AVEK'S 2008
URBAN WATER MANAGEMENT PLAN

Antelope Valley-East Kern Water Agency,
California
Urban Water Management Plan

2008 URBAN WATER MANAGEMENT PLAN

ANTELOPE VALLEY - EAST KERN WATER AGENCY

AVEK

ESTABLISHED 1959

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Table Of Contents

List of Tables

List of Figures

List of Appendices

Antelope Valley-East Kern Water Agency
2008 Urban Water Management Plan
Contact Sheet

Date plan submitted to the Department of Water Resources: **February 3, 2009**

Name of person preparing this plan: **Russell Fuller, General Manager**
Phone: **(661) 943-3201**

Fax: **(661) 943-3204**

E-mail address: **avekwa@aol.com**

The Water supplier is a: **State Water Project Contractor**

The Water supplier is a: **Wholesaler to potable water purveyors & Retailer of untreated agricultural water**

Utility services provided by the water supplier include: **Water**

Is This Agency a Bureau of Reclamation Contractor? **No**

Section 1. Introduction

1.1 Purpose

The California Urban Water Planning Act requires urban water suppliers to describe and evaluate sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs. This information is used by the urban water supplier for development of an Urban Water Management Plan (UWMP) which is submitted to the California Department of Water Resources (DWR) every five years.

Section 2. Adoption and Implementation of Plans

Law

> 10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published ... After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

2.1 Public Participation

The Antelope Valley-East Kern Water Agency (AVEK) has actively encouraged community participation in its urban water management planning efforts by encouraging attendance and participation in the Board of Directors (BOD) public meetings held twice each month. Public hearings were held on January 13, 2009 for review of plan and to receive comments on the draft plan before the AVEK's BOD approval.

A special effort was made to include community and public interest organizations. Legal public notices for each meeting were published in the local newspapers and posted at Agency facilities. Copies of the draft plan were available at Agency office and on the internet at the Agency's website: www.avek.org. See Appendix A for participation list.

2.1.1 Plan Adoption

AVEK prepared the initial draft of its Urban Water Management Plan during spring 2008. The final plan was adopted by the BOD on January 13, 2009 and submitted to the California Department of Water Resources within 30 days of BOD approval. Attached to the cover letter addressed to the Department of Water Resources and as Appendix B are copies of the signed Resolution of UWMP Adoption. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

2.2 Agency Coordination

Law

10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

10620 (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621 (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

10621 (b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan…..

2.2.1 Interagency Coordination

AVEK views "interagency coordination" in at least 2 ways, one with respect to the development of UWMP and the second concerns the development of additional water sources such as imported water stored in the groundwater basin. AVEK's draft UWMP was posted on its website www.avek.org for public access and review. AVEK's outreach efforts concerning this UWMP are outlined in Table 1.

Table 1
Coordination and Public Involvement

Entities	Coordination and Public Involvement Actions by AVEK				
	Contacted for Assistance (2005 UWMP)	Attended public meetings (2005 UWMP)	Sent notice of available draft for review	Commented on the draft	Sent notice of intention to adopt (Hearing)
Boron CSD			✓		✓
City of California City		✓	✓		✓
WPUD			✓		✓
Rosamond CSD	✓	✓	✓		✓
California Water Service			✓		✓
Los Angeles County WWD	✓	✓	✓		✓
Palm Ranch ID			✓		✓
Palmdale Water District			✓		✓
Littlerock Creek ID			✓		✓
Quartz Hill Water District			✓		✓
Calif. Dept. of Water Resources	✓		✓		✓
City of Palmdale			✓		✓
City of Lancaster			✓		✓
Los Angeles County San	✓		✓		✓
County of Los Angeles			✓		✓
County of Ventura			✓		✓
County of Kern			✓		✓

With respect to the second issue, it should be recognized that AVEK is a supplier of imported water from the State Water Project (SWP) for the Antelope Valley region and that it is not a primary source but a secondary source. Since AVEK wholesales water to area retail purveyors, water sales volumes and predicted future treated and untreated water quantities are the only tools and products available for distribution. See Appendix C for Rate Stabilization Fund Discussion. The water provided by DWR through AVEK is used by area consumers in lieu of or in addition to pumped groundwater. The UWMP seeks to optimize water assets and plans for future water shortages. AVEK attempts to maximize use of its surface water product by encouraging retail purveyors to utilize surface water instead of pumped groundwater whenever possible and utilize groundwater recharge as a method for banking water during wet years. AVEK is reducing over drafting of the area aquifers by providing as much of its allocated DWR water to consumers as possible.

Currently, AVEK is actively involved with the planning stages and coordination of a fully regional water banking program. The proposed water banking program would function under a Joint Power Association format and treat all area-wide water interests equally by offering participation to all customers if desired. AVEK currently has a Water Supply Capacity Charge that funds system improvements that will be required for the anticipated growth of AVEK's customers over the next 20 years. See Appendix D for list of proposed facility expansions. An improvement identified as a proposed facility expansion includes California Aqueduct turnouts, raw water pipelines and basin inlets that could be used for groundwater recharge.

To develop a successful groundwater banking and storage program, AVEK believes a myriad of issues concerning such a program (eg, legal, technical, financial, policy, etc.) should be addressed at the earliest possible stage by creating a comprehensive institutional framework for the program. Formulating such a framework should create as many stakeholders as possible. AVEK will encourage that appropriate steps be taken to facilitate discussions about this matter among stakeholders.

Finally, AVEK's efforts to conserve and optimize its water resources have been the focus and will continue to be the focus on such programs as 1) provide treated and untreated surface water to area water retailers and farmers for a reasonable cost while maintaining their facilities and trained personnel; and 2) seek to institute programs and policies that deal with the water allocations during the inevitable dry years and spans of dry years. AVEK may assist, when possible, all area retailers in developing their own water conservation methods and policies as well as providing information about water conserving techniques.

AVEK also participated in the preparation of the Antelope Valley Integrated Regional Water Management Plan (See Appendix J) that contains information to help take action to meet shared objectives for long term water management for the Antelope Valley. Further water conservation efforts are supported by AVEK through their participation in the Antelope Valley Water Conservation Coalition.

2.2.2 Intra-Agency Coordination

Each year, the Agency considers the outlook for the water supplies for the Agency for the next 12 months. See SECTION 2.4 for more information on the outlook for water supply for the Antelope Valley.

2.3 Supplier Service Area Information with 20 Year Projections

Law

> 10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

2.3.1 Demographic Factors

The Antelope Valley is located in the western part of the Mojave Desert, about 50 miles northeast of Los Angeles. The valley is triangular shaped, topographically closed basin covering about 2,200 square miles. Groundwater is an important component of water supply in the Antelope Valley (Leighton, USGS, 1999). Estimates of average natural annual groundwater recharge range from about 40,000 to 58,000 AFY (Snyder, 1955; Bloyd, 1967; Durbin, 1978). Pumping in the valley, primarily for agricultural purposes, peaked in the 1950's when production may have exceeded 400,000 AF annually (Snyder, 1955). Increased urban growth in the 1980's resulted in an increase in the demand for water and an increase in groundwater use. Long-term groundwater withdrawals have caused some land subsidence.

2.3.1.1 Service Area

AVEK has played a major role in the Valley's water system since it was granted a charter by the State legislature in 1959. It succeeded the AV-Feather River Association, which was formed in 1953 to encourage importation of water from the Feather River in northern California. See Appendix E for AVEK Boundary Location Map.

In 1962 the AVEK Board of Directors signed a water supply contract with the State Department of Water Resources (DWR) to assure delivery of imported water to supplement Antelope Valley groundwater supplies. AVEK has the third largest allotment of 29 State Water Project (SWP) water agencies in California, following the Metropolitan Water District and the Kern County Water Agency. See Appendix F for SWP map. SWP facilities are not fully constructed and until full built-out, SWP facilities are only capable of delivering annually about 72% of the project's 4.1 million acre-feet.

Financed by a $71 million bond issue, AVEK constructed the Domestic Agricultural Water Network (DAWN), which consists of four water treatment plants with clear water storage and more than 100 miles of pipelines. Four 8-million gallon water storage reservoirs near Mojave and one 3-million gallon reservoir at Vincent Hill Summit complete the DAWN network. The bulk of the imported water is treated and distributed to customers throughout its service area. See Appendix G for current list of water purveyors that AVEK serves. The network also provides delivery of untreated water from the Aqueduct to local farmers and ranchers.

The Quartz Hill water treatment plant is capable of producing 90 million gallons per day (mgd) of treated aqueduct water. The Eastside water treatment plant is capable of producing 10 mgd. The Rosamond water treatment plant can produce 14 mgd while the most recently added treatment plant in Acton can make 4 mgd of treated water.

Additional surface water allotments from the SWP exist in the Antelope Valley for Palmdale Water District and Littlerock Creek Irrigation District.

2.3.1.2 Population Projections

Lancaster and Palmdale are the largest cities in the Antelope Valley with Mojave, Edwards Air Force Base, Boron, and Littlerock being the larger of the fewer than 10,000 population centers.

AVEK provides service to incorporated and unincorporated areas of Antelope Valley. The population projections include inhabitants from Lancaster, Palmdale, Acton, and Lake Los Angeles of Los Angeles County and California City, Rosamond, Edwards Air Force Base, Mojave, and Boron of Kern County. Since AVEK only serves a portion of Palmdale, the projected values for Palmdale have been adjusted and then included in Table 2.

Table 2 indicates population growth projections within the service areas of AVEK. The projections are based on data from California Department of Finance, the Greater Antelope Valley Economic Alliance, and the Southern California Association of Governments. See Appendix H for information from these sources on projected growth.

Table 2
Population – Current and Projected
(AVEK Area) [1]

Population	2008	2012	2017	2022	2027
Service Area Population	303,073	349,638	402,212	456,119	506,555

2.3.2 Past Drought, Water Demand, and Conservation Information

During drought periods, the Agency has met most of its customers' needs through special programs including turn back pool water, dry year water purchases, etc., and by utilizing larger reductions to agricultural users. AVEK has been unable to fulfill demands for SWP water only two times since its formation. See Appendix F for a list of the annual SWP water deliveries to AVEK.

Since 1995, the water demand for all water sources has increased by a growth rate of about 4% per year, due in part to a general acceleration in the region's economy. From 1990 to 2000, the population within AVEK's service area increased and new water demand has kept pace with the growth. The area continues to have a modest but growing industrial sector located principally in Palmdale and Lancaster. The commercial sector is increasing more rapidly due to increased numbers of consumers in the area and the general desire to shop closer to home. The agricultural economy is based on carrots, alfalfa, onions, peaches, pears, apple, vineyards and other stone type fruits becoming more common.

2.3.3 Climate

The area encompassed by AVEK is primarily desert. Vegetation is typical of the western Mojave Desert that includes creosote and desert shrubs. Certain portions of the valley contain large stands of Joshua Trees. Summer temperatures can reach 112°F while winter temperatures have been known to drop to about 10°F. Typical annual average rainfall is 7 to 8 inches. The perimeter of the Antelope Valley includes low brush covered hills transitioning into the Tehachapi Mountains and San Gabriel Mountains to the west and south. The surface water runoff drainage channels and courses are active only during times of runoff due to precipitation. The water tables are well below the levels needed to sustain year round flowing streams. The area is known for its daily winds, usually from the west. Table 3 illustrates average rates of evapo-transpiration, temperature, and precipitation of the service area.

[1] Population growth projections include only a portion of the City of Palmdale.

Table 3
Climate

	Jan	Feb	Mar	Apr	May	June
Standard Monthly Average EvapoTranspiration (Eto)	1.86	2.80	4.65	6.00	8.06	9.00
Average Rainfall (inches)	1.49	1.82	1.35	0.36	0.12	0.05
Average Temperature (Fahrenheit)	44.3	47.5	52.7	58.3	66.7	75.2

Table 3 (continued)
Climate

	July	Aug	Sept	Oct	Nov	Dec	Annual
Standard Monthly Average (Eto)	9.92	8.68	6.60	4.34	2.70	1.86	66.5
Average Rainfall (inches)	0.10	0.14	0.19	0.35	0.48	1.05	7.51
Avg. Temperature (Fahrenheit)	81.1	79.7	73.3	62.6	50.4	43.2	61.3

Rainfall and temperature records based on data reported at the Lancaster station by NOAA.
EvapoTranspiration data based on data reported from CIMIS station zone 17 – High Desert Valleys.

DWR's Draft Water Plan includes an assessment of the impacts of global warming on the State's water supply using a series of computer models and based on decades of scientific research. Model results indicate increased temperature, reduction in Sierra snow depth, early snow melt, and a rise in sea level. These changing hydrological conditions could affect future planning efforts which are typically based on historic conditions. Difficulties that may arise include:

- Hydrologic conditions, variability, and extremes that are different than current water systems were designed to manage
- Changes occurring too rapidly to allow sufficient time and information to permit managers to respond appropriately
- Requiring special efforts or plans to protect against surprises and uncertainties

As such, DWR will continue to provide updated results from these models as further research is conducted.

2.4 Water Supply Sources

Law

> 10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments [to 20 years or as far as data are available.]

2.4.1 Imported Water

AVEK sells imported water from the DWR California Aqueduct as part of the SWP. Currently, AVEK has an allocation for purchasing up to 141,400 acre-feet of water per year from the SWP.

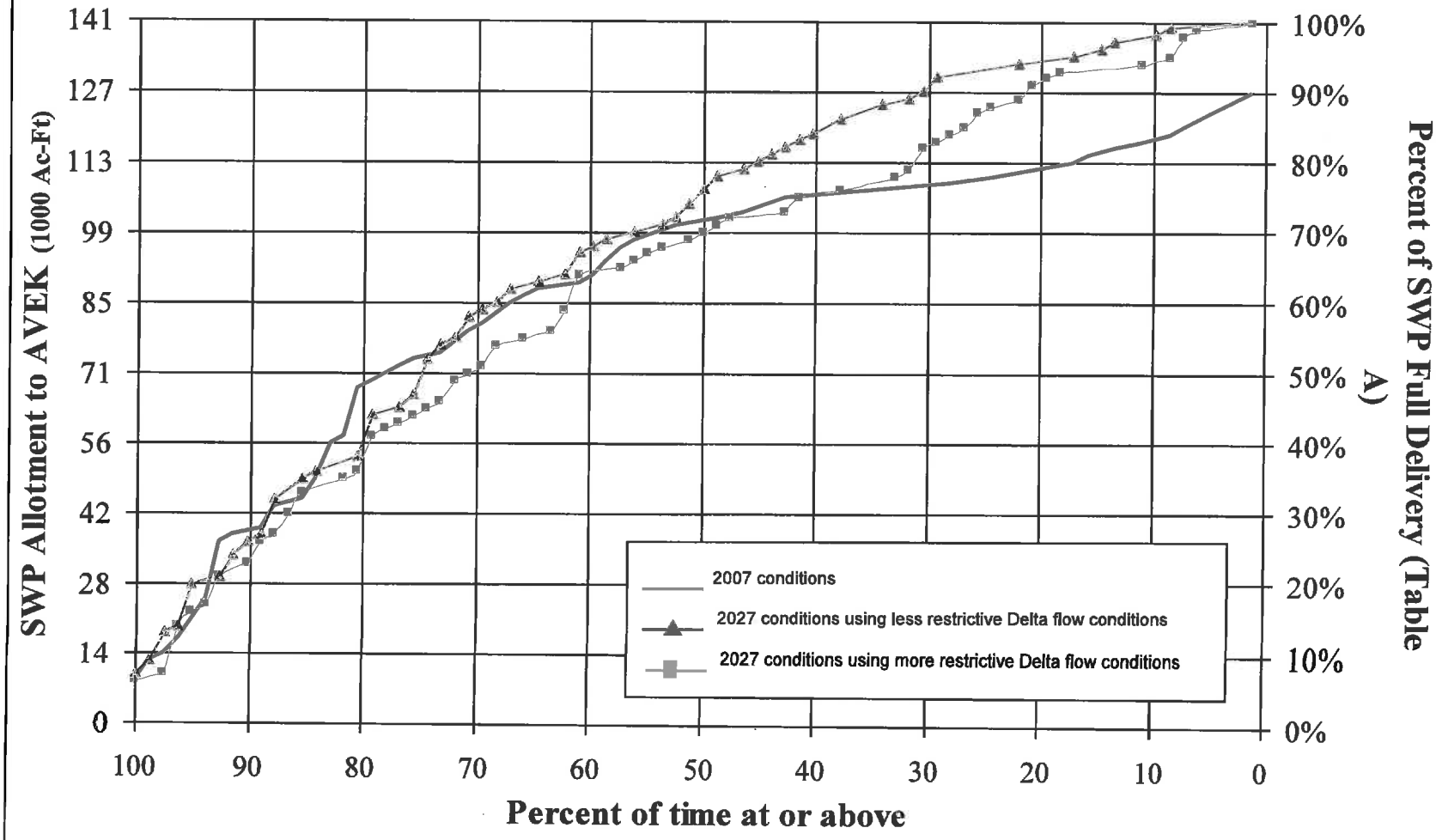
Each year, the Agency considers the outlook on the water supplies for the Agency for the next 12 months. Figure 1 indicates AVEK's DWR water deliveries under different availability conditions. Figure 1 includes information provided by the DWR 2007 State Water Project Delivery Reliability Report (DWR Report) and indicates the probability that a given SWP Table A amount will be delivered from the Delta. Each line is constructed by ranking 83 annual delivery values from lowest to highest and calculating the percentage of values equal to or greater than the delivery value of interest. For a complete description of the scenarios please refer to the DWR Report.

