of Lawns or Landscaping.

(a) No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

(b) No person shall water or cause to be watered any lawn or landscaping more than once a day.

(c) No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

(d) It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

Section 4: Indoor Plumbing and Fixtures.

(a) It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

(b) For new or replacement toilets installed in any residence or business, local low-flow types are recommended.

Section 5: Washing Vehicles. No vehicle of any type may be washed, except at a commercial car wash, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time.

Section 6: Public Eating Places. No restaurant, cafeteria, coffee shop or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to do so by such customer.

Section 7: No person shall use water to clean, fill or maintain levels in decorative fountains unless such water flows through a recycling system.

Section 8: Water Conservation Kits. Water conservation kits are available without charge to the District's customers at the District's office. In most cases, the kits include a plastic displacement bag, two sets of shower flow restrictors, two dye tablets to check for toilet leaks and a brochure which explains the use of the kit. The kits are to be installed by the District's customers.

Section 9: Effective Date. The water use restrictions of this Ordinance are effective immediately. Other provisions of this Ordinance are effective on March 21, 1991.

ADOPTED, SIGNED AND APPROVED by the Board of Directors of NEWHALL COUNTY WATER DISTRICT this 19th day of February, 1991.

MARY JUNE HERRINGTON, President
of the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

A T T E S T:

JAMES E. JINKS, Secretary of
the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I hereby certify that the foregoing Ordinance No. 101 was duly and regularly adopted and passed by the Board of Directors of the NEWHALL COUNTY WATER DISTRICT at a regular meeting thereof on the 19th day of February, 1991 by the following vote of the members thereof:

AYES:	DIRECTORS:	Herrington, Hayes, Wade, Agajanian and Whiteside
NOES:	DIRECTORS:	None
ABSENT:	DIRECTORS:	None
ABSTAINED:	DIRECTORS:	None

JAMES E. JINKS, Secretary of
the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

ORDINANCE NO. 102

ORDINANCE AMENDING SECTION 3 OF ORDINANCE NO. 101 OF NEWHALL COUNTY WATER DISTRICT RE WATER CONSERVATION

* * * * * * * * * * * * * * *

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF NEWHALL COUNTY WATER DISTRICT, LOS ANGELES COUNTY, CALIFORNIA AS FOLLOWS:

Section 1: Section 3 of Ordinance No. 101 is amended to provide as follows:

"Section 3: Watering of Lawns or Landscaping.

(a) No person shall water or cause to be watered any lawn or landscaping between the hours of 8:00 a.m. and 6:00 p.m.

(b) No person shall water or cause to be watered any lawn or landscaping more than once a day, or for a period of time not to exceed ten minutes per watering station or cycle.

(c) No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

(d) It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable."

Section 2: The provisions of this Ordinance shall be effective on November 19, 1991.

ADOPTED, SIGNED AND APPROVED by the Board of Directors of NEWHALL COUNTY WATER DISTRICT this 15th day of October, 1991.

MARY JUNE HERRINGTON, President of the Board of Directors of the NEWHALL COUNTY WATER DISTRICT

A T T E S T:

JAMES E. JINKS, Secretary of the Board of Directors of the NEWHALL COUNTY WATER DISTRICT

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I hereby certify that the foregoing Ordinance No. 102 was duly and regularly adopted and passed by the Board of Directors of the NEWHALL COUNTY WATER DISTRICT at a regular meeting thereof on the 15th day of October, 1991 by the following vote of the members thereof:

AYES: DIRECTORS: Herrington, Hayes, Wade, Agajanian and Whiteside

NOES: DIRECTORS: None

ABSENT: DIRECTORS: None

ABSTAINED: DIRECTORS: None

JAMES E. JINKS, Secretary of the Board of Directors of the NEWHALL COUNTY WATER DISTRICT

Appendix IV

ORDINANCE NO. 91-16

AN ORDINANCE OF THE CITY OF SANTA CLARITA
ADDING CHAPTER 9.38 TO TITLE 9
OF THE SANTA CLARITA MUNICIPAL CODE

WHEREAS, the State of California is experiencing a prolonged drought; and

WHEREAS, the delivery of State Project Water to the Castaic Lake Water Agency has been reduced by 90% of the requested delivery levels.