The scenarios developed by DWR include predictions of climate change developed under two different models, the GFDL and PCM models. They also include predictions based upon modifications to Delta flow patterns dictated by environmental concerns. A total of 13 scenarios were developed, using combinations of these models and Delta flow modifications. Figure 1 depicts three of these scenarios:

1. 2007 conditions
2. 2027 conditions using less restrictive Delta flow conditions
3. 2027 conditions using more restrictive Delta flow conditions

Other future (2027) scenarios are similar to the two presented in Figure 1

Figure 1. SWP Delivery Reliability



Data taken from DWR 2007 Delivery Reliability Report, Tables B.3, B.4, and B.5

(12/07)

2.4.2 Groundwater

AVEK does not have production groundwater wells but may include groundwater pumping as a water supply in the future. In previous years, AVEK has made efforts to utilize groundwater to offset imported water deficiencies. These efforts were unwelcomed by several of the larger AVEK purveyors.

2.4.3 Recycled Water

AVEK does not provide recycled water. Reference is made to Section 7.1.1, AVEK's Recycled Water Use Capabilities.

2.4.4 Current and Projected Water Supplies

Water supplies will have different historical dry year sequences and different yields during multiple year drought conditions based on hydrology, average storage, contract entitlements, etc. Currently, AVEK's only source of water is SWP water. For planning purposes, Table 4 reflects the Future Conditions with average year Table A delivery from the Delta in five-year intervals.

Table 4
Current and Planned Water Supplies (AF/Y)

Water Supply Sources	2007	2012	2017	2020	2027
SWP Allocation	141,400	141,400	141,400	141,400	141,400
Projected Delivery Percentages[2]	63%	64-65%	65-66%	66-68%	66-69%
Projected Delivery by DWR[3]	89,082	90,496	91,910	93,324	93,324
AVEK produced surface water	0	0	0	0	0
Transfers/Exchanges	0	0	0	0	0
Total	89,082	90,496	91,910	93,324	93,324

[2] Projected delivery percentages are based on low and high projections from the DWR 2007 SWP Reliability Report. The average projected delivery percentage for years 2007 and 2027 were taken from Table 7.1. Projected percentages for years 2012 – 2022 were derived by linear interpolation of the percentage values of year 2007 to year 2027. See Appendix F.

[3] Projected Delivery is the product of the SWP Allocation of 141,400 AF/Y and the Projected Delivery Percentages provided by the DWR models. For example, in year 2012 the projected delivery of 90,496 AF/Y is the product of 141,400 AF/Y multiplied by the projected delivery percentage of 64%.

Section 3. Reliability Planning

Law

> 10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable and provide data for each of the following:
>
> (1) An probable water year;
> (2) A single dry water year; and,
> (3) Multiple dry water years.
>
> For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

3.1 Reliability

AVEK considers two aspects of reliability. First, the source reliability is only as reliable as the occurrences of the winter weather storms that deposit snow pack in the higher Sierra Nevada elevations that are part of the SWP watershed. Once the winter rain and snow season have been completed, the snow pack is measured and projected annual water volumes are given to SWP users. Prior to that, a specific volume of water is unpredictable. Based on previous experience, the predicted water values given by the State in the spring have been conservative.

The second aspect of "reliability" is what AVEK forecasts as the available water allocated for each of the water purveyors. AVEK also strives to be as informative as possible on the annual water allocations, and distributes information from the SWP projections to the water purveyors in a timely manner. The demand by water purveyors is greater in the summer months compared to the winter months. AVEK charges higher water rates in peak months to offset water supply deficiencies as a demand management measure.

Reliability planning requires information about: (1) the expected frequency and severity of shortages that occur because of reduction in SWP allocation and failure of transportation facilities; and (2) how available contingency measures can reduce the impact of shortages when they occur.

3.2 Frequency and Magnitude of Supply Deficiencies

The current and future supply projections through 2027 are shown in the above Table 4. The future supply projections assume normal inflows from the Sacramento Delta for the SWP. See Figure 1 for SWP delivery reliability.

According to SWP Delta Table A Delivery Reliability Probability for Year 2007, AVEK is projected to receive an average delivery of 63% of full Table A under current conditions. The percentage of SWP Table A amounts projected to be available is referenced from Table 7.1 of DWR's "The State Water Project Delivery Reliability Report 2007" (August, 2008). AVEK has used the lowest allocation of 6% from Table 7.1, which includes revised current demands, for calculation of AVEK's single dry year supplies. The multiple dry year demand was based on the 4-year drought values also presented in Table 7.1 titled, "SWP Average and Dry Year Table A Delivery from Delta in Five-Year Intervals for Studies 2007 and 2027". Based on the SWP allotment for AVEK, 63% of full delivery translates to about 89,082 acre-feet of

water per year. For the remainder of this study, the value of 89,082 ac-ft will be defined as the baseline supply for a probable year.

3.3 Reliability Comparison

Table 5 details estimated water supply projections associated with several water supply reliability scenarios. Multiple-year drought periods correspond with the with the lowest water deliveries that were available from DWR. For further information on the data, see Section 6, Water Shortage Contingency Plan.

Table 5
Supply Reliability

Unit of Measure: Acre-feet/Year		Multiple Dry Water Years		
Probable Water Year	**Single Dry Water Year**	**2-year**	**4-year**	**6-year**
89,082	8,484	48,076	49,490	49,490
% of Maximum	**6%**	**34%**	**35%**	**35%**

Table 6
Basis of Water Year Data[4]

Water Year Type	Base Year(s)
Probable Water Year	**(see footnote)**
Single Dry Year	**1977**
2-Year	**1976-1977**
4-Year	**1931-1934**
6-Year	**1987-1992**

3.4 Factors Resulting in Inconsistency of Supply

The likeliest interruptions would be:

1. Reduction of annual SWP allocation due to low precipitation.
2. Reduction in conveyance of annual SWP allocation due to regulatory restrictions in the Delta.
3. A result of loss of power or facility failure in the aqueduct.
4. Failure of Delta levee system.
5. Earthquake
6. Power loss

Response by the agency to any of the above factors will always include contact and coordination with AVEK's customers. Additionally, in the event of power loss AVEK has permanent emergency power generation that automatically starts to maintain water treatment operations. In the event of an earthquake, AVEK personnel will survey and assess damage and respond accordingly with shutdowns and repairs.

[4] A probable water year scenario is defined as 63% of the full SWP allocation (141,400 ac-ft), or 89,082 ac-ft per historical reliability (Fig.1). This value coincides with the average percent of SWP allocation delivered as predicted in Table 7.1 (2007) of the DWR 2007 SWP Delivery Reliability Report. The model assumes parties entitled to SWP water have adequate storage for capturing excess supplies during wet years. Actual volume of water available may be less if adequate storage is not available. Single and Multiple Dry Years data are cited from Table 7.1 (2007) of the DWR report.

3.5 Transfer or Exchange Opportunities

Law

> 10631 (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

3.5.1 Water Transfers

The Agency has in past explored and implemented dry year water transfer options to increase reliability. For example, additional water was acquired by AVEK in 2001; AVEK purchased 3,000 acre-feet of Table A water from Tulare Lake Irrigation District. It is estimated that additional water could be purchased by the Agency as emergency water supply if requested by water purveyors. Other sources of water available to AVEK include the turnback pool, Article 21, and dry-year purchase programs; water that could be acquired for customer use.

Section 4. Water Use Provisions

Law

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

(A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof;

(2) Agricultural.

(3) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

4.1 Water Use by Customer Type – Past, Current, and Future

Table 7 details water purveyors' deliveries for M&I. The future water uses shown in the tables were based on the DWR SWP Delivery Reliability (Figure 1) of 63% of Table A deliveries.

Table 7 Total Water Use (M&I)						
Water Distributed	**2002**	**2007**	**2012**	**2017**	**2022**	**2027**
Billiton Exploration U.S.A.	22	14	26	27	28	28
Boron CSD	280	350	655	674	692	711
City of California City	163	801	1500	1542	1584	1626
Desert Lake CSD	63	161	301	310	318	327
Desert Sage Apartments	6	6	11	12	12	12
Edgemont Acres MWC	26	18	34	35	36	37
Edwards AFB	2140	1986	3718	3823	3927	4032
FPL Energy	1438	1251	2342	2408	2474	2540
Mojave Public Utility District	217	41	77	79	81	83
Rosamond CSD	1512	1111	2080	2138	2197	2256
US Borax	1625	1828	3422	3519	3615	3711
Antelope Valley Country Club	151	193	361	371	382	392
California Water Service Co	236	313	586	602	619	635
El Dorado MWC	387	60	112	115	119	122
Landale MWC	26	0.5	1	1	1	1
Los Angeles County Waterworks Districts	31794	38581	72227	74261	76296	78330
Palm Ranch Irrigation District	650	445	833	857	880	903
Quartz Hill Water District	3217	4099	7674	7890	8106	8322
Shadow Acres MWC	218	299	560	576	591	607
Sunnyside Farms MWC	290	293	549	564	579	595
Westside Park MWC	108	71	133	137	140	144
White Fence Farms MWC	731	755	1413	1453	1493	1533
Lake Elizabeth MWC	500	950	1778	1829	1879	1929
Sales to water purveyors (AF/Y)	45,800	89,082	91,910	93,324	96,152	97,566

Table 8 details the additional water uses and losses

Table 8 Additional Water Uses and Losses (AF)						
	2002	**2007**	**2012**	**2017**	**2022**	**2027**
Raw Water	24,302	7,625	7,625	7,625	7,625	7,625
Unaccounted-for system losses	2,103	1,001	3,046	3,132	3,220	3,311
Total	26,405	8,626	10,667	10,757	10,845	10,936

In case of rationing, the Agency will be able to use its customer database for implementing any possible water reductions.

4.1.1 Agricultural Sector

Agricultural water demand from AVEK's system is projected to have minimal growth in the next ten to fifteen years with a possible decrease over the next twenty to thirty years. The water deliveries indicated in Table 8 show consistent amounts through 2027. Agricultural land use within the Agency's area is currently increasing in quantity. Even so, it is projected that in the long term, more agricultural land will eventually be converted to urban uses.

Section 5. Demand Management Measures

Law

> 10631 (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:
> (1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: ...

AVEK is committed to implementing water conservation where applicable[5]. This Section discusses water conservation.

For responding to the Urban Water Management Planning Act, the Agency will address the 14 Demand Management Measures. Descriptions of the Agency's water conservation programs are below. The Agency has, in good faith, tried to address and comply with all of the BMP targets listed in the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU) where applicable, even though the Agency is not signatory to the MOU regarding Urban Water Conservation or a member of CUWCC.

(A) DMM 1 – Water Survey Programs for Single-Family and Multi-Family Residential Customers

IMPLEMENTATION DESCRIPTION: All services of this type are provided by the water purveyor customers of AVEK. AVEK will assist in information research and dissemination when appropriate.

(B) DMM 2 – Residential Plumbing Retrofit

IMPLEMENTATION DESCRIPTION: All services of this type are provided by the water purveyor customers of AVEK. AVEK will assist in information research and dissemination when appropriate.

(C) DMM 3 – System Water Audits, Leak Detection and Repair

IMPLEMENTATION DESCRIPTION: AVEK has no formal leak detection or pipeline survey program. AVEK does however audit system losses monthly as part of its normal billing procedures. Pipelines are driven regularly as part of water sample runs during which personnel will note leaks if observed. System losses of less than 3% of total deliveries are considered within the margin of error and normal. The agency repairs leaks promptly on average about twice per year. Below is a table of results.

Results	2003	2004	2005	2006	2007
% of Unaccounted Water	2.1	1.3	1.2	1.9	1.6
Miles Surveyed	100	100	100	100	100
Miles Repaired	<1	<1	<1	<1	<1
Actual Expenditures - $	10,000	10,000	10,000	10,000	10,000
Actual Water Saved - AF/Y	<1	<1	<1	<1	<1

[5] It should be recognized that Section 10620(c) of the Urban Water Management Planning Act provides that a water wholesaler need not address or implement certain planning elements described in the UWMP Act that are more applicable to water retailers (eg, water demand management measures).

(D) DMM 4 – Metering with Commodity Rates

IMPLEMENTATION DESCRIPTION: The Agency charges all water purveyor customers based on metered readings and established rate schedules developed by the Agency. All current and new connections including temporary connections are required to be metered and billed per volume-of-use. AVEK has never operated unmetered connections. Additionally, existing meters are checked on a regular basis for leaks and accuracy.

(E) DMM 5 – Large Landscape Conservation Programs and Incentives

IMPLEMENTATION DESCRIPTION: Landscaping requirements and conservation incentives are provided by AVEK's water purveyor customers and mandated by city and other governmental agencies.

(F) DMM 6 – High-efficiency washing machine rebate programs

IMPLEMENTATION DESCRIPTION: These programs are administered by water purveyor customers of AVEK. AVEK will disseminate information when appropriate.

(G) DMM 7 – Public Information Programs

IMPLEMENTATION DESCRIPTION: The Agency maintains an active public information program. The Agency promotes water conservation and other resource efficiencies in coordination with other utilities by distributing public information through brochures and through community speakers, paid advertising, and some special events every year. The Agency has been actively providing information to the public for over 20 years and is currently a participant within the Antelope Valley Water Conservation Coalition.

IMPLEMENTATION SCHEDULE: The Agency will continue to provide public information services and materials to remind the public about water and other resource issues.

METHODS TO EVALUATE EFFECTIVENESS: The Agency will solicit feedback from customer purveyors regarding the information provided.

CONSERVATION SAVINGS: AVEK has no method to quantify the savings of this DMM but believes that this program is in the public's interest.

(H) DMM 8 – School Education Programs

IMPLEMENTATION DESCRIPTION: The Agency continues to work with school districts to promote water conservation and other resource efficiencies at school facilities and to educate students about these issues.

The Agency solicits advice from various local schools to help implement this program. AVEK provides educational materials to several grade levels, State and County water system maps, posters, workbooks, interactive computer software, videos, and tours (for example water treatment plants).

IMPLEMENTATION SCHEDULE: The Agency will continue to implement this DMM at the levels described.

METHODS TO EVALUATE EFFECTIVENESS: The Agency will continue to survey the institutions and educators on the number of programs, materials and attendance at water conservation activities.

CONSERVATION SAVINGS: The Agency has no method to quantify the savings of this DMM but believes that this program benefits the general public in their awareness of water conservation.

(I) DMM 9 – Conservation Programs for Commercial, Industrial, and Institutional Accounts

IMPLEMENTATION DESCRIPTION: These services are provided by AVEK's water purveyor customers, and AVEK will disseminate information when appropriate.

(J) DMM 10 – Wholesale Agency Programs

IMPLEMENTATION DESCRIPTION: AVEK is a wholesale agency for water and the DMM's are identified and discussed in this section.

Existing Programs	Number of agencies assisted/Estimated AF per Year Savings				
Program Activities	2003	2004	2005	2006	2007
Water Surveys					
Residential Retrofit					
System Audits	1/1000	1/1000	1/1000	1/1000	1/1000
Metering-Commodity Rates	55/55	55/55	55/55	55/55	55/55
Landscape Programs					1/100
Washing Machines					
Public Information	1/10	1/10	1/10	1/10	2/50
School Education					
Water Waste					
CII WC / ULF					
Pricing					
WC Coordinator					20/20
Water Waste					
ULFT Replacement					
Actual Expenditures - $	$13,000	$13,000	$13,000	$13,000	$18,000

Planned Programs	No. of agencies to be assisted/ Est AF per Year Savings				
Program Activities	2008	2009	2010	2011	2012
Water Surveys	0/0	0/0	0/0	0/0	0/0
Residential Retrofit	0/0	0/0	0/0	0/0	0/0
System Audits	N/A	N/A	N/A	N/A	N/A
Metering-Commodity Rates	55/55	55/55	55/55	55/55	55/55
Landscape Programs	1/100	1/100	1/100	1/100	1/100
Washing Machines	0/0	0/0	0/0	0/0	0/0
Public Information	2/50	2/50	2/50	2/50	2/50
School Education	0/0	0/0	0/0	0/0	0/0
Water Waste	0/0	0/0	0/0	0/0	0/0
CII WC / ULF	0/0	0/0	0/0	0/0	0/0
Pricing	N/A	N/A	N/A	N/A	N/A
WC Coordinator	20/20	20/20	20/20	20/20	20/20
Water Waste	0/0	0/0	0/0	0/0	0/0
ULFT Replacement	0/0	0/0	0/0	0/0	0/0
Actual Expenditures - $	$18,000	$18,000	$18,000	$18,000	$18,000

(K) DMM 11 – Conservation Pricing

IMPLEMENTATION DESCRIPTION: AVEK does not have a conservation pricing structure. AVEK maintains a standard pricing structure to all water purveyor customers regardless of water usage but does have water pricing structures that include variations in pricing based on time of year (winter versus summer). The winter versus summer pricing is to encourage use of AVEK imported water during the off peak time of year instead of purveyors using groundwater. AVEK does not provide sewer service.

Table K2 - WHOLESALERS	
Water Rate Structure	None
Year rate effective	N/A

(L) DMM 12 – Water Conservation Coordinator

IMPLEMENTATION DESCRIPTION: AVEK does have a designated water conservation coordinator.

Table L2 - Planned					
Table L2 - Planned	2008	2009	2010	2011	2012
# of full-time positions					
# of part-time staff	1	1	1	1	1
Pos.supplied by other agency					
Projected Expenditures - $	$7,000	$7000	$7000	$7000	$7000

(M) DMM 13 – Water Waste Prohibition

IMPLEMENTATION DESCRIPTION: These services are provided by AVEK's water purveyor customers, the retail water purveyors.

(N) DMM 14 – Residential Ultra-low Flush Toilet Replacement Programs

IMPLEMENTATION DESCRIPTION: These services are provided by AVEK's water purveyor customers, the retail water purveyors. AVEK will disseminate information when appropriate.

5.1 Agricultural Water Conservation Programs

AVEK does not implement any agricultural water conservation programs, but encourages their agricultural customers to participate in water conservation.

5.2 Planned Future Supply Projects

AVEK does not currently have any planned future projects to increase water supply.

Non-implemented & Not scheduled DMM / Planned Water Supply Project Name	Per-AF Cost ($)
N/A	N/A

Development of Desalinated Water

Due to the agency's distance from coastal areas, AVEK does not have the opportunity to implement a desalination program.

Section 6. Water Shortage Contingency Plan

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.

6.1 Stages of Action

6.1.1 Rationing Stages and Reduction Goals

The Agency has developed delivery reduction goals to curb demand during water shortages. In the event of water supply shortages the Agency will make water delivery reductions per the Agency law for allocations. Reference is made to Appendix B, which includes Ordinance O-07-2, AVEK Water Shortage Contingency Plan.

Stage No.	Water Supply Conditions	% Shortage
1	Reduction in SWP Allocation Below Current Demand	1 %
2	Reduction in SWP Allocation Below Current Demand	50%

6.1.2 Estimate of Minimum Supply for Next Three years

Law

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (b) An estimate of the minimum water supply available during each of the next three-water years based on the driest three-year historic sequence for the agency's water supply.

Table 9 presents minimum projected 3-year supply.

Table 9
Supply Reliability (Ac-Ft) [1]

Source	Year 1	Year 2	Year 3	Normal
State Water Project	49,490	49,490	49,490	89,082

[1] Based on the years 1931, 1932, and 1933 as reported in Table 7.1 of the DWR 2007 SWP Delivery Reliability Report.

6.2 Preparation for Catastrophic Water Supply Interruption

Law

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

6.2.1 Water Shortage Emergency Response

Since the Agency began selling water to retailers, AVEK has maintained emergency contingency plans for activities required in the event there is an interruption in the DWR water supply or there is a major mechanical or electrical failure in one of the water treatment plants. The emergency activities that are undertaken by AVEK depend upon the severity of the problem and how quickly the problem can be remedied.

6.2.2 SWP Emergency Outage Scenarios

The Department of Water Resources has faced several potential outages along various parts of the SWP, mainly the California Aqueduct, since construction of the SWP in the early 1970s. Notable examples include slippage of side panels into the 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 of these outages were short-term in nature (on the order of weeks or months), 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 great design engineering features of the State Water Project is the ability to isolate parts of the system. If one reservoir or portion of the Aqueduct (the Aqueduct is divided into "pools") is damaged in some way, other portions of the system can still remain in operation. Since September 11, 2001, DWR has made significant investments in the security measures protecting all SWP facilities. Security is now coordinated with the California Highway Patrol.

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

AVEK and other SWP Contractors response to such events would be highly dependent on where along the SWP an event occurred. Three scenarios are described herein that could impact AVEK's SWP deliveries. For these scenarios it is assumed that a 100 percent reduction for six months would result from these catastrophic events.

Scenario 1: Levee Breach near Banks Pumping Plant

As demonstrated by the June 2004 Jones Tract levee breach, the Delta's levee system is extremely fragile. The SWP's main pumping facilities are 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 rush into the Delta, displacing the fresh water runoff that supplies the SWP. All pumping 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 might not be available on a regular basis.

Annual SWP operations consist of filling San Luis Reservoir, the major SWP storage facility south of the Delta, during the winter and spring months. South of Delta Contractors then take deliveries through San Luis Reservoir for the remainder of the year. Supplies are also stored in Pyramid and Castaic Lakes along the West Branch, as well as in a variety of groundwater banking programs in the southern San Joaquin Valley. Assuming that Banks Pumping Plant would be out of service for six months and that all southern Contractors had to take their supplies from the three reservoirs and from banking programs, coordination between DWR and Contractors would be required.

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

The 1995 flood event at Arroyo Pasajero demonstrated vulnerabilities of the Edmund G. "Pat" Brown portion of the California Aqueduct (that 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 contractors that a four-month outage could be expected in such an event. AVEK's assumption is a six-month outage.

Scenario 3: Complete Disruption of the Aqueduct East Branch

The East Branch of the California Aqueduct begins at a bifurcation of the Aqueduct in the Tehachapi Mountains south of Edmonston Pumping Plant. From the point of bifurcation, it is an open canal.

If a major earthquake (an event similar to or greater than the 1994 Northridge earthquake) were to damage a portion of the East Branch, deliveries could be interrupted. The exact location of such damage along the East Branch would be key to determining emergency operations by DWR and the southern California contractors. For this scenario, it is assumed that the East Branch suffered a single-location break and would not be available for deliveries.

If the shortage problem can be resolved within the available water storage time frame, only a few of the larger consumers need to be notified of the temporary decrease in water supply. If there will be a stoppage in the raw water deliveries to the various treatment plants, all customers (M&I and agriculture) will be notified of the stoppage and how soon water deliveries may be resumed.

If raw water deliveries to water treatment plants are temporarily stopped, treated water from other plants may be rerouted to the affected areas in some instances via interconnecting pipeline systems. Damages to the aqueduct will be repaired by DWR. Damaged Agency treatment plant components, whether mechanical or electrical, can usually be circumvented due to the duplicity of pumping and operations systems or the availability of manual over-ride controls. The magnitude of reduced water deliveries and length of time before resumption of full water availability will determine the extent of customer (M&I and agriculture) notification and activities required by the AVEK staff.

Possible Catastrophe:

- Power Outage
- Aqueduct Failure due to Earthquake or other circumstances
- Agency Treatment Plant Shutdown due to vital component failure
- Delta Levee Failure
- Local Earthquake

The following summarizes the actions the water agency will take during a water supply catastrophe.

Response by the agency to a catastrophic event will always include contact and coordination with AVEK's customers. Additionally, in the event of power loss AVEK has permanent emergency power generation that automatically starts to maintain water treatment operations. In the event of an earthquake, AVEK personnel will survey and assess damage and respond accordingly with shutdowns and repairs.

Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Regional power outage	Automatic switch to emergency power; contact customers, assess and respond
Earthquake	Automatic switch to emergency power (if needed); contact customers, assess
Other (name event)	and respond
Other (name event)	

6.3 Prohibitions, Consumption Reduction Methods and Penalties

Law

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.
>
> 10632 (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.
>
> 10632 (f) Penalties or charges for excessive use, where applicable.

6.3.1 Mandatory Prohibitions on Water Wasting

AVEK believes that their customers are in the best position to implement no-waste policies. AVEK can and will make recommendations to assist its customers in monitoring water wasting, if AVEK's assistance is requested.

6.3.2 Excessive Use Penalties

Penalties for excessive use are imposed by water purveyor customers of AVEK. It is anticipated agricultural users will economize their water usage as required. AVEK has in place provisions for pre-paid ordering as a method of penalizing users who do not take the delivery requested. AVEK does not have powers to implement penalties for excessive use by a retailer's customer but encourages all retailers to have such penalties in place.

6.3.3 Implementation

AVEK relies on its water retailers to implement water consumption reduction methods to their customers in order to cope with water supply shortages.

6.4 Revenue and Expenditure Impacts and Measures to Overcome Impacts

Law

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments

Revenues collected by the Agency are currently used to fund operation and maintenance of the existing facilities and fund new capital improvements. The Agency will estimate projected ranges of water sales versus shortage stage to best understand the impact each level of shortage will have on projected revenues and expenditures.

Revenue reduction and an increase in expenditure may occur due to reduced sales from implementing the abovementioned programs. The magnitude of the revenue reduction and expenditure increase will be dependent on the severity of the water shortage, with larger and longer water shortages having greater impact on revenues. For minor events, the Agency may be able to absorb the revenue shortfall/increase in expenditures by reallocating existing funds, such as delaying some capital projects. For large events, the Agency may enact a rate adjustment to its customers.

6.5 Shortage Contingency Ordinance/Resolution

Law

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (h) A draft water shortage contingency resolution

6.5.1 AVEK Water Shortage Response/Priority by Use

AVEK has a plan of action in its existing rules and regulations in the event it is necessary to declare a water shortage emergency. AVEK reserves the right at any time if the quantity of water available to the Agency pursuant to the Water Supply Contract between the DWR and AVEK is less than the aggregate of all consumer requests to allocate the quantity of water available to AVEK to the extent permitted by law. See Appendix B for Ordinance O-07-2 to Adopt a Water Shortage Contingency Plan.

6.5.2 Health and Safety Requirements

These requirements will be left to the retailing water purveyor agencies. AVEK has no direct control of the final water user actions and activities.

6.5.3 Water Shortage and Triggering Mechanisms

AVEK will attempt to provide the minimum health and safety water needs of the service area. It must be recognized that AVEK's water supply is not considered a primary source of water and it is a secondary source of water. The water shortage response plan was designed based on the assumption that during a long term drought DWR will have a reduction in water deliveries.

Rationing stages may be triggered by a shortage in the DWR water source. Although an actual shortage may occur at any time during the year, a shortage (if one occurs) is usually forecasted by the Department of Water Resources on or about April 1 each year. If it appears that it may be a dry year and the water supplies will be reduced, AVEK contacts its agricultural customers in March with confirmation follow up in April, so that the customers can minimize potential financial impacts.

Currently, the Agency's sole water source is imported surface water. Rationing stages may be triggered by a supply shortage or by contamination.

6.6 Reduction Measuring Mechanism

Law

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

6.6.1 Mechanism to Determine Reductions in Water Use

Under non-emergency water supply conditions, potable water production figures are recorded daily. Totals are reported daily to the Water Treatment Facility Supervisor. Totals are reported monthly to the Board of Directors and incorporated into the water supply report.

During water shortage periods, the Agency will review daily the water demands versus the established reduction goals. Reference is made to Appendix B, Ordinance O-07-2 to Adopt Water Storage Contingency Plan. The Agency will take appropriate steps to reduce their deliveries to meet the reduction goals.

Section 7. Recycled Water Plan

Law

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (a) A description of the wastewater collection and treatment systems in the supplier's service area, including quantification of the amount of wastewater collected and treated methods of wastewater disposal.

10633 (b) A description of the recycled water currently being used in the supplier's service area, including but not limited to, the type, place and quantity of use.

10633 (c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

7.1 Wastewater Quantity, Quality, and Current Uses

7.1.1 AVEK's Recycled Water Use Capabilities

AVEK does not collect or treat wastewater and has no plan to use recycled water as part of their deliveries. The Agency provides service to retail and water purveyors and agricultural customers that may have the opportunity to utilize recycled water as part of deliveries. The Agency supports customers' plans that would utilize recycled water within AVEK boundaries. The use of recycled water by AVEK customers is an important part of reducing the demand on AVEK's available water. Los Angeles County Water Works District has estimates for the future availability and location of recycled water and they are included in Appendix I.

7.2 Potential and Projected Use, Optimization Plan with Incentives

Law

> 10633 (d) A description and quantification of the potential uses of recycled water. ..., and a determination with regard to the technical and economic feasibility of serving those uses.
>
> 10633. (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.
>
> 10633 (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
>
> 10633 (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacle to achieving that increased use.

7.2.1 AVEK's Recycled Water Use Philosophy

AVEK does not collect or treat wastewater and has no plan to use recycled water as part of their deliveries. AVEK's customers should investigate, develop, and implement recycled water usage programs. The Agency encourages the use of recycled water. For example, AVEK is presently assisting both the cities of Lancaster and Palmdale, and the County of Los Angeles with local recycled water projects.

Section 8. Water Quality Impacts on Reliability

Law

> 10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Currently, the Agency water supply is solely provided by the State Water Project, and its water quality is maintained and governed by the standards established by the Department of Water Resources. As such, the Agency does not expect fluctuation in the water quality that will affect agency water management strategies. See Appendix I for the DWR Sanitary Survey Update Report 2001 information and DWR website for State Water Project water quality information.

Section 9. Water Service Reliability

Law

> 10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from the state, regional, or local agency population projections within the service area of the urban water supplier.