THE CITY COUNCIL OF THE CITY OF SANTA CLARITA DOES HEREBY ORDAIN AS FOLLOWS:

Section 1. The Santa Clarita Municipal Code is amended adding Chapter 9.38 to Title 9 relating to water conservation to read as follows:

CHAPTER 9.38

WATER CONSERVATION

Sections:

9.38.010 Drought Committee
9.38.015 Water Conservation Regulations
9.38.020 Penalties
9.38.025 Termination of Ordinance
9.38.030 Ordinance 91-16 Amended

9.38.010 Drought Committee

A. A drought committee shall be established, whose function shall be:

1. to review all available data on water consumption, water supply and ground water conditions;

2. to evaluate the level of compliance with the terms of this Ordinance;

3. to evaluate the level of achievement of the stated water consumption reductions;

4. to make recommendations to the City Council concerning the timing of and need for implementation of future additional water restrictions as may be developed; and

5. to make recommendations to the water purveyors in the City of Santa Clarita concerning additional measures to encourage water conservation, including but not limited to; conservation goals for individual water accounts, surcharges for excessive water use and the installation of flow restriction devices in water services.

B. The members of the Drought Committee shall include representatives from the staff of the City of Santa Clarita, the Upper Santa Clara Water Committee, other appointees as the City Council deems appropriate, and the staff of the Castaic Lake Water Agency.

9.38.015 Water Conservation Regulations

A. Water conservation shall be achieved through the restriction and/or prohibition of various types of water use. The restrictions and prohibitions shall be implemented immediately.

B. The following conditions and restrictions shall apply to the use of water within the City of Santa Clarita:

1. Hose Water Prohibition.

a. No person shall hose-water or wash down any sidewalks, walkways, driveways, parking areas, or other paved surface.

2. Watering of Lawns and Landscaping.

a. No person shall water or cause to be watered any lawn or landscaping between the hours of 8:00 a.m. and 6:00 p.m. except as provided in Section 9.38.015.B.2.e.

b. Lawns and landscaping shall be watered no more frequently than every other day.

c. No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or to excessive watering.

d. It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

e. Commercial gardeners and landscapers, municipal water uses, commercial nurseries, golf courses and other water-dependent industries shall not water or cause to be watered any lawn of landscaping between the hours of 10:00 a.m. and 3:00 p.m., and no more frequently than every other day, unless reclaimed water is used.

f. The maintenance and testing of irrigation systems may be performed without the restrictions specified in Section 9.38.015.B.2.a and 9.38.015.B.2.e.

3. Indoor Plumbing.

   a. Accessible indoor plumbing and fixtures must be inspected for leaks and repaired as soon as reasonably practicable.

   b. New and replacement toilets, showers and faucets shall be of a low-flow type. New or replacement faucets shall be equipped with aerators.

4. Washing Vehicles.

   a. Vehicles must be washed by hand-held bucket or with a hose equipped with automatic shutoff nozzle. Hoses may not be left running.

   b. These restrictions shall not be applied to commercial vehicle washing facilities and operations.

5. Public Eating Places.

   a. Water may be served only upon request by the customer.

6. Decorative Fountains.

   a. Water may not be used to clean, fill or maintain levels in decorative fountains unless the fountain has a water recycling system.

7. Landscaping and Irrigation Plans.

   a. All new landscaping and irrigation improvements shall be approved by the City of Santa Clarita Director of Parks and Recreation prior to construction.

   b. No person or entity shall be required to implement any landscaping requirements of any association, developer or governing agency until the termination of this ordinance.

C. Conservation Goal

1. The goal of this Water Conservation Ordinance is to achieve at least 25% reduction of overall water consumption within the City of Santa Clarita.

9.38.020 Penalties.

A. Willful violations of the terms of this Ordinance shall be subject to written warnings and/or citations. A written warning shall be issued upon the first violation of any part of this Ordinance. The second violation shall result in a fine of $50.00. The third violation shall result in a fine of $100.00, and all subsequent violations shall result in a fine of $300.00 for each violation.

9.38.025 Termination of Ordinance.

A. This Ordinance shall terminate on January 1, 1992, unless renewed or termination earlier by ordinance.

Section 2. The City Council hereby declares that the provisions of this Ordinance are severable and if for any reason a court or competent jurisdiction shall hold any sentence, paragraph or section of this Ordinance to be invalid, such decision shall not affect the validity of the remaining parts of this Ordinance.