9.1 Projected Water Supply and Demand

The following compares current and projected water supply and demand. This information is based on continued commitment to conservation programs, conjunctive use programs and use of groundwater and recycled water, by the water purveyors. Probable supply totals for the year 2007 are based on the Agency receiving 63% of its delivery amount from the State Water Project, which is about 89,082 acre-feet of water per year. The projection gradually increases to 66% or 98,324 acre-feet of water per year by 2027. These projections are shown in Table 10. The 2007 and 2027 projections are based on data provided in Table 7.1 of the DWR 2007 SWP Delivery Reliability Report. The projected probable 5-year water supplies for the other years are derived from a linear interpolation of the 2007 supply totals up to the 2027 supply totals.

Active water efficiency improvements and additional water supply will be necessary to meet the Agency's projected water demand. The Agency will continue to examine supply enhancement options, such as groundwater recharge for Antelope Valley and conjunctive water use as discussed in Section 2.2.1, Interagency Coordination.

Projected demand totals are calculated based on population growth projection shown in Table 2. It was assumed that a household of 3.5 people requires 1.2 acre-foot of water per year. The assumed water usage rates are based on demand history for single-family dwellings in the area. New housing construction and related landscaping in the area does not appear to be different from existing housing development. The following tables will show water demand projection based on population projections from Table 2.

Table 10
Projected Probable 5-Year Water Supply AF/Y

	2007	2012	2017	2022	2027
Supply totals	89,082	90,496	91,910	93,324	93,324
% of SWP Full Allotment	63%	64%	65%	66%	66%

Table 11 Projected Probable 5-Year Water Demand AF/Y[6]					
Demand	**2007**	**2012**	**2017**	**2022**	**2027**
Retail Purveyors	**97,871**	**115,030**	**135,640**	**160,033**	**188,915**
Agriculture[7]	**7,625**	**7,625**	**7,625**	**7,625**	**7,625**
TOTAL	**105,496**	**122,655**	**143,265**	**167,658**	**196,540**

Table 12 Projected Probable 5-Year Supply and Demand Comparison AF/Y					
	2007	**2012**	**2017**	**2022**	**2027**
Supply totals	**89,082**	**90,496**	**91,910**	**93,324**	**93,324**
Demand totals	**105,496**	**122,655**	**143,265**	**167,658**	**196,540**
Difference (shortfall)	**(16,414)**	**(32,159)**	**(51,355)**	**(74,334)**	**(103,216)**
Difference as % Supply	**18%**	**36%**	**56%**	**80%**	**111%**
Difference as % Demand	**16%**	**26%**	**36%**	**44%**	**53%**

The comparison of the projected probable year supply and demand indicates a shortfall starting in the year 2007. This comparison is based on current usage patterns by the retail purveyors and agriculture users. The short fall in supply does not take into account the reliability of other sources available to water purveyors, such as their use of groundwater, future groundwater banking programs, future conservation efforts, and use of recycled water.

9.2 Projected Single Dry Year Supply and Demand Comparison

Table 13 Projected Single Dry Water Year Supply AF/Y					
	2007	**2012**	**2017**	**2022**	**2027**
Supply totals	**8,484**	**8,484**	**9,898**	**9,898**	**9,898**
% of SWP Full Allotment	**6%**	**6%**	**7%**	**7%**	**7%**

The 2007 and 2027 projected single dry water year percentages were based on the minimum delivery by the DWR as reported in Table 7.1 of the DWR 2007 SWP Delivery Reliability Report. The projected single dry water year percentages for the other years are derived from a linear interpolation of the 2007 supply totals up to the 2027 supply totals.

Table 14 Projected Single Dry Year Supply and Demand Comparison AF/Y					
	2007	**2012**	**2017**	**2022**	**2027**
Supply totals	**8,484**	**8,484**	**9,898**	**9,898**	**9,898**
Demand totals	**105,496**	**122,655**	**143,265**	**167,658**	**196,540**
Difference (shortfall)	**(97,012)**	**(114,171)**	**(133,367)**	**(157,760)**	**(179,572)**
Difference as % Supply	**1144%**	**1346%**	**1347%**	**1594%**	**1814%**
Difference as % Demand	**92%**	**93%**	**93%**	**94%**	**91%**

[6] Projected five-year water demand is for all water sources available in the area.
[7] The projected probable demand by agriculture is only an estimate of their demand since a record of their groundwater usage is not available.

The comparison of the projected probable year supply and demand indicates a shortfall that started in the year 2007. This comparison is based on current usage patterns by the retail purveyors and agriculture users. The short fall in supply does not take into account the reliability of other sources available to water purveyors, such as their use of groundwater, future groundwater banking programs, future conservation efforts, and use of recycled water.

In any dry year, the Agency will notify its customers of the potential water shortage for the year.

It is up to the purveying customers of AVEK to direct rationing program and policies to consumers. Therefore, expected changes to demand due to dry years will be provided by the purveying customers.

9.3 Projected Multiple Dry Year Supply and Demand Comparison

The following tables identify the projected minimum water supply based on the four-year drought historic sequence for water supply as presented in Table 7.1 of the DWR 2007 SWP Delivery Reliability Report.

Table 15
Projected Supply During Multiple Dry Year Ending in 2012 - AF/Y

	2008	2009	2010	2011	2012
Supply	31,179	31,179	31,179	31,179	31,179
Projected Normal	89,082	89,082	89,082	89,082	89,082
% of Projected Normal	35%	35%	35%	35%	35%

Table 16
Projected Demand During Multiple Dry Year Ending in 2012 - AF/Y

	2008	2009	2010	2011	2012
Demand	115,791	119,149	122,604	126,160	129,818
% of Projected Demand	100%	100%	100%	100%	100%

Table 17
Projected Supply & Demand Comparison During Multiple Dry Year Ending in 2012 - AF/Y

	2008	2009	2010	2011	2012
Supply totals	31,179	31,179	31,179	31,179	31,179
Demand totals	115,791	119,149	122,604	126,160	129,818
Difference (shortfall)	(84,612)	(87,970)	(91,426)	(94,981)	(98,640)
Difference as % Supply	271%	282%	293%	305%	316%
Difference as % Demand	73%	74%	75%	75%	76%

Table 18
Projected Supply During Multiple Dry Year Ending in 2017 - AF/Y

	2013	2014	2015	2016	2017
Supply	30,769	30,769	30,769	30,769	31,249
Projected Normal	90,496	90,496	90,496	90,496	91,910
% of Projected Normal	34%	34%	34%	34%	34%

Table 19
Projected Demand During Multiple Dry Year Ending in 2017 - AF/Y

	2013	2014	2015	2016	2017
Demand	133,583	137,457	141,443	145,545	149,766
% of Projected Demand	100%	100%	100%	100%	100%

Table 20
Projected Supply & Demand Comparison During Multiple Dry Year Ending in 2017 - AF/Y

	2013	2014	2015	2016	2017
Supply totals	30,769	30,769	30,769	30,769	31,249
Demand totals	133,583	137,457	141,443	145,545	149,766
Difference (shortfall)	(102,815)	(106,688)	(110,675)	(114,777)	(118,517)
Difference as % Supply	334%	347%	360%	373%	379%
Difference as % Demand	77%	78%	78%	79%	79%

Table 21
Projected Supply During Multiple Dry Year Ending in 2022 - AF/Y

	2018	2019	2020	2021	2022
Supply	31,249	31,249	31,249	31,249	30,797
Projected Normal	91,910	91,910	91,910	91,910	93,324
% of Projected Normal	34%	34%	34%	34%	33%

Table 22
Projected Demand During Multiple Dry Year Ending in 2022 - AF/Y

	2018	2019	2020	2021	2022
Demand	154,109	158,578	163,177	167,909	172,779
% of Projected Demand	100%	100%	100%	100%	100%

Table 23
Projected Supply & Demand Comparison During Multiple Dry Year Ending in 2022 - AF/Y

	2018	2019	2020	2021	2022
Supply totals	31,249	31,249	31,249	31,249	30,797
Demand totals	154,109	158,578	163,177	167,909	172,779
Difference (shortfall)	(122,860)	(127,329)	(131,928)	(136,660)	(141,982)
Difference as % Supply	393%	407%	422%	437%	461%
Difference as % Demand	80%	80%	81%	81%	82%

Table 24
Projected Supply During Multiple Dry Year Ending in 2027 - AF/Y

	2023	2024	2025	2026	2027
Supply	30,797	30,797	30,797	30,797	29,864
Projected Normal	93,324	93,324	93,324	93,324	93,324
% of Projected Normal	33%	33%	33%	33%	32%

Table 25
Projected Demand During Multiple Dry Year Ending in 2027 - AF/Y

	2023	2024	2025	2026	2027
Demand	177,789	182,945	188,251	193,710	199,327
% of Projected Demand	100%	100%	100%	100%	100%

Table 26
Projected Supply & Demand Comparison During Multiple Dry Year Ending in 2027 - AF/Y

	2023	2024	2025	2026	2027
Supply totals	30,797	30,797	30,797	30,797	29,864
Demand totals	177,789	182,945	188,251	193,710	199,327
Difference (shortfall)	(146,992)	(152,148)	(157,454)	(162,913)	(169,464)
Difference as % Supply	477%	494%	511%	529%	567%
Difference as % Demand	83%	83%	84%	84%	85%

This comparison is based on current usage patterns by the retail purveyors and agriculture users. The short fall in supply does not take into account the reliability of other sources available to water purveyors, such as their use of groundwater, future groundwater banking programs, future conservation efforts, and use of recycled water.

It is up to the purveying customers of AVEK to direct rationing program and policies to their consumers. Therefore, expected changes to demand due to dry years will be provided by the purveying customers. The development and use of other water sources, such as groundwater, conjunctive uses, the use of recycled water, and the storage of Article 21 water when available, are essential measures necessary to meet long-term demands.

9.3.1 Three Year Minimum Water Supply Alert

Based on experiences during reductions of State Water Project water, AVEK recognizes that it is better to enter into a water shortage alert early, to establish necessary programs and policies, to gain public support and participation, and to reduce the likelihood of more severe shortage levels later. Improved water use efficiency does mean that water supply reserves must be larger since water use efficiency improvements will be minimal. Water shortage responses must be made early to prevent severe economic and environmental impacts.

In May of each year, the Agency forecasts the minimum water supply availability for its water, and projects its total water supply for the current and three subsequent years. Based on the water shortage, a water shortage condition may be declared. Because shortages can have serious economic and environmental impacts, the Agency will make every effort to provide accurate predictions of water shortages.

APPENDIX A

- **LIST OF GROUPS WHO PARTICIPATED IN THE DEVELOPMENT OF THIS PLAN**
- **NOTIFICATION LETTER**
- **FAX/MAILING LIST**

List of Groups Who Participated In the Development of This Plan

AVEK board members and staff
Boyle Engineering Corporation
Retail water purveyor customers (2005 UWMP)
Members of the public, advisory groups, etc. (2005 UWMP)

Notification Letter

A PUBLIC AGENCY

December 23, 2008

To: AVEK UWMP Notification List
Re: AVEK DRAFT Urban Water Management Plan 2008

Antelope Valley – East Kern Water Agency (AVEK) has updated their Urban Water Management Plan (UWMP) for 2008 and has set a Public Hearing for January 13, 2009 in the consideration of its adoption. AVEK has actively encouraged community participation in its urban water management planning efforts by encouraging attendance and participation in the Board of Directors (BOD) public meetings held twice each month.

This Public Hearing on January 13, 2009 will offer the opportunity for you and/or your agency to submit comments on the draft plan before AVEK BOD approval. To assist with this, AVEK has posted the Draft UWMP 2008 on our website for public access and review at: www.avek.org/2008uwmp.pdf.

Public Hearing Information:
AVEK Public Hearing – UWMP 2008
January 13, 2009, 6:30 PM
AVEK Administration Building, Board Room
6500 West Avenue N
Palmdale, Ca 93551

In order to help further with your review of the draft plan, a Summary of Revisions is attached for reference. This can be used to quickly determine the draft changes made to date relative to the previously adopted plan from 2005.

If you would like to submit comments on the plan prior to the Public Hearing on January 13th, you may do so by contacting Tom Barnes at AVEK. Please have all comments submitted by 5:00 PM on January 13, 2009.

Contact:
Tom Barnes, Resources Manager
AVEK Water Agency
661-943-3201 Ph.
661-943-3204 Fax
tbavekwa@aol.com

Thank you,

Tom Barnes
Resources Manager
AVEK Water Agency

6500 WEST AVENUE N • PALMDALE, CALIFORNIA 93551
(661)943-3201 • FAX (661) 943-3204

Fax/Mailing List

UWMP Notification Fax/Mailing List:

City of California City
Mike Bevins, Public Works
21000 Hacienda Blvd.
California City, CA 93505
Fax: 760-373-7511

Edwards Air Force Base
Mike Keeling, Directorate of Contracting
Fax: 661-275-9656

City of Lancaster
Randy Williams, Public Works
44933 Fern Avenue
Lancaster, CA 93534
Fax: 723-6182

Los Angeles County
Department of Public Works
Dean Efstathiou, Chief Deputy Director
P. O. Box 7508
900 S. Fremont Avenue
Alhambra, CA 91802
Fax:

City of Palmdale
Attn: Steve Williams
38250 N. Sierra Highway
Palmdale, CA 93550
Fax: 661-267-5292

Building Industry Association
Gretchen Gutierrez
43423 Division Street, Suite 401
Lancaster, CA 93535
Fax: 848-6090

Kern County Planning Department
Lorelei Oviatt, Division Chief
1115Truxtun Avenue
Bakersfield, CA
Fax: 661-868-3485

Shell Mining Co./Billiton Exploration U.S.A.
PO Box 576
Room 4156
Houston, TX 77001-0576

Billing

Contact:	H. James Sewell
Phone:	(281) 544-2807
Fax:	(281) 544-2238
E-mail:	Jim.Sewell@shell.com

Emergency

Contact 1:	H. James Sewell
Day Phone:	(281) 544-2807
Night Phone:	(281) 731-3287
Contact 2:	Ken Tweedt
Day Phone:	(661) 824-9404
Night Phone:	(661) 824-9232

Boron CSD (Treated/M&I)
PO Box 1060
Boron, CA 93596

Billing

Contact:	Janna Riddle
Phone:	(760) 762-6127
Cell:	(760) 559-1224
Fax:	(760) 762-6508
E-mail:	bcsd@ccis.com

Emergency

Contact 1:	Russell Terrill
Day Phone:	(760) 250-3270
Night Phone:	(760) 762-6795
Contact 2:	Pete Lopez
Day Phone:	(760) 250-3271
Night Phone:	(760) 250-3271

Department of Health Services

System #:	1510002
Contact Person:	James Stites
Phone:	(661) 335-7315

City of California City (Treated/M&I)
21000 Hacienda Blvd
California City, CA 93505

Billing
- Contact:
- Phone: (760) 373-8696
- Fax:
- E-mail:

Emergency
- Contact 1:
- Day Phone:
- Night Phone:
- Contact 2:
- Day Phone:
- Night Phone:

Department of Health Services
- System #:
- Contact Person:
- Phone:

Desert Lake CSD (Treated/M&I)
PO Box 567
Boron, CA 93596

Billing
- Contact: Dollie Kostopoulos
- Phone: (760) 762-5349
- Fax: (760) 762-3161
- E-mail: dimples@ccis.com

Emergency
- Contact 1: Dollie Kostopoulos
- Day Phone: (760) 403-0012
- Night Phone: (760) 762-5786
- Contact 2: Deanna Lone
- Day Phone: (760) 762-5349
- Night Phone: (760) 762-5365

Department of Health Services
- System #: 1510027
- Contact Person: James Stites
- Phone: (661) 335-7315

Desert Sage Apartments (Treated/M&I)
Rick Nishimura
1101 Salisbury
La Canada, Ca. 91011