Section 3. This Ordinance is adopted as an urgency measure. The facts of the urgency are these: The State of California is currently suffering from the effects of a five-year drought, and the deliveries of State Project water to local water agencies are being reduced. This Ordinance restricts or prohibits certain types of water usage. The immediate enactment of this Ordinance is therefore necessary to ensure the adequacy of the water supply for the City of Santa Clarita and is thereby directly related to public health, safety and welfare. Therefore, this Ordinance shall be effective immediately upon adoption.

Section 4. The City Clerk shall certify to the passage of this Ordinance and shall cause it to be published in the manner prescribed by law.

9.38.030 Ordinance 91-12 Amended

A. Ordinance 91-12 is hereby amended, deleting Section 9.38.015.b.8 in its entirety.

PASSED, APPROVED AND ADOPTED this 13th day of March, 1991.

CARL BOYER, MAYOR

ATTEST:

DONNA GRINDEY, CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.
CITY OF SANTA CLARITA)

I, Donna M. Grindey, City Clerk of the City of Santa Clarita, do hereby certify that the foregoing Ordinance No. 91-16 was duly adopted as an urgency ordinance at a regular meeting of the City Council on the 13th day of March, 1991, by the following four-fifths vote, to wit:

AYES: COUNCILMEMBERS Darcy, Heidt, McKeon, Boyer

NOES: COUNCILMEMBERS Klajic

ABSENT: COUNCILMEMBERS None

CITY CLERK

AGN:gmm-394

ORDINANCE NO. 91-48

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SANTA CLARITA, CALIFORNIA, AMENDING CHAPTER 9.38 OF THE SANTA CLARITA MUNICIPAL CODE RELATING TO WATER CONSERVATION

THE CITY COUNCIL OF THE CITY OF SANTA CLARITA, CALIFORNIA, DOES ORDAIN AS FOLLOWS:

SECTION 1. The Santa Clarita Municipal Code is hereby amended at Subsection 9.38.015.B.2.b to read as follows:

b. Lawns and landscaping shall be watered no more than 10 minutes per watering station or cycle per day.

SECTION 2. The Santa Clarita Municipal Code at Subsection 9.38.015.B.2.e is hereby amended to read as follows:

e. Commercial gardeners and landscapers, municipal water uses, commercial nurseries, golf courses and other water-dependent industries shall not water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 3:00 p.m., and no more than 10 minutes per watering station or cycle per day unless reclaimed water is used. This subsection does not apply to residential lawns which are subject to the time limitations indicated in the other subsections of this Ordinance.

SECTION 3. Section 9.38.015.C.1 is hereby amended to read as follows:

1. The goal of this Water Conservation Ordinance is to achieve a significant reduction of overall water consumption within the City of Santa Clarita.

SECTION 4. This Ordinance is adopted as an urgency measure. The facts of the urgency are these: The State of California is currently suffering from the effects of a five-year drought, and the deliveries of State Project water to local water agencies are being reduced. This Ordinance restricts or prohibits certain types of water usage. The immediate enactment of this Ordinance is therefore necessary to ensure the adequacy of the water supply for the City of Santa Clarita and is thereby directly related to public health, safety and welfare. Therefore, this Ordinance shall be effective immediately upon adoption.

SECTION 5. The City Clerk shall certify to the passage of this Ordinance and shall cause it to be published in the manner prescribed by law.

PASSED, APPROVED AND ADOPTED this 8th day of October, 1991.

Carl Boyer

Carl Boyer, Mayor

ATTEST:

Donna M. Grindey

Donna M. Grindey, City Clerk

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss
CITY OF SANTA CLARITA)

I, Donna M. Grindey, City Clerk of the City of Santa Clarita, do hereby certify that the foregoing Ordinance No. 91-48 was duly adopted as an urgency ordinance at a regular meeting of the City Council on the 8th day of October, 19 91 by the following four-fifths vote, to wit:

AYES: COUNCILMEMBERS: Darcy, Heidt, McKeon, Boyer

NOES: COUNCILMEMBERS: Klajic

ABSENT: COUNCILMEMBERS: None

Donna M. Grindey

Donna M. Grindey, City Clerk

Appendix V

ORDINANCE NO. 91-0046U

An urgency ordinance amending Title 11, Chapter 11.38 of the Los Angeles County Code relating to Water and Sewers to add Part 4, Water Conservation.