Billing
- Contact: Rick Nishimura
- Phone: (818) 720-6042
- Fax: (818) 790-9973
- E-mail:

Emergency
- Contact 1: Rick Nishimura
- Day Phone: (818) 720-6042
- Night Phone: (818) 720-6042
- Contact 2:
- Day Phone:
- Night Phone:

Edgemont Acres MWC (Treated/M&I)
PO Box 966
North Edwards, CA 93523-0966

Billing
- Contact: Renee Richey
- Phone: (760) 769-4764
- Fax: (760) 769-4764
- E-mail: eamwc@ccis.com

Emergency
- Contact 1: Ray Young
- Day Phone: (760) 769-4166
- Night Phone:
- E-mail: ryoung@ccis.com
- Contact 2: Bruce White
- Day Phone: (760) 769-4754
- Night Phone:

Department of Health Services
- System #: 1500290
- Contact Person:
- Phone:

Edwards AFB (Main Base) (Treated/M&I)
95 CEG/CERF – Main Base Water Delivery
225 N. Rosamond Blvd
Building 3500
Edwards AFB, CA 93524-8540

Billing
- Contact:
- Phone: (661) 277-4927
- Fax:
- E-mail:

Emergency
- Contact 1:
- Day Phone:
- Night Phone:
- E-mail:
- Contact 2:
- Day Phone:
- Night Phone:

Department of Health Services
- System #:
- Contact Person:
- Phone:

Edwards AFB (Phillips Lab) (Treated/M&I)
95 CEG/CERF – Propulsion Lab Water
225 N. Rosamond Blvd
Building 3500
Edwards AFB, CA 93524-8540

Billing
- Contact:
- Phone: (661) 277-4927
- Fax:
- E-mail:

Emergency
- Contact 1:
- Day Phone:
- Night Phone:
- E-mail:
- Contact 2:
- Day Phone:
- Night Phone:

Department of Health Services
- System #:
- Contact Person:
- Phone:

FPL Energy (Treated/M&I)
41100 Highway 395
Boron, CA 93516

Billing

Contact:	Janis Hill
Phone:	(760) 762-5562 x300
Fax:	(760) 762-5546
E-mail:	rfimbres@kjcsolar.com

Emergency

Contact 1:	Robert Fimbres
Day Phone:	(760) 762-5562 x300
Night Phone:	(760) 964-9854
Contact 2:	Mike Roberson
Day Phone:	(760) 762-5562 x375
Night Phone:	(760) 964-4334

Mojave Public Utility District (Treated/M&I)
15844 K Street
Mojave, CA 93501

Billing

Contact:	Carol Pridgen
Phone:	(661) 824-4161
Fax:	(661) 824-2361
E-mail:	

Emergency

Contact 1:	Bruce Gaines
Day Phone:	(661) 824-4161
Night Phone:	(661) 824-0529
Contact 2:	Bee Coy
Day Phone:	(661) 824-4262
Night Phone:	(661) 824-2435

Department of Health Services

System #:	1510014
Contact Person:	James Stites
Phone:	(661) 335-7315

Rosamond CSD (Treated/M&I)
2700 20th Street West
Rosamond, CA 93560

Billing
- Contact: Toni Welsh
- Phone: (661) 256-3411
- Fax: (661) 256-2557
- E-mail: twelsh@qnet.com

Emergency
- Contact 1: Juan DeLaRosa
- Day Phone: (661) 256-3411
- Night Phone:
- Contact 2: Jack Stewart
- Day Phone: (661) 256-3411
- Night Phone:

Department of Health Services
- System #: 1510018
- Contact Person: Jesse DHaLiwal
- Phone: (661) 335-7318

US Borax/Rio Tinto Minerals (Treated/M&I)
14486 Borax Rd
Boron, CA 93516

Billing
- Contact: Mel Lawson
- Phone: (661) 256-5807
- Fax: (760) 762-7344
- E-mail: mel.lawson@riotinto.com

Emergency
- Contact 1: Chuck Amento
- Day Phone: (760) 762-7353
- Night Phone: (760) 559-4327
- Contact 2: Suresh Rajapakse
- Day Phone: (760) 762-7053
- Night Phone: (760) 447-9766

SOUTH FEEDER

Antelope Valley Country Club (Treated/M&I)
39800 Country Club Dr
Palmdale, CA 93551

Billing
- Contact: Martha Whitfield
- Phone: (661) 947-3142 x13
- Fax: (661) 947-5026
- E-mail:

Emergency
- Contact 1: Buzz Barker
- Day Phone: (661) 810-0313
- Night Phone: (760) 373-8234
- Contact 2: Steve Applegate
- Day Phone: (661) 947-3142 x15
- Night Phone: (661) 949-0657

California Water Service Co (Treated/M&I)
Antelope Valley District
5015 West Avenue L-14
Quartz Hill, CA 93536

Billing
- Contact:
- Phone: (661) 943-9001
- Fax: (661) 722-5720
- E-mail:

Emergency
- Contact 1: Chris Whitley
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9403
- Contact 2: Jose Ojeda
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9404

Department of Health Services
- System #: 1910243
- Contact Person: Steve Sung
- Phone: (213) 580-5723

El Dorado MWC (Treated/M&I)
PO Box 900519
Palmdale, CA 93590

Billing
- Contact: Jeanne Miller
- Phone: (661) 947-3255
- Fax: (661) 947-9701
- E-mail: sprung@antele.net

Emergency
- Contact 1: Steve Sprunger
- Day Phone: (661) 266-6233
- Night Phone: (661) 273-4059
- Contact 2: Murry Sprunger
- Day Phone: (661) 947-8189
- Night Phone: (661) 947-8189

Department of Health Services
- System #: 1900803
- Contact Person: Teymoori
- Phone: (213) 580-5746

Landale MWC (Operated by California Water Service Co) (Treated/M&I)
PO Box 5808
Lancaster, CA 93539

Billing
- Contact: John Rogers (Landale MWC)
- Phone:
- Fax:
- E-mail:

Emergency
- Contact 1: Kevin Payne (California Water Service Co)
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9403
- Contact 2: Jose Ojeda (California Water Service Co)
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9404

Department of Health Services
- System #:
- Contact Person:
- Phone:

Los Angeles County Waterworks Districts (Treated/M&I)
PO Box 7508
Alhambra, CA 91802-7508

Billing

Contact:	Rami Gindi
Phone:	(626) 300-3357
Fax:	(626) 300-3385
E-mail:	rgindi@ladpw.org

Emergency

Contact 1:	Craig David
Day Phone:	(661) 886-1673
Night Phone:	
Contact 2:	Ken Rosander
Day Phone:	(661) 400-3835
Night Phone:	(661) 722-4099
Contact 3:	Adam Arriki
Day Phone:	
Night Phone:	

Department of Health Services

System #:	1910070	(4-50,4-53,4-56,4-59,4-66,4-70,4-71,34-7, 34-9)
Contact Person:	James Ko	
Phone:	(213) 977-6808	

Palm Ranch Irrigation District (Treated/M&I)
42116 50th Street West, Suite D
Quartz Hill, CA 93536

Billing

Contact:	Phillip Shott
Phone:	(661) 943-2469
Fax:	(661) 943-8184
E-mail:	pranch7314@aol.com

Emergency

Contact 1:	Phillip Shott
Day Phone:	(661) 943-2469
Night Phone:	(661) 266-9894
Cell Phone:	(661) 810-6488
Contact 2:	Pete Tuculet
Day Phone:	(661) 943-2469
Night Phone:	(661) 723-7894
Cell Phone:	(661) 810-5712

Department of Health Services

System #:	1910103
Contact Person:	Grazyna Newton
Phone:	(213) 580-5714 / (818) 349-7960

Quartz Hill Water District (Treated/M&I)
PO Box 3218
Quartz Hill, CA 93586

Billing
- Contact: Susan Greenhouse
- Phone: (661) 943-3170
- Fax: (661) 943-0457
- E-mail: sgreenhouse@qhwd.com

Emergency
- Contact 1: Chad Reed
- Day Phone: (661) 943-3170
- Night Phone: (661) 810-0381
- Contact 2: Brent Byrne
- Day Phone: (661) 943-3170
- Night Phone: (661) 810-2221

Department of Health Services
- System #: 1910130
- Contact Person: Grazyna Newton
- Phone: (213) 580-5734

Shadow Acres MWC (Treated/M&I)
PO Box 900669
Palmdale, CA 93590

Billing
- Contact: Jeanne Miller
- Phone: (661) 947-0200
- Fax: (661) 947-9701
- E-mail:

Emergency
- Contact 1: Jon Saitta
- Day Phone: (661) 435-5192
- Night Phone: (661) 435-5192
- Contact 2: Jim Wisneski
- Day Phone: (661) 947-0200
- Night Phone: (661) 224-1526

Department of Health Services
- System #: 1900301
- Contact Person: Steve Layne
- Phone: (661) 723-4549

Sunnyside Farms MWC **(Treated/M&I)**

PO Box 901025
Palmdale, CA 93590

Billing
- Contact: Jeanne Miller
- Phone: (661) 947-3437
- Fax: (661) 947-9701
- E-mail:

Emergency
- Contact 1: Chuck Laird
- Day Phone: (661) 406-6486
- Night Phone: (661) 406-6486
- Contact 2: Linda Enger
- Day Phone: (661) 947-2244
- Night Phone: (661) 947-2244

Department of Health Services
- System #: 1900146
- Contact Person:
- Phone: (661) 723-4549

Westside Park MWC (Treated/M&I)

40317 11th Street West
Palmdale, CA 93551-3024

Billing
- Contact: Phil Wood
- Phone: (661) 273-2997
- Fax: (661) 266-7938
- E-mail: philw@rglobal.net

Emergency
- Contact 1: Bill Raggio
- Day Phone: (661) 272-4512
- Night Phone: (661) 272-4512
- Contact 2: Phil Wood
- Day Phone: (661) 273-2997
- Night Phone: (661) 273-2997

Department of Health Services
- System #:
- Contact Person:
- Phone:

White Fence Farms MWC (Treated/M&I)
41901 20th Street West
Palmdale, CA 93551

Billing
- Contact: Dotty Jernigan
- Phone: (661) 943-3316
- Fax: (661) 943-3576
- E-mail: wffwater@aol.com

Emergency
- Contact 1: Mike McCracken
- Day Phone: (661) 810-2223
- Night Phone: (661) 810-2223
- Contact 2: John Ukkestad
- Day Phone: (661) 272-0015
- Night Phone:

Department of Health Services
- System #: 1910249
- Contact Person: Susanna Cohen
- Phone: (213) 580-5723

White Fence Farms MWC #3 (Treated/M&I)
2606 West Avenue N-8
Palmdale, CA 93551

Billing
- Contact: Frank Anley
- Phone: (661) 266-8850
- Fax: (661) 266-8850
- E-mail: f.e.anley@att.net

Emergency
- Contact 1: Frank Anley
- Day Phone: (661) 266-8850
- Night Phone: (661) 947-3240
- Contact 2: Philip Anley
- Day Phone: (661) 224-6087
- Night Phone: (661) 943-5600

Department of Health Services
- System #: 1900523
- Contact Person: Grazyna Newton
- Phone: (213) 580-5734

EAST FEEDER

Los Angeles County Waterworks Districts (Treated/M&I)
PO Box 7508
Alhambra, CA 91802-7508

Billing

Contact:	Ramy Gindi
Phone:	(626) 300-3357
Fax:	(626) 300-3385
E-mail:	rgindi@ladpw.org

Emergency

Contact 1:	Craig David
Day Phone:	(661) 886-1673
Night Phone:	
Contact 2:	Ken Rosander
Day Phone:	(661) 400-3835
Night Phone:	(661) 722-4099
Contact 3:	Adam Arriki
Day Phone:	
Night Phone	

Department of Health Services

System #:	1910203	(24-4,33-3)
Contact Person:	James Ko	
Phone:	(213) 977-6808	
System #:	1910005	(38-4,38-5,38-6)
Contact Person:	Steve Sung	
Phone:	(213) 580-5723	

ACTON FEEDER

Los Angeles County Waterworks Districts (Treated/M&I)
PO Box 7508
Alhambra, CA 91802-7508

Billing

Contact:	Ramy Gindi
Phone:	(626) 300-3357
Fax:	(626) 300-3385
E-mail:	rgindi@ladpw.org

Emergency

Contact 1:	Craig David
Day Phone:	(661) 886-1673
Night Phone:	
Contact 2:	Ken Rosander
Day Phone:	(661) 400-3835
Night Phone:	(661) 722-4099
Contact 3:	Adam Arriki
Day Phone:	
Night Phone	

Department of Health Services

System #:	1910248	(37-10)
Contact Person:	Jeremy Chen	
Phone:	(213) 977-7372	

Lake Hughes Feeder (Willow PS)

Lake Elizabeth MWC (Untreated/M&I)
14960 Elizabeth Lake Rd
Elizabeth Lake, CA 93532

Billing

Contact:	Tom Guy
Phone:	(661) 724-1806
Fax:	(661) 724-1281
E-mail:	lakeelizabethwater@verizon.net

Emergency

Contact 1:	Tom Guy
Day Phone:	(661) 724-1806
Night Phone:	
Contact 2:	Kenneth Gray
Day Phone:	(661) 724-1806
Night Phone:	(661) 724-9274

APPENDIX B

- **RESOLUTION R-09-6: ADOPTION OF THE URBAN WATER MANAGEMENT PLAN.**
- **ORDINANCE O-07-2: AVEK WATER SHORTAGE CONTINGENCY PLAN.**

Resolution R-09-6: Adoption of the Urban Water Management Plan

ANTELOPE VALLEY-EAST KERN WATER AGENCY

RESOLUTION NO. R-09-6
TO ADOPT THE 2008 URBAN WATER MANAGEMENT PLAN

The Board of Directors of the Antelope Valley-East Kern Water Agency ("AVEK") do hereby resolve as follows:

I.
RECITALS

WHEREAS, the Antelope Valley-East Kern Water Agency was formed in 1959 by an act of the State Legislature. AVEK's powers, duties, authorities and other matters are set forth in its enabling act, which is codified at California Water Code, Uncodified Acts, Act 9095 (the "AVEK Enabling Act"); and

WHEREAS, AVEK's jurisdictional boundaries cover portions of three counties, Los Angeles, Ventura County and Kern County, and is more particularly described in Appendix E in the 2008 Urban Water Management Plan ("AVEK's Jurisdictional Boundaries"); and

WHEREAS, AVEK was formed for the purpose of providing water received from the State Water Project ("SWP") as a supplemental source of water to retail water purveyors and other water interests within AVEK's Jurisdictional Boundaries on a wholesale basis; and

WHEREAS, in order to effectuate the above-referenced purpose, AVEK, among other things, entered into a contract with the Department of Water Resources ("DWR"), which operates the SWP, in order for AVEK to receive water from the SWP ("SWP Water"); and

WHEREAS, AVEK has entered into contracts with various retail purveyors and other water interests in AVEK's Jurisdictional Boundaries that govern AVEK's delivery of SWP Water to those purveyors and other water interests (the "AVEK's Water Supply Contracts"). Article 19 in those contracts provide that "substantial uniformity" in those contracts is "desirable" and that AVEK will "attempt to maintain such uniformity" between such contracts; and

WHEREAS, AVEK does not provide SWP Water directly to any person or entity for domestic or municipal purposes; and

WHEREAS, AVEK does not own or operate any facilities that can produce reclaimed

water from any area in AVEK's Jurisdictional Boundaries, and neither does AVEK possess any contractual right or matured water right to produce such waters; and

WHEREAS, the Urban Water Management Planning Act, California Water Code Section 10610 *et seq.* ("UWMP Act"), mandates that every supplier providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan; and

WHEREAS, the UWMP Act further provides that such plans shall be periodically reviewed and updated by the supplier once every five years no later than December 31st of each calendar year ending in zero and five; and

WHEREAS, AVEK has reviewed and updated its UWMP based on the impacts of the State Water Project reliability presented in the Department of Water Resources' 2007 State Water Project Reliability Report; and

WHEREAS, AVEK has circulated drafts of its proposed 2008 Urban Water Management Plan ("2008 UWMP") to the public for review and comment; and

WHEREAS, AVEK's Board of Directors ("AVEK Board") held a duly noticed public hearing on its proposed 2008 UWMP on January 13, 2009; and

WHEREAS, the AVEK Board received no written or verbal testimony or evidence from the public or others concerning its proposed 2008 UWMP; and

WHEREAS, AVEK retained technical and legal consultants to provide expert assistance concerning its 2008 UWMP; and

WHEREAS, AVEK has adopted Ordinance No. O-07-2 that adopts a water shortage contingency plan.