The Board of Supervisors of the County of Los Angeles ordains as follows:

Section 1. Title 11, Chapter 11.38 of the County Code is amended by adding Part 4, to read:

Part 4. Water Conservation Requirements For The Unincorporated Los Angeles County Area.

Section 11.38.620 Hose Watering Prohibition. No person shall hose water or wash down any sidewalks, walkways, driveways, parking areas or other paved surfaces, except as is required for the benefit of public health and safety. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.630 Watering of Lawns and Landscaping.

a). No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

b). No person shall water or cause to be watered any lawn or landscaping more than once a day.

c). No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

d). It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

e). Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.640 Indoor Plumbing and Fixtures.

a). It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

b). Willful violation hereof shall be an infraction punishable by a fine of $500.00.

Section 11.38.650 Washing Vehicles.
No motor vehicle, boat, trailer or other type of mobile equipment may be washed, except at a commercial car wash or with reclaimed water, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.660 Public Eating Places.
No restaurant, hotel, cafeteria, cafe or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to

do so by such customer. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.670 Decorative Fountains.
No person shall use water to clean, fill or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetic structures unless such water flows through a recycling system. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 2. This ordinance shall terminate on January 1, 1993, unless renewed or terminated earlier by ordinance.

Section 3. Due to the severity of the drought in the State of California, there is an immediate need to prohibit the wasting of water in the Los Angeles County unincorporated area to better utilize the available water supplies. This ordinance is urgently needed for the preservation of the public health, safety and general welfare and shall take effect immediately.

Section 4. This ordinance shall be published in

Metropolitan News Enterprise

a newspaper printed and published in the County of Los Angeles.

Michael D. Antonovich
Chairman

ATTEST:

Executive Officer
Board of Supervisors
of the County of Los Angeles

I hereby certify that at its meeting of March 21, 1991, the foregoing ordinance was adopted by the Board of Supervisors of said County of Los Angeles by the following vote, to wit:

Ayes:	Noes:
Supervisors Gloria Molina	Supervisors None
Edmund D. Edelman	
Deane Dana	
Michael D. Antonovich	

Executive Officer
Board of Supervisors
of the County of Los Angeles

Effective Date: March 21, 1991

Operative Date: _____

I hereby certify that pursuant to Section 25103 of the Government Code, delivery of this document has been made.
LARRY J. MONTEILH
Executive Officer
Clerk of the Board of Supervisors
By _____ DEPUTY

APPROVED AS TO FORM:
DE WITT W. CLINTON
County Counsel
By _____
GERALD F. CRUMP
Chief Assistant County Counsel

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. . . S A M P L E N O T I C E . . .

LOS ANGELES COUNTY WATER WASTING ORDINANCE
NOTICE OF WARNING

Date _____

Address: _____
_____
_____
_____

Dear Customer:

Due to the severity of the current drought, the County Board of Supervisors, on March 21, 1991, adopted an Ordinance that specifies a number of water saving measures. The Ordinance applies to the unincorporated areas of the County and includes the following provisions:

__ Washing down of paved surfaces is prohibited, except as required for public health and safety.

__ Lawn and landscape watering is prohibited between the hours of 10:00 a.m. and 5:00 p.m.

__ Landscape watering that results in runoff into adjoining streets, parking lots or alleys due to misdirected sprinklers or excessive watering is prohibited.

__ Leaking hoses, faucets and sprinkling systems must be repaired as soon as is reasonably practicable.

__ Leaks to indoor plumbing systems must be repaired as soon as is reasonably practicable.

__ Washing of a motor vehicle, boat or trailer is prohibited except at a commercial car wash or with a hand-held bucket or water hose equipped with an automatic shutoff nozzle.

__ Serving drinking water to customers at public eating places is prohibited unless specifically requested by such customers.

__ Water cannot be used in decorative fountains, ponds, lakes and other similar aesthetic structures unless the water flows through a recycling system.

We observed the violation(s) of the above noted provisions on your property. We request your support in complying with the provisions of this ordinance so that we can avoid unnecessary waste and stretch our limited water supplies for the duration of the drought. Violation of this Ordinance is punishable by a fine of up to $500. If you have any questions regarding this ordinance or its enforcement please contact (your office and phone number).

(WW3901)

Appendix VI

RESOLUTION

ADOPTING A WATER SHORTAGE CONTINGENCY PLAN
FOR THE SANTA CLARITA WATER COMPANY

WHEREAS, the California Legislature enacted Assembly Bill 11X during the 1991 Extraordinary Session of the California Legislature (an act to amend the California Water Code Sections 10620, 10621, 10631, and 10652, and to add Section 10656 to the California Water Code, relating to water); and

WHEREAS, AB 11X mandates that every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to develop a Water Shortage Contingency Plan; and

WHEREAS, AB 11X mandates that said Plan be filed with the California Department of Water Resources by January 31, 1992; and

WHEREAS, the Santa Clarita Water Company is an urban supplier of water providing water to more than 3,000 customers, and has therefore prepared and circulated for public review a Draft Water Shortage Contingency Plan, in compliance with the requirements of AB 11X, has held a properly noticed public hearing on January 29, 1992, regarding said Draft Plan, and has thereafter prepared a Final Water Shortage Contingency Plan;

NOW, THEREFORE, BE IT RESOLVED by the Santa Clarita Water Company's Board as follows:

1. A Final Water Shortage Contingency Plan is hereby adopted and is attached hereto as Exhibit "A" hereof, which exhibit is hereby incorporated herein;

2. The President is hereby authorized and directed to file the Plan with the California Department of Water Resources;

3. The President is hereby also authorized to follow lawful procedures to declare a Water Shortage Emergency and to implement this Water Shortage Contingency Plan; and

4. The President shall recommend to the Santa Clarita Water Company's Board additional procedures, rules, and regulations to carry out effective and equitable allocation of water resources during a water shortage.

Appendix VI

RESOLUTION

ADOPTING A WATER SHORTAGE CONTINGENCY PLAN
FOR THE SANTA CLARITA WATER COMPANY

WHEREAS, the California Legislature enacted Assembly Bill 11X during the 1991 Extraordinary Session of the California Legislature (an act to amend the California Water Code Sections 10620, 10621, 10631, and 10652, and to add Section 10656 to the California Water Code, relating to water); and

WHEREAS, AB 11X mandates that every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to develop a Water Shortage Contingency Plan; and

WHEREAS, AB 11X mandates that said Plan be filed with the California Department of Water Resources by January 31, 1992; and

WHEREAS, the Santa Clarita Water Company is an urban supplier of water providing water to more than 3,000 customers, and has therefore prepared and circulated for public review a Draft Water Shortage Contingency Plan, in compliance with the requirements of AB 11X, has held a properly noticed public hearing on January 29, 1992, regarding said Draft Plan, and has thereafter prepared a Final Water Shortage Contingency Plan;

NOW, THEREFORE, BE IT RESOLVED by the Santa Clarita Water Company's Board as follows:

1. A Final Water Shortage Contingency Plan is hereby adopted and is attached hereto as Exhibit "A" hereof, which exhibit is hereby incorporated herein;

2. The President is hereby authorized and directed to file the Plan with the California Department of Water Resources;

3. The President is hereby also authorized to follow lawful procedures to declare a Water Shortage Emergency and to implement this Water Shortage Contingency Plan; and

4. The President shall recommend to the Santa Clarita Water Company's Board additional procedures, rules, and regulations to carry out effective and equitable allocation of water resources during a water shortage.

ORDINANCE NO. 112
AN ORDINANCE AMENDING ORDINANCE 101
WATER CONSERVATION, SHORTAGE, DROUGHT AND
EMERGENCY RESPONSE
ORDINANCE OF
NEWHALL COUNTY WATER DISTRICT

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Be it ordained by The Board of Directors of Newhall County Water District, Los Angeles County, California, Ordinance No. 101 is amended to read as follows:

Section 1: ***PURPOSE*****:** The specific provisions of this Ordinance are necessary and proper to conserve water resources and minimize cost to the District and its customers. The District requires that water resources available to the District be put to the maximum beneficial use, and that water efficient practices be used to reach this objective. The District further finds that its water supplies may be reduced because of drought, failure of facilities, or catastrophic events such as earthquakes and regional power failures. Anti-waste and water conservation requirements are necessary to achieve demand reduction without unneeded hardship.