II.
FINDINGS

THEREFORE, AVEK finds as follows:

1. AVEK's 2008 UWMP complies with all applicable laws and regulations, including but not limited to the UWMP Act, the AVEK Enabling Act, and the Guidebook To Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan issued by the DWR and dated as of January 18, 2005.

2. AVEK's 2008 UWMP is consistent with the intent and terms of the AVEK's Water Supply Agreements.

3. The AVEK Board's adoption of the 2008 UWMP is supported by substantial evidence, which evidence is contained in the administrative record received by the AVEK Board for this matter.

4. Each of the recitals contained in this Resolution is approved as a finding of fact.

III.

ADOPTION OF 2008 UWMP

THEREFORE, be it resolved and ordained by the AVEK Board as follows:

1. The 2008 UWMP is approved and adopted. The President of the AVEK Board authorized and directed to file the 2008 UWMP with the entities specified in the UWMP Act by the dates specified therein.

ADOPTED this 13th day of January 13, 2009, by the following vote:

AYES: 6 **NOES:** 0 **ABSENT:** 1 **ABSTAIN:** 0

Andy D. Rutledge
President of the Board of Directors
Antelope Valley-East Kern Water Agency

ATTEST: _____
Agency Secretary

Ordinance O-07-2: AVEK Water Shortage Contingency Plan

ANTELOPE VALLEY-EAST KERN WATER AGENCY
ORDINANCE NO. O-07-2

AN ORDINANCE OF THE ANTELOPE VALLEY-EAST KERN WATER AGENCY TO ADOPT A WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the Board of Directors of the Antelope Valley-East Kern Water Agency ("AVEK") hereby finds:

I.
RECITALS

WHEREAS, the Antelope Valley-East Kern Water Agency was formed in 1959 by an act of the State Legislature. AVEK's powers, duties, authorities and other matters are set forth in its enabling act, which is codified at California Water Code, Uncodified Acts, Act 9095 (the "AVEK Enabling Act"); and

WHEREAS, AVEK's jurisdictional boundaries cover portions of three counties, Los Angeles, Ventura County and Kern County, and is more particularly described in Appendix E in the 2005 Urban Water Management Plan ("AVEK's Jurisdictional Boundaries"); and

WHEREAS, AVEK was formed for the purpose of providing water received from the State Water Project ("SWP") as a supplemental source of water to retail water purveyors and other water interests with AVEK's Jurisdictional Boundaries on a wholesale basis; and

WHEREAS, in order to effectuate the above-referenced purpose, AVEK, among other things, entered into a contract with the Department of Water Resources ("DWR"), which operates the SWP, in order for AVEK to receive water from the SWP ("SWP Water"); and

WHEREAS, AVEK has entered into contracts with various retail purveyors and other water interests in AVEK's Jurisdictional Boundaries that govern AVEK's delivery of SWP Water to those purveyors and other water interests (the "AVEK's Water Supply Contracts"). Article 19 in those contracts provides that "substantial uniformity" in those contracts is "desirable" and that AVEK will attempt to maintain such "uniformity" between such contracts; and

WHEREAS, AVEK does not provide SWP Water directly to any person or entity for domestic or municipal purposes; and

WHEREAS, AVEK does not own or operate any facilities that can produce reclaimed water or native groundwater from any area in AVEK's Jurisdictional Boundaries, and neither does AVEK possess any contractual right or matured water right to produce such waters; and

WHEREAS, the Urban Water Management Planning Act, California Water Code Section 10610 *et seq.* ("UWMP Act") provides that urban water management plans shall include a resolution or ordinance by the supplier that sets forth a water shortage contingency plan; and

WHEREAS, Section 61.1 of t he AVEK Enabling Act sets forth guiding principles for AVEK's distribution of SWP Water, which principles can be drawn upon in allocating such water in times of shortage (the provisions of Section 61.1 of the AVEK Enabling Act are set forth in Exhibit A to this Ordinance); and

WHEREAS, real property related taxes have been paid to AVEK since 1959 by entities in AVEK's Jurisdictional Boundaries.

WHEREAS, AVEK has circulated drafts of its proposed 2005 UWMP and the water shortage contingency plan set forth in this Ordinance ("WSC Plan") to the public for review and comment; and

WHEREAS, AVEK's Board of Directors ("AVEK Board") held duly noticed public hearings on its proposed 2005 UWMP on November 15, 2005 and December 20, 2005, and a public meeting on the WSC Plan on December 20. 2005; and

WHEREAS, the AVEK Board received written and verbal testimony and evidence from the public and others concerning its proposed 2005 UWMP and WSC Plan.

II.
FINDINGS

THEREFORE, AVEK finds as follows:

1. AVEK finds that there is a need to adopt a water shortage contingency plan given, among other things, the requirements of the UWMP Act and the potential that the amount of SWP Water made available to AVEK by DWR may not satisfy the demands for SWP Water by AVEK's customers (even though such demand for SWP water has only exceeded the available supply of SWP Water once since AVEK was formed).

2. The WSC Plan complies with all applicable laws and regulations, including but not limited to the UWMP Act, the AVEK Enabling Act, and the Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan issued by

DWR and dated as of January 18, 2005.

3. AVEK finds that the WSC Plan is fair and equitable.

4. The WSC Plan is consistent with the intent and terms of the AVEK's Water Supply Agreement and the AVEK Enabling Act.

5. Each of the recitals contained in the Ordinance is approved as a finding of fact.

III.
ADOPTION OF WATER SHORTAGE CONTINGENCY PLAN

Therefore, be it resolved and ordained by the AVEK Board as follows:

1. AVEK adopts a WSC Plan that would be implemented when the aggregate amount of SWP Water reasonably ordered by AVEK's customers in any water year exceeds the amount of SWP Water that DWR makes available to AVEK on that same water year (a "SWP Water Shortage Year"). When that contingency occurs (which contingency will be deemed to occur under both stages listed in Appendix 1 hereto), AVEK plans to allocate that amount of available SWP Water as follows:

(a) The available SWP Water shall first be allocated per each county (the "County Allocation of SWP Water") in AVEK's Jurisdictional Boundaries based on a running historical average of the amount of taxes paid to AVEK by entities in each particular county since the formation of AVEK in 1959. (Attached as Exhibit B to this Ordinance is the historical amount of such taxes paid by county through June 30, 2005.) AVEK shall annually update and publish that running historical average of taxes paid to AVEK by county.

(b) Each County's Allocation of SWP Water shall be further allocated to each AVEK customer within that particular county based on its average annual percentage of SWP Water received in the two water years prior to the SWP Water Shortage Year relative to the amount of SWP Water received by all other AVEK customers in that particular county in those two prior water years. (For illustrative purposes, attached as Exhibit C to this Ordinance is a list of such relative percentages by AVEK customers by county for 2004.)

(c) In determining the amount of SWP Water that should be delivered by AVEK to any customer in any SWP Water Shortage Year, AVEK will fill orders for SWP Water that will be used by the AVEK customer(s) for consumptive or agricultural uses in

that same water year prior to filling any order for SWP Water that would be used by an AVEK customer for banking or storage purposes.

(d) AVEK reserves the right to allocate SWP Water that it receives from DWR in a SWP Water Shortage Year in a manner that differs from the provisions of this WSC Plan based on a finding by the AVEK Board of unique or unusual circumstances or needs.

This Ordinance shall be in full force and effect upon the date of adoption, and shall be published in full in a newspaper of general circulation within ten (10) days from the date of adoption.

Passed and adopted this 19th day of June, 2007, by the following vote:

AYES: 6 **NOES:** 0 **ABSENT:** 1 **ABSTAIN:** 0

Andy D. Rutledge, President
Board of Directors
Antelope Valley-East Kern Water Agency

ATTEST: _____ **Agency Secretary**

EXHIBIT A

§ 61.1 Distribution and apportionment of water purchased from State, etc.

The agency shall whenever practicable, distribute and apportion the water purchased from the State of California or water obtained from any other source as equitably as possible on the basis of total payment by a district or geographical area within the agency regardless of its present status, of taxes, in relation that such payment bears to the total taxes and assessments collected from all other areas.

It is the intent of this section to assure each area or district its fair share of water based upon the amounts paid into the agency, as they bear relation to the total amount collected by the agency.

EXHIBIT B

AVEK Water Agency
Taxes Collected from Inception through 06/30/07

	Los Angeles County		Kern County		Ventura County		
Description	Taxes Collected by Fiscal Year	% of Total	Taxes Collected by Fiscal Year	% of Total	Taxes Collected by Fiscal Year	% of Total (above 0.1%)	TOTALS
FYE 06/30/1961	58,306.69	74%	20,846.13	26%			79,152.82
FYE 06/30/1962	55,138.24	74%	19,372.90	26%			74,511.14
FYE 06/30/1963	156,220.27	74%	53,906.15	26%			210,126.42
FYE 06/30/1964	221,396.82	73%	81,444.27	27%			302,841.09
FYE 06/30/1965	174,560.93	71%	69,835.70	29%			244,396.63
FYE 06/30/1966	195,498.90	67%	97,105.93	33%			292,604.83
FYE 06/30/1967	417,054.54	64%	234,620.40	36%	201.75	0.0%	651,876.69
FYE 06/30/1968	787,195.00	68%	371,132.00	32%	3,066.00	0.3%	1,161,393.00
FYE 06/30/1969	969,673.00	71%	396,253.00	29%	3,319.00	0.2%	1,369,245.00
FYE 06/30/1970	1,227,682.00	69%	547,964.00	31%	4,642.00	0.3%	1,780,288.00
FYE 06/30/1971	1,233,111.00	67%	600,115.00	33%	3,555.00	0.2%	1,836,781.00
FYE 06/30/1972	1,825,460.00	68%	854,406.00	32%	4,560.00	0.2%	2,684,426.00
FYE 06/30/1973	1,948,561.00	69%	862,025.00	31%	2,512.00	0.1%	2,813,098.00
FYE 06/30/1974	2,047,586.00	72%	806,490.00	28%	2,309.00	0.1%	2,856,385.00
FYE 06/30/1975	2,586,924.00	74%	890,533.00	26%	9,396.00	0.3%	3,486,853.00
FYE 06/30/1976	2,029,787.00	70%	862,576.00	30%	3,921.00	0.1%	2,896,284.00
FYE 06/30/1977	1,720,809.00	70%	721,466.00	29%	3,770.00	0.2%	2,446,045.00
FYE 06/30/1978	1,607,785.00	67%	774,212.00	32%	5,121.00	0.2%	2,387,118.00
FYE 06/30/1979	1,784,643.00	64%	997,363.00	36%	3,663.00	0.1%	2,785,669.00
FYE 06/30/1980	4,171,081.00	82%	892,189.00	18%	3,511.00	0.1%	5,066,781.00
FYE 06/30/1981	4,995,491.00	79%	1,351,056.00	21%	4,834.00	0.1%	6,351,381.00
FYE 06/30/1982	3,115,496.00	72%	1,222,927.00	28%	6,544.00	0.2%	4,344,967.00
FYE 06/30/1983	4,311,370.00	71%	1,722,635.00	29%	8,196.00	0.1%	6,042,201.00
FYE 06/30/1984	5,689,690.00	79%	1,501,127.00	21%	4,279.00	0.1%	7,195,096.00
FYE 06/30/1985	9,769,574.00	73%	3,575,437.00	27%	18,208.00	0.1%	13,363,219.00
FYE 06/30/1986	12,776,020.00	78%	3,633,507.00	22%	13,154.00	0.1%	16,422,681.00
FYE 06/30/1987	12,730,936.00	80%	3,073,228.00	19%	10,767.00	0.1%	15,814,931.00
FYE 06/30/1988	12,076,802.00	81%	2,805,666.00	19%	5,427.00	0.0%	14,887,895.00
FYE 06/30/1989	13,700,634.00	82%	2,928,709.00	18%	48,066.00	0.3%	16,677,409.00
FYE 06/30/1990	16,387,060.00	85%	2,924,143.00	15%	3,950.00	0.0%	19,315,153.00
FYE 06/30/1991	14,757,446.00	82%	3,236,690.00	18%	0	0.0%	17,994,136.00
FYE 06/30/1992	14,730,588.00	83%	2,987,854.00	17%	722.00	0.0%	17,719,164.00
FYE 06/30/1993	14,795,789.00	84%	2,895,327.00	16%	722.00	0.0%	17,691,838.00
FYE 06/30/1994	10,374,526.00	81%	2,408,372.00	19%	732.00	0.0%	12,783,630.00
FYE 06/30/1995	11,757,593.00	84%	2,215,678.00	16%	747.00	0.0%	13,974,218.00
FYE 06/30/1996	11,705,148.00	89%	1,445,898.00	11%	730.00	0.0%	13,151,776.00
FYE 06/30/1997	9,078,884.00	83%	1,843,601.00	17%	721.00	0.0%	10,923,206.00
FYE 06/30/1998	10,297,808.00	84%	1,890,125.00	16%	734.00	0.0%	12,188,667.00
FYE 06/30/1999	8,893,825.00	77%	2,623,064.00	23%	674.00	0.0%	11,517,563.00
FYE 06/30/2000	15,687,806.00	88%	2,094,870.00	12%	676.00	0.0%	17,783,352.00
FYE 06/30/2001	10,233,359.00	82%	2,184,558.00	18%	685.00	0.0%	12,418,602.00
FYE 06/30/2002	10,098,249.00	83%	2,069,703.00	17%	353.00	0.0%	12,168,305.00
FYE 06/30/2003	10,853,001.00	76%	3,394,512.00	24%	269.00	0.0%	14,247,782.00
FYE 06/30/2004	12,011,832.00	86%	1,987,130.00	14%	280.00	0.0%	13,999,242.00
FYE 06/30/2005	12,275,847.00	84%	2,290,255.00	16%	0.00	0.0%	14,566,102.00
FYE 06/30/2006	12,375,800.89	83%	2,467,682.61	17%	0.00	0.0%	14,843,483.50
FYE 06/30/2007	12,548,965.69	82%	2,783,514.23	18%	260.29	0.0%	15,332,740.21
	323,248,013.97	81%	75,711,324.32	19%	185,277.04	0.0%	399,144,615.33

EXHIBIT C

Kern County	%
Billiton Exploration U.S.A.	0.24
Boron CSD	4.66
City of California City	9.88
Desert Lake CSD	1.47
Desert Sage Apartments	0.09
Edgemont Acres MWC	0.31
Edwards AFB	37.79
Mojave Public Utility District	1.01
Rosamond CSD	17.88
US Borax	26.67

Los Angeles County	%
Antelope Valley Country Club	0.35
California Water Service Co	0.58
Landale MWC	0.13
Los Angeles County Waterworks Districts	84.98
Palm Ranch Irrigation District	0.71
Quartz Hill Water District	8.42
Shadow Acres MWC	0.61
Sunnyside Farms MWC	0.59
White Fence Farms MWC	1.71
Lake Elizabeth MWC	1.91

Appendix 1 to the Water Shortage Contingency Plan

Water Supply Shortage Stages and Conditions

Stage No.	Water Supply Conditions	% Shortage
1	Reduction in SWP Allocation Below Current Demand	1%
2	Reduction in SWP Allocation Below Current Demand	50%

APPENDIX C

- **RATE STABILIZATION FUND DISCUSSION**

The Agency uses as its rate stabilization fund the Agency's reserve fund to stabilize rates during periods of water shortages or disasters affecting water supply.