Section 2: ***DEFINITIONS AND TERMS:***

- ***A. Water efficient practices****:* Cost-effective practices that require the least amount of water to generate the greatest benefit (water and cost savings) to the customer.
- ***B. Water Waste:*** To use or expend water carelessly or needlessly.
- ***C. Water User:*** Business or residential customer of the District.
- ***D. Water Conservation Stages:*** The General Manager shall determine the conservation stage, except that the Board shall determine any conservation stage more restrictive than Stage 1. A water deficiency occurs when the current or near-term water demand exceeds the current or near-term water supply.
  - ***Stage 1***. Water deficiencies range between 1 and 15 percent.
  - ***Stage 2.*** Water deficiencies range from more than 15 and up to 25 percent.
  - ***Stage 3.*** Water deficiencies range from more than 25 and up to 35 percent.
  - ***Stage 4.*** Water deficiencies are more than 35 percent.
- ***E. Water Deficiency:*** A water deficiency occurs when the current or near-term water demand exceeds the current or near-term water supply, based on a yearly assessment. (Percent or deficiency = (1 – water supply/water demand) x 100

Section 3: ***WATER CONSERVATION ACTION PLAN:*** This plan establishes water conservation measures to be taken in response to current and anticipated levels of deficiency in State and/or local water supplies. No Water User shall waste water or make, cause, or permit the use of water for any purpose contrary to any provision of this Ordinance, or in quantities in excess of the use permitted by the conservation stage in effect pursuant to this Ordinance.

3.1 Efficient Water Use. *Because more severe effects of a water shortage are often brought about due to wasteful water use habits carried over from times of sufficient supply, certain voluntary water-use practices are encouraged at all times.*

3.1.1 Outdoor Water Use Efficiency Guidelines and Recommendations:

a) Sprinklers should be maintained and adjusted so that overspray, runoff, and water waste is avoided. The most effective and water-efficient irrigation should be used, and drip irrigation should be considered where appropriate.

b) All leaks in plumbing and irrigation systems should be repaired promptly

c) Vehicles should be washed using a hose equipped with automatic shutoff nozzle.

d) Sidewalks, walkways, driveways, parking lots or any other hard-surfaced areas should not be washed down, except for health and safety purposes.

e) Low-water-use native or drought-tolerant vegetation should be used to minimize the need for irrigation. Plants and trees with similar water needs should be grouped together for most efficient irrigation. (Please see our website ncwd.org for more information and links to other websites listing drought tolerant plants.)

f) Landscape should be installed in a manner that will reduce the amount of water needed for irrigation. For example, the use of mulches and watering basins is encouraged where appropriate.

g) Irrigation should occur during optimal watering hours, avoiding wind and heat. The following hours are considered the most efficient hours for NCWD customers to effectively irrigate lawns and landscaped areas:

Winter/Fall (November through April) – 6 PM to 10 AM

Spring/Summer (May through October) –8 PM to 9 AM

h) Water usage on any decorative fountains, ponds or other types of water streams should be minimized by incorporating a water recycling system so the water is continually recovered and reused.

i) Pool and spa safety covers or evaporation-reducing water treatments should be considered if safe and appropriate for the situation. These will help minimize water loss due to evaporation. Pool and spa chemistry should be balanced and maintained to help reduce the frequency of pool/spa draining and refilling.

3.1.2 Indoor Water Use Efficiency Guidelines and Recommendations:

a) All leaks and/or damage to faucets, toilets, and indoor pipes should be repaired immediately.

b) Low flow devices for indoor plumbing fixtures including faucets, kitchen spray nozzles, toilets, and showers should be used where possible.

c) Install 1.0 gallon per flush (gpf) ultra low-flow toilets or dual-flush toilets.

d) Water-efficient Energy Star® approved appliances including, but not limited to, clothes washers and dishwashers should be used.

e) Clothes washers and dishwashers should be run using full loads to maximize water efficiency.

f) A source specific hot water dispenser or a whole house hot water recirculation system should be considered. These devices generate hot water within seconds, minimizing running the water until it is hot.

g) All commercial establishments where food or beverages are provided should encourage the serving of water to their customers only when specifically requested by the customer.

3.1.3 ***New Construction Water Efficiency Guidelines:*** As new technology advances, builders of new structures or persons retrofitting existing facilities should consider options such as evapotranspiration-controlled sprinkler systems, grey water or non-potable water systems (where legally acceptable), storm water cisterns, and landscape designs minimizing the use of turf and water-intensive plants. Businesses should review industry-specific guidance for ways to reduce water usage and should consider programs such as multi-pass cooling towers and process water recycling.

3.2 ***Water Conservation Stage 1 –:*** *At this stage of water deficiency, the Water Users are strongly encouraged to adhere to all the guidelines in section 3.1, Water Use Efficiency Guidelines. The following practice is also strongly suggested during Stage 1 water deficiencies:*

a) Outdoor irrigation of all vegetation including lawns and landscaping is limited to three times per week and no more than 10 minutes per watering station. Irrigation should occur during the following hours:

Winter/Fall (November through April) – 6 PM to 10 AM

Spring/Summer (May through October) – 8 PM to 9 AM

3.3 ***Water Conservation Stage 2:*** *At this stage of water deficiency, Efficient Water Use Guidelines (3.1.1-3.1.2 above) and Stage 1 practices (3.2 above) become mandatory requirements. Further mandatory practices during Stage 2 are as follows:*

a) All new landscaping shall be limited to widely accepted drought-tolerant plants requiring less than typical water requirements.

b) No new lawns, whether by seed or sod, shall be installed.

c) No filling of pools or spas. Water levels may be maintained.

3.4 Water Conservation Stage 3: *At this stage of water deficiency, Efficient Water Use Guidelines (3.1.1-3.1.2 above), Stage 1 practices (3.2 above), and Stage 2 practices (3.3 above) become mandatory requirements. Further mandatory practices during Stage 3 are as follows:*

a) No new applications for service will be accepted.

b) No water for grading will be allowed.

c) Washing vehicles is prohibited, except at commercial facilities that recycle water.

d) Street cleaning with potable water is prohibited.

3.5 Water Conservation Stage 4: *At this stage of water deficiency, Efficient Water Use Guidelines (3.1.1- 3.1.2 above), Stage 1 practices (3.2 above), Stage 2 practices (3.3 above), and Stage 3 practices (3.4 above) become mandatory requirements. Further mandatory practices during Stage 4 are as follows:*

a) Outdoor irrigation of all vegetation including lawns and landscaping is prohibited. Existing trees and larger shrubs will be exempt.

b) No new landscaping shall be permitted.

Section 4: ENFORCEMENT:

4.1 Efficient Water Use and Stage 1 Enforcement:

a) Any notification to the District of signs or indications of water leaks or water waste will be documented. The District will confirm the water waste prior to any further action.

b) The District shall determine the action to be taken to inform the Water User of the guidelines in this Ordinance and to encourage more efficient and cost-effective water use.

4.2 Stage 2, 3 and 4 Enforcement. *The General Manager, and other District authorized representatives have the duty and are authorized to enforce provisions of Stage 2, 3, and 4 of this Ordinance. If a violation is ongoing, the District may disconnect service until the violation is corrected.*

4.2.1 First Violation. For a first violation, the District shall issue a verbal warning to the Water User and recommend corrective action.

4.2.2 Second Violation. For a second violation, the District shall issue a written warning to the Water User, and a fine of $40 shall be added to the Water User's bill at the property where the violation occurred if the corrective action is not taken within 30 days after receiving the written warning.

4.2.3 Third Violation. For a third violation, a fine of $100 shall be added to the Water User's bill at the property where the violation occurred if the corrective action is not taken within 30 days after receiving the written warning. In addition to the fine, the Board or the General Manager may require installation of a flow-restricting device on the Water User's service connection.

4.2.4 ***Fourth Violation.*** For the fourth and any additional violations, a fine of $250 shall be added to the Water User's bill at the property where the violation occurred. The District may also discontinue the Water User's water service at the property where the violation occurred. Re-connection shall be permitted only when there is reasonable protection against future violations, such as a flow-restricting device on the customer's service connection, as determined at the District's discretion.

4.3 ***District Enforcement Costs.*** District shall be reimbursed for its costs and expenses in enforcing the provisions of this Ordinance, including such costs as District incurs for District staff to investigate and monitor the Water User's compliance with the terms of this Ordinance. Charges for installation of flow-restricting devices or for discontinuing or restoring water service, as the District incurs those charges, shall be added to the Water User's bill at the property where the enforcement costs were incurred.

Section 5: ADMINISTRATION:

5.1 ***General.*** The provisions of this Ordinance shall be administered and enforced by the District through the General Manager, who may delegate such enforcement to one or more employees or contractors of the District. The District may implement additional demand reduction practices, including surcharges, rationing, and specific water allocations, in times of severe shortage or emergency situations.