Appendix D

- **WATER SUPPLY CAPACITY CHARGE IMPROVEMENTS**

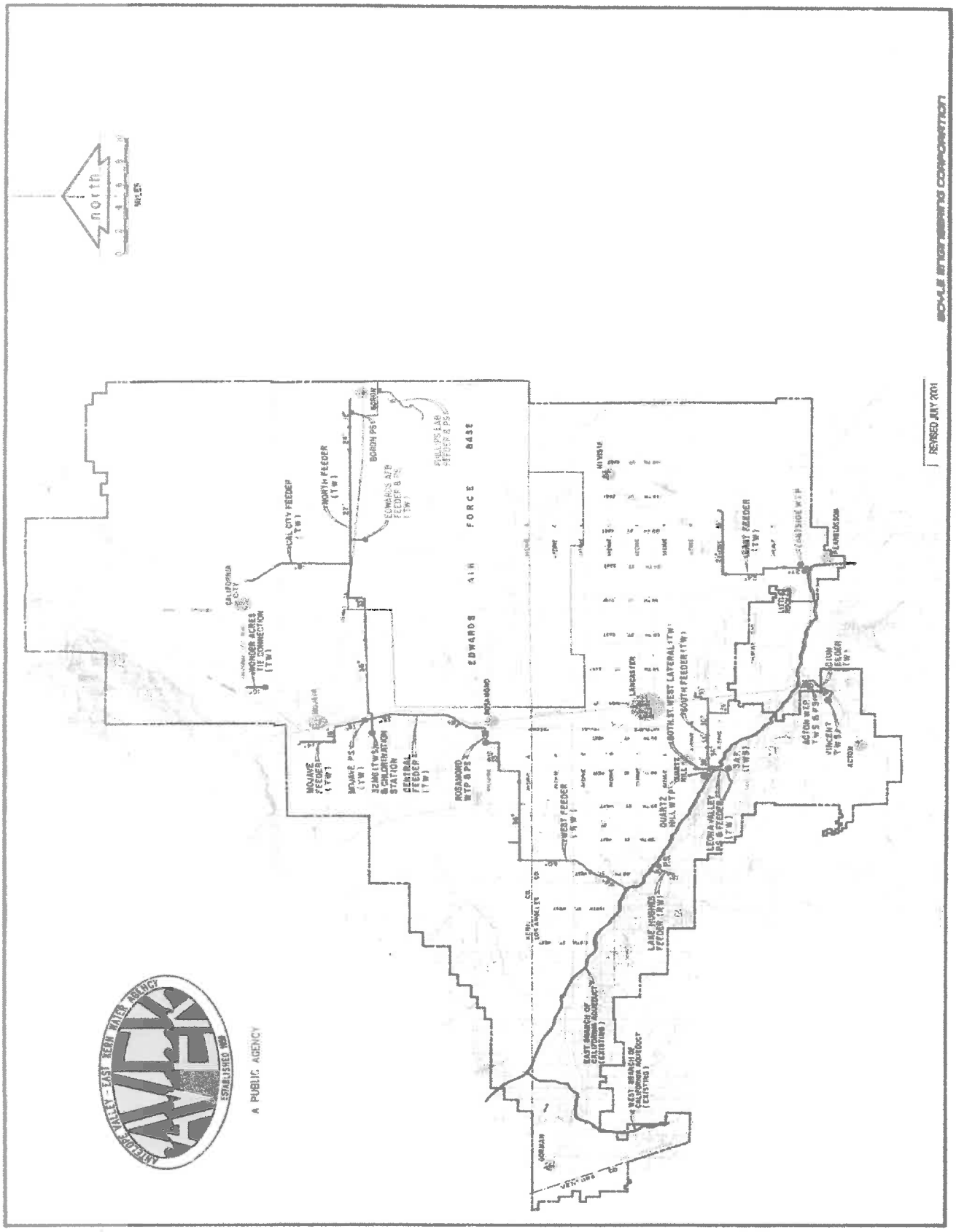
Proposed Expansions

Eastside WTP (10 mgd to 25 mgd)
QHWTP (Phase I – 9 MG reservoirs)
QHWTP (Phase II – second 9 MG reservoirs)
Acton WTP (4 mgd to 8 mgd)
Rosamond WTP (4 mgd to 8 mgd)
Westside Water Treatment Plant #1 (15 mgd)
Westside Water Treatment Plant #2 (3 mgd)
East Feeder/South Feeder – Interconnect Pipeline
East Feeder/South Feeder – Interconnect Pump Station
Mojave Pump Station Addition
South Feeder Parallel Pipeline (Phase II)
QHWTP/Westside WTP #I – Interconnect Pipeline
QHWTP/Westside WTP #2 – Interconnect Pump Station
Westside WTP I Feeder Pipeline
West WTP I Feeder Pump Station
East Feeder Parallel Pipeline
Lake Hughes Feeder Parallel Pipeline
Lake Hughes Feeder Pump Station
Leona Valley Feeder Parallel Pipeline
Leona Valley Feeder Pump Station
QHWTP/RWTP Intercon. Pipeline
QHWTP/RWTP Intercon. Pump Station
Area Raw Water Turnouts, Pipelines and Basin Inlets
North Feeder Pump Station
QHWTP (65 mgd to 90 mgd and ozone)

Abbreviation Legend"
QH = Quartz Hill, R = Rosamond, WTP = Water Treatment Plant

Appendix E

- **AVEK BOUNDARY LOCATION MAP**


north
EDWARDS AIR FORCE BASE
CALIFORNIA CITY
BORON PS
NORTH FEEDER (TW)
CAL CITY FEEDER (TW)
EDWARDS AFB FEEDER B (TW)
PHILLIPS LAB FEEDER B PS
WONDER ACRES TURNOUT (TW)
MOJAVE FEEDER (TW)
MOJAVE PS (TW)
ZEMI (TW) & CHLORINATION STATION
CENTRAL FEEDER (TW)
ROSAMOND WTP & PS
ROSAMOND
LANCASTER
SOUTH ST. WEST LATERAL (TW)
SOUTH FEEDER (TW)
QUARTZ HILL WTP
QUARTZ HILL PS
WEST FEEDER (TW)
LEONA VALLEY PS & FEEDER (TW)
LAKE HUGHES FEEDER (TW)
EAST BRANCH OF CALIFORNIA AQUEDUCT (EXISTING)
WEST BRANCH OF CALIFORNIA AQUEDUCT (EXISTING)
GRANT FEEDER (TW)
LITTLEROCK WTP
LITTLEROCK
LITTLE ROCK FEEDER (TW)
ACTON WTP (TWS & PS)
ACTON
VINCENT TWS & PS
ANTELOPE VALLEY - EAST KERN WATER AGENCY
ESTABLISHED 1959
A PUBLIC AGENCY
REVISED JULY 2001
BOYLE ENGINEERING CORPORATION

Appendix F

- **MAP OF SWP**
- **WATER DELIVERIES TO AVEK**
- **TABLES B.8 AND B.9 SWP RELIABILITY DATA**

STATE WATER PROJECT FEATURES

AVEK's Historical SWP Deliveries

Year	Ac-Ft
1962	0
1963	0
1964	0
1965	0
1966	0
1967	0
1968	0
1969	0
1970	0
1971	0
1972	53
1973	20
1974	1,259
1975	8,068
1976	27,782
1977	11,202
1978	33,137
1979	60,493
1980	72,407
1981	79,375
1982	50,291
1983	32961
1984	32,662
1985	37,064
1986	32,449
1987	33,875
1988	34,079
1989	45,191
1990	47,206
1991	7,568
1992	28,041
1993	41,452
1994	47,663
1995	47,286
1996	56,356
1997	61,752
1998	52,926
1999	69,073
2000	84,016
2001	63,508
2002	59,888
2003	61162
2004	61252
2005	58000*
2006	79531
2007	77193

*estimated

Tables B.8 and B.9 / SWP Reliability Data

Table B.8 SWP Table A deliveries from the Delta under Future (2027) Conditions
PCM Model with A2 Emissions and less restrictive Old River and Middle River flow targets

Year	SWP Table A demands (taf)	No Climate Change Lower flow target scenario[1]		PCM with A2 Emissions Lower flow target scenario[1]		Estimated Delivery Interpolated to 2027[2]	
		SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]
1922	4,133	4,057	98%	4,062	98%	4,060	98%
1923	4,133	3,114	75%	2,377	58%	2,771	67%
1924	4,133	438	11%	568	14%	498	12%
1925	4,133	1,628	39%	1,473	36%	1,556	38%
1926	4,133	2,414	58%	1,907	46%	2,178	53%
1927	4,133	4,133	100%	4,107	99%	4,133	100%
1928	4,133	2,109	51%	1,909	46%	2,016	49%
1929	4,133	847	20%	970	23%	904	22%
1930	4,133	2,357	57%	1,974	48%	2,179	53%
1931	4,133	1,098	27%	1,164	28%	1,128	27%
1932	4,133	1,512	37%	1,353	33%	1,438	35%
1933	4,133	2,274	55%	1,378	33%	1,857	45%
1934	4,133	1,327	32%	1,381	33%	1,352	33%
1935	4,133	3,734	90%	3,527	85%	3,638	88%
1936	4,133	3,569	86%	3,562	86%	3,566	86%
1937	4,133	3,510	85%	2,518	61%	3,049	74%
1938	4,133	4,133	100%	4,133	100%	4,133	100%
1939	4,133	3,527	85%	2,997	73%	3,280	79%
1940	4,133	3,642	88%	3,834	93%	3,731	90%
1941	3,898	3,908	95%	3,906	95%	3,907	95%
1942	4,133	4,133	100%	3,805	92%	3,981	96%
1943	4,133	3,849	93%	3,587	87%	3,727	90%
1944	4,133	2,924	71%	2,058	50%	2,521	61%
1945	4,133	3,394	82%	3,896	94%	3,627	88%
1946	4,133	3,795	92%	3,080	75%	3,463	84%
1947	4,133	1,697	41%	1,704	41%	1,700	41%
1948	4,133	3,256	79%	2,786	67%	3,037	73%
1949	4,133	1,387	34%	1,370	33%	1,379	33%
1950	4,133	2,738	66%	2,810	68%	2,771	67%
1951	4,133	4,133	100%	4,133	100%	4,133	100%
1952	3,898	3,907	95%	3,907	95%	3,907	95%
1953	4,133	4,091	99%	3,373	82%	3,757	91%
1954	4,133	3,079	74%	2,962	72%	3,025	73%
1955	4,133	980	24%	929	22%	956	23%
1956	4,133	4,133	100%	4,133	100%	4,133	100%
1957	4,133	2,460	60%	1,945	47%	2,221	54%
1958	4,133	4,133	100%	4,133	100%	4,133	100%
1959	4,133	3,219	78%	2,489	60%	2,880	70%
1960	4,133	1,557	38%	1,874	45%	1,705	41%
1961	4,133	2,746	66%	2,627	64%	2,691	65%
1962	4,133	3,016	73%	2,902	70%	2,963	72%
1963	4,133	3,923	95%	3,687	89%	3,813	92%
1964	4,133	1,605	39%	1,535	37%	1,572	38%
1965	4,133	3,368	81%	3,225	78%	3,301	80%

Table B.8 cont. SWP Table A deliveries from the Delta under Future (2027) Conditions PCM Model with A2 Emissions and less restrictive Old River and Middle River flow targets

Year	SWP Table A demands (taf)	No Climate Change Lower flow target scenario[1]		PCM with A2 Emissions Lower flow target scenario[1]		Estimated Delivery Interpolated to 2027[2]	
		SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]
1966	4,133	3,476	84%	3,208	78%	3,352	81%
1967	4,133	4,133	100%	4,133	100%	4,133	100%
1968	4,133	2,988	72%	2,743	66%	2,874	70%
1969	3,898	3,903	94%	3,903	94%	3,903	94%
1970	4,133	4,133	100%	4,133	100%	4,133	100%
1971	4,133	3,665	89%	3,452	84%	3,566	86%
1972	4,133	1,458	35%	1,422	34%	1,441	35%
1973	4,133	4,133	100%	3,758	91%	3,959	96%
1974	4,133	4,133	100%	4,133	100%	4,133	100%
1975	4,133	3,624	88%	3,404	82%	3,521	85%
1976	4,133	2,167	52%	2,000	48%	2,089	51%
1977	4,133	287	7%	274	7%	281	7%
1978	3,898	3,905	94%	3,903	94%	3,904	94%
1979	4,133	3,292	80%	3,056	74%	3,182	77%
1980	3,898	3,766	91%	3,491	84%	3,638	88%
1981	4,133	2,737	66%	2,570	62%	2,659	64%
1982	4,133	4,133	100%	4,133	100%	4,133	100%
1983	3,898	3,903	94%	3,903	94%	3,903	94%
1984	4,133	4,133	100%	4,133	100%	4,133	100%
1985	4,133	3,226	78%	2,581	62%	2,926	71%
1986	3,898	2,863	69%	3,004	73%	2,928	71%
1987	4,133	2,679	65%	2,567	62%	2,627	64%
1988	4,133	450	11%	446	11%	448	11%
1989	4,133	3,486	84%	3,424	83%	3,457	84%
1990	4,133	281	7%	377	9%	325	8%
1991	4,133	889	22%	875	21%	883	21%
1992	4,133	1,124	27%	1,090	26%	1,108	27%
1993	4,133	4,036	98%	4,057	98%	4,046	98%
1994	4,133	1,866	45%	1,494	36%	1,693	41%
1995	3,898	3,903	94%	3,903	94%	3,903	94%
1996	4,133	4,133	100%	3,813	92%	3,984	96%
1997	4,133	3,301	80%	3,199	77%	3,254	79%
1998	3,898	3,908	95%	3,908	95%	3,908	95%
1999	4,133	4,133	100%	3,960	96%	4,052	98%
2000	4,133	3,960	96%	3,602	87%	3,794	92%
2001	4,133	769	19%	824	20%	795	19%
2002	4,133	2,586	63%	1,996	48%	2,312	56%
2003	4,133	3,213	78%	3,241	78%	3,226	78%
Avg	**4,106**	**2,947**	**71%**	**2,782**	**67%**	**2,870**	**69%**
Min	**3,898**	**281**	**7%**	**274**	**7%**	**281**	**7%**
Max	**4,133**	**4,133**	**100%**	**4,133**	**100%**	**4,133**	**100%**

1/ See Table 6.3 2/ Values used to describe Future Conditions in Chapter 6 3/ 4,133 taf/year

Table B.9 SWP Table A deliveries from the Delta under Future (2027) Conditions
PCM Model with A2 Emissions and more restrictive Old River and Middle River flow targets