5.1.1 ***Water Utility Accounts.*** Accounts shall not be established for new customers, including the transfer of accounts upon change of ownership, until the customer agrees to comply with the provisions of this Ordinance. In pursuing the objectives of this Ordinance, the General Manager shall seek the cooperation of other water purveyors within the District's service area. The District will request that other water purveyors not permit the establishment of new accounts until the customer agrees to comply with the provisions of this Ordinance.

5.1.2 ***Discretionary Exemptions.*** The Board may, in its discretion, exempt Water Users and individual facilities of Water Users from the provisions of this Ordinance, or impose reasonable conditions in lieu of compliance with this Ordinance, if the Board finds that any of the following conditions exist:

- ***a)*** Hardship. The requirements of this Ordinance would cause an unnecessary and undue hardship upon the Water User, the Water User facility or the public.
- ***b)*** Health and Safety. Strict compliance with the requirements of this Ordinance would create an emergency condition, as determined by the Board or other governmental entity with appropriate jurisdiction, affecting the health, protection or safety of the Water User or the public.

c) No Impact on Water Use. The granting of the exemption or imposition of reasonable conditions in lieu of compliance with this Ordinance would not increase the quantity of water consumed by the Water User or otherwise adversely affect service to other Water Users. In other words, the Water User will create an offset. In granting any such relief, the departure from the requirements of this Ordinance shall be limited to the minimum necessary to address the circumstances upon which such departure is required by a Water User.

5.1.3 ***Appeals.*** Any customer or applicant for a water service may appeal any decision under this Ordinance to the Board whose decision shall be final.

ADOPTED, APPROVED AND SIGNED by the Board of Directors of NEWHALL COUNTY WATER DISTRICT this 14th day of July, 2005.

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MARIA GUTZEIT, President of the
Board of Directors of
NEWHALL COUNTY WATER DISTRICT

ATTEST:

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Karin J. Russell, Secretary of the
Board of Directors of
NEWHALL COUNTY WATER DISTRICT

Appendix H
References

Appendix H
REFERENCE LIST

The following documents were used in the preparation of the 2005 Urban Water Management Plan for the Santa Clarita Valley:

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2004b. Final Report: Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, presented in Support of the 97-005 Permit Application, prepared for the Upper Basin Water Purveyors (Castaic Lake Water Agency, Santa Clarita Water Division of CLWA, Newhall County Water District, and Valencia Water Company), December, prepared by CH2M HILL.

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Castaic Lake Water Agency Draft Environmental Impact Report – Supplemental Water Project Transfer of 41,000 Acre-Feet of State Water Project Table A Amount, June 2004, prepared by Science Applications International Corporation.

Castaic Lake Water Agency Draft Report, Recycled Water Master Plan, May 2002, prepared by Kennedy/Jenks Consultants.

Castaic Lake Water Agency Final Environmental Impact Report – Supplemental Water Project Transfer of 41,000 Acre-Feet of State Water Project Table A Amount, December 2004, prepared by Science Applications International Corporation.

Castaic Lake Water Agency Groundwater Containment, Treatment, and Restoration Project, Mitigated Negative Declaration, August 2005, prepared by Black & Veatch.

Castaic Lake Water Agency Groundwater Management Plan – Santa Clara River Valley Groundwater Basin, East Subbasin, December 2003, prepared by Luhdorff & Scalmanini Consulting Engineers.

Castaic Lake Water Agency Recycled Water Master Plan Program Environmental Impact Report Notice of Preparation and Initial Study, April 2005, prepared by BonTerra Consulting.

Castaic Lake Water Agency/Rosedale-Rio Bravo Water Storage District (RRBWSD) Water Banking and Exchange Program Draft Environmental Impact Report, August 2005, prepared by Science Applications International Corporation.

Castaic Lake Water Agency, Water Supply Reliability Plan Draft Report, September 2003, prepared by Kennedy/Jenks Consultants.

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Hydrogeologic Investigation: Perennial Yield and Artificial Recharge Potential of the Alluvial Sediments in the Santa Clarita River Valley of Los Angeles County, California, December 1986, prepared by Richard C. Slade and Associates, LLC (RCS).

Impact and Response to Perchlorate Contamination, Valencia Water Company Well Q2, prepared for Valencia Water Company, April 2005, prepared by Luhdorff & Scalmanini Consulting Engineers.