Year	SWP Table A demands (taf)	No Climate Change Higher flow target scenario[1]		PCM with A2 Emissions Higher flow target scenario[1]		Estimated Delivery Interpolated to 2027[2]	
		SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]
1922	4,133	3,664	89%	3,545	86%	3,609	87%
1923	4,133	2,991	72%	2,850	69%	2,925	71%
1924	4,133	125	3%	150	4%	137	3%
1925	4,133	1,565	38%	1,394	34%	1,485	36%
1926	4,133	1,968	48%	1,463	35%	1,733	42%
1927	4,133	3,706	90%	3,736	90%	3,720	90%
1928	4,133	1,895	46%	1,701	41%	1,805	44%
1929	4,133	646	16%	712	17%	677	16%
1930	4,133	2,114	51%	1,849	45%	1,991	48%
1931	4,133	1,046	25%	1,051	25%	1,049	25%
1932	4,133	1,165	28%	1,286	31%	1,222	30%
1933	4,133	1,915	46%	1,172	28%	1,569	38%
1934	4,133	1,427	35%	1,264	31%	1,351	33%
1935	4,133	3,087	75%	3,437	83%	3,250	79%
1936	4,133	2,959	72%	3,265	79%	3,101	75%
1937	4,133	3,774	91%	2,662	64%	3,257	79%
1938	4,133	4,133	100%	4,133	100%	4,133	100%
1939	4,133	3,158	76%	2,727	66%	2,958	72%
1940	4,133	3,136	76%	3,226	78%	3,178	77%
1941	3,898	3,798	92%	3,826	93%	3,811	92%
1942	4,133	3,626	88%	3,421	83%	3,531	85%
1943	4,133	3,466	84%	3,754	91%	3,600	87%
1944	4,133	2,550	62%	1,272	31%	1,955	47%
1945	4,133	3,315	80%	4,000	97%	3,634	88%
1946	4,133	3,430	83%	2,729	66%	3,104	75%
1947	4,133	1,819	44%	1,441	35%	1,643	40%
1948	4,133	2,891	70%	2,535	61%	2,726	66%
1949	4,133	1,096	27%	1,068	26%	1,083	26%
1950	4,133	2,232	54%	1,992	48%	2,120	51%
1951	4,133	4,133	100%	4,133	100%	4,133	100%
1952	3,898	3,907	95%	3,906	95%	3,906	95%
1953	4,133	3,163	77%	2,660	64%	2,929	71%
1954	4,133	3,034	73%	2,938	71%	2,989	72%
1955	4,133	998	24%	676	16%	848	21%
1956	4,133	4,133	100%	4,133	100%	4,133	100%
1957	4,133	1,991	48%	1,760	43%	1,883	46%
1958	4,133	4,133	100%	4,133	100%	4,133	100%
1959	4,133	2,933	71%	2,481	60%	2,722	66%
1960	4,133	1,237	30%	1,522	37%	1,370	33%
1961	4,133	2,492	60%	2,162	52%	2,339	57%
1962	4,133	3,124	76%	3,127	76%	3,126	76%
1963	4,133	3,119	75%	3,065	74%	3,094	75%
1964	4,133	2,189	53%	1,582	38%	1,907	46%
1965	4,133	2,979	72%	2,955	72%	2,968	72%

Table B.9 cont. SWP Table A deliveries from the Delta under Future (2027) Conditions PCM Model with A2 Emissions and more restrictive Old River and Middle River flow targets

Year	SWP Table A demands (taf)	No Climate Change Higher flow target scenario[1]		PCM with A2 Emissions Higher flow target scenario[1]		Estimated Delivery Interpolated to 2027[2]	
		SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]	SWP Table A Delivery (taf)	percent of max SWP Table A[3]
1966	4,133	3,376	82%	2,891	70%	3,150	76%
1967	4,133	4,047	98%	4,110	99%	4,077	99%
1968	4,133	2,368	57%	2,085	50%	2,236	54%
1969	3,898	3,903	94%	3,903	94%	3,903	94%
1970	4,133	4,133	100%	4,133	100%	4,133	100%
1971	4,133	3,124	76%	3,090	75%	3,108	75%
1972	4,133	1,487	36%	1,408	34%	1,450	35%
1973	4,133	3,455	84%	3,275	79%	3,371	82%
1974	4,133	3,748	91%	3,684	89%	3,718	90%
1975	4,133	3,232	78%	3,000	73%	3,124	76%
1976	4,133	1,632	39%	1,558	38%	1,598	39%
1977	4,133	278	7%	248	6%	264	6%
1978	3,898	3,905	94%	3,904	94%	3,904	94%
1979	4,133	3,044	74%	2,768	67%	2,915	71%
1980	3,898	3,905	94%	3,893	94%	3,899	94%
1981	4,133	2,545	62%	2,169	52%	2,370	57%
1982	4,133	4,133	100%	4,133	100%	4,133	100%
1983	3,898	3,903	94%	3,903	94%	3,903	94%
1984	4,133	4,133	100%	4,133	100%	4,133	100%
1985	4,133	3,030	73%	2,420	59%	2,746	66%
1986	3,898	2,841	69%	3,253	79%	3,032	73%
1987	4,133	2,280	55%	1,709	41%	2,014	49%
1988	4,133	427	10%	636	15%	524	13%
1989	4,133	3,197	77%	3,184	77%	3,191	77%
1990	4,133	191	5%	177	4%	184	4%
1991	4,133	733	18%	626	15%	683	17%
1992	4,133	1,100	27%	1,047	25%	1,075	26%
1993	4,133	3,504	85%	3,554	86%	3,527	85%
1994	4,133	2,283	55%	1,372	33%	1,859	45%
1995	3,898	3,902	94%	3,903	94%	3,903	94%
1996	4,133	3,604	87%	3,661	89%	3,631	88%
1997	4,133	3,211	78%	3,287	80%	3,246	79%
1998	3,898	3,908	95%	3,908	95%	3,908	95%
1999	4,133	4,133	100%	4,112	99%	4,123	100%
2000	4,133	3,316	80%	3,237	78%	3,279	79%
2001	4,133	982	24%	617	15%	812	20%
2002	4,133	2,063	50%	1,845	45%	1,961	47%
2003	4,133	2,836	69%	2,831	69%	2,834	69%
Avg	**4,106**	**2,734**	**66%**	**2,592**	**63%**	**2,668**	**65%**
Min	**3,898**	**125**	**3%**	**150**	**4%**	**137**	**3%**
Max	**4,133**	**4,133**	**100%**	**4,133**	**100%**	**4,133**	**100%**

1/ See Table 6.3 2/ Values used to describe Future Conditions in Chapter 6 3/ 4,133 taf/year

Appendix G

- **AVEK TREATED M&I CUSTOMER LIST**
- **UWMP CONTACTED AGENCIES LIST**

UWMP Notification Fax/Mailing List

City of California City
Mike Bevins, Public Works
21000 Hacienda Blvd.
California City, CA 93505
Fax: 760-373-7511

Edwards Air Force Base
Mike Keeling, Directorate of Contracting
Fax: 661-275-9656

City of Lancaster
Randy Williams, Public Works
44933 Fern Avenue
Lancaster, CA 93534
Fax: 723-6182

Los Angeles County
Department of Public Works
Dean Efstathiou, Chief Deputy Director
P. O. Box 7508
900 S. Fremont Avenue
Alhambra, CA 91802
Fax:

City of Palmdale
Attn: Steve Williams
38250 N. Sierra Highway
Palmdale, CA 93550
Fax: 661-267-5292

Building Industry Association
Gretchen Gutierrez
43423 Division Street, Suite 401
Lancaster, CA 93535
Fax: 848-6090

Kern County Planning Department
Lorelei Oviatt, Division Chief
1115Truxtun Avenue
Bakersfield, CA
Fax: 661-868-3485

Shell Mining Co./Billiton Exploration U.S.A.
PO Box 576
Room 4156
Houston, TX 77001-0576

Billing

Contact:	H. James Sewell
Phone:	(281) 544-2807
Fax:	(281) 544-2238
E-mail:	Jim.Sewell@shell.com

Emergency

Contact 1:	H. James Sewell
Day Phone:	(281) 544-2807
Night Phone:	(281) 731-3287
Contact 2:	Ken Tweedt
Day Phone:	(661) 824-9404
Night Phone:	(661) 824-9232

Boron CSD (Treated/M&I)
PO Box 1060
Boron, CA 93596

Billing

Contact:	Janna Riddle
Phone:	(760) 762-6127
Cell:	(760) 559-1224
Fax:	(760) 762-6508
E-mail:	bcsd@ccis.com

Emergency

Contact 1:	Russell Terrill
Day Phone:	(760) 250-3270
Night Phone:	(760) 762-6795
Contact 2:	Pete Lopez
Day Phone:	(760) 250-3271
Night Phone:	(760) 250-3271

Department of Health Services

System #:	1510002
Contact Person:	James Stites
Phone:	(661) 335-7315

City of California City (Treated/M&I)
21000 Hacienda Blvd
California City, CA 93505

Billing
- Contact:
- Phone: (760) 373-8696
- Fax:
- E-mail:

Emergency
- Contact 1:
- Day Phone:
- Night Phone:
- Contact 2:
- Day Phone:
- Night Phone:

Department of Health Services
- System #:
- Contact Person:
- Phone:

Desert Lake CSD (Treated/M&I)
PO Box 567
Boron, CA 93596

Billing
- Contact: Dollie Kostopoulos
- Phone: (760) 762-5349
- Fax: (760) 762-3161
- E-mail: dimples@ccis.com

Emergency
- Contact 1: Dollie Kostopoulos
- Day Phone: (760) 403-0012
- Night Phone: (760) 762-5786
- Contact 2: Deanna Lone
- Day Phone: (760) 762-5349
- Night Phone: (760) 762-5365

Department of Health Services
- System #: 1510027
- Contact Person: James Stites
- Phone: (661) 335-7315

Desert Sage Apartments (Treated/M&I)
Rick Nishimura
1101 Salisbury
La Canada, Ca. 91011

Billing
- Contact: Rick Nishimura
- Phone: (818) 720-6042
- Fax: (818) 790-9973
- E-mail:

Emergency
- Contact 1: Rick Nishimura
- Day Phone: (818) 720-6042
- Night Phone: (818) 720-6042
- Contact 2:
- Day Phone:
- Night Phone:

Edgemont Acres MWC (Treated/M&I)
PO Box 966
North Edwards, CA 93523-0966

Billing
- Contact: Renee Richey
- Phone: (760) 769-4764
- Fax: (760) 769-4764
- E-mail: eamwc@ccis.com

Emergency
- Contact 1: Ray Young
- Day Phone: (760) 769-4166
- Night Phone:
- E-mail: ryoung@ccis.com
- Contact 2: Bruce White
- Day Phone: (760) 769-4754
- Night Phone:

Department of Health Services
- System #: 1500290
- Contact Person:
- Phone:

Edwards AFB (Main Base) (Treated/M&I)
95 CEG/CERF – Main Base Water Delivery
225 N. Rosamond Blvd
Building 3500
Edwards AFB, CA 93524-8540

Billing
- Contact:
- Phone: (661) 277-4927
- Fax:
- E-mail:

Emergency
- Contact 1:
- Day Phone:
- Night Phone:
- E-mail:
- Contact 2:
- Day Phone:
- Night Phone:

Department of Health Services
- System #:
- Contact Person:
- Phone:

Edwards AFB (Phillips Lab) (Treated/M&I)
95 CEG/CERF – Propulsion Lab Water
225 N. Rosamond Blvd
Building 3500
Edwards AFB, CA 93524-8540

Billing
- Contact:
- Phone: (661) 277-4927
- Fax:
- E-mail:

Emergency
- Contact 1:
- Day Phone:
- Night Phone:
- E-mail:
- Contact 2:
- Day Phone:
- Night Phone:

Department of Health Services
- System #:
- Contact Person:
- Phone:

FPL Energy (Treated/M&I)
41100 Highway 395
Boron, CA 93516

Billing

Contact:	Janis Hill
Phone:	(760) 762-5562 x300
Fax:	(760) 762-5546
E-mail:	rfimbres@kjcsolar.com

Emergency

Contact 1:	Robert Fimbres
Day Phone:	(760) 762-5562 x300
Night Phone:	(760) 964-9854
Contact 2:	Mike Roberson
Day Phone:	(760) 762-5562 x375
Night Phone:	(760) 964-4334

Mojave Public Utility District (Treated/M&I)
15844 K Street
Mojave, CA 93501

Billing

Contact:	Carol Pridgen
Phone:	(661) 824-4161
Fax:	(661) 824-2361
E-mail:	

Emergency

Contact 1:	Bruce Gaines
Day Phone:	(661) 824-4161
Night Phone:	(661) 824-0529
Contact 2:	Bee Coy
Day Phone:	(661) 824-4262
Night Phone:	(661) 824-2435

Department of Health Services

System #:	1510014
Contact Person:	James Stites
Phone:	(661) 335-7315

Rosamond CSD (Treated/M&I)
2700 20th Street West
Rosamond, CA 93560

Billing
- Contact: Toni Welsh
- Phone: (661) 256-3411
- Fax: (661) 256-2557
- E-mail: twelsh@qnet.com

Emergency
- Contact 1: Juan DeLaRosa
- Day Phone: (661) 256-3411
- Night Phone:
- Contact 2: Jack Stewart
- Day Phone: (661) 256-3411
- Night Phone:

Department of Health Services
- System #: 1510018
- Contact Person: Jesse DHaLiwal
- Phone: (661) 335-7318

US Borax/Rio Tinto Minerals (Treated/M&I)
14486 Borax Rd
Boron, CA 93516

Billing
- Contact: Mel Lawson
- Phone: (661) 256-5807
- Fax: (760) 762-7344
- E-mail: mel.lawson@riotinto.com

Emergency
- Contact 1: Chuck Amento
- Day Phone: (760) 762-7353
- Night Phone: (760) 559-4327
- Contact 2: Suresh Rajapakse
- Day Phone: (760) 762-7053
- Night Phone: (760) 447-9766

SOUTH FEEDER

Antelope Valley Country Club (Treated/M&I)
39800 Country Club Dr
Palmdale, CA 93551

Billing
- Contact: Martha Whitfield
- Phone: (661) 947-3142 x13
- Fax: (661) 947-5026
- E-mail:

Emergency
- Contact 1: Buzz Barker
- Day Phone: (661) 810-0313
- Night Phone: (760) 373-8234
- Contact 2: Steve Applegate
- Day Phone: (661) 947-3142 x15
- Night Phone: (661) 949-0657

California Water Service Co (Treated/M&I)
Antelope Valley District
5015 West Avenue L-14
Quartz Hill, CA 93536

Billing
- Contact:
- Phone: (661) 943-9001
- Fax: (661) 722-5720
- E-mail:

Emergency
- Contact 1: Chris Whitley
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9403
- Contact 2: Jose Ojeda
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9404

Department of Health Services
- System #: 1910243
- Contact Person: Steve Sung
- Phone: (213) 580-5723

El Dorado MWC (Treated/M&I)
PO Box 900519
Palmdale, CA 93590

Billing
- Contact: Jeanne Miller
- Phone: (661) 947-3255
- Fax: (661) 947-9701
- E-mail: sprung@antele.net

Emergency
- Contact 1: Steve Sprunger
- Day Phone: (661) 266-6233
- Night Phone: (661) 273-4059
- Contact 2: Murry Sprunger
- Day Phone: (661) 947-8189
- Night Phone: (661) 947-8189

Department of Health Services
- System #: 1900803
- Contact Person: Teymoori
- Phone: (213) 580-5746

Landale MWC (Operated by California Water Service Co) (Treated/M&I)
PO Box 5808
Lancaster, CA 93539

Billing
- Contact: John Rogers (Landale MWC)
- Phone:
- Fax:
- E-mail:

Emergency
- Contact 1: Kevin Payne (California Water Service Co)
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9403
- Contact 2: Jose Ojeda (California Water Service Co)
- Day Phone: (661) 943-9001
- Night Phone: (661) 400-9404

Department of Health Services
- System #:
- Contact Person:
- Phone:

Los Angeles County Waterworks Districts (Treated/M&I)
PO Box 7508
Alhambra, CA 91802-7508

Billing

Contact:	Rami Gindi
Phone:	(626) 300-3357
Fax:	(626) 300-3385
E-mail:	rgindi@ladpw.org

Emergency

Contact 1:	Craig David
Day Phone:	(661) 886-1673
Night Phone:	
Contact 2:	Ken Rosander
Day Phone:	(661) 400-3835
Night Phone:	(661) 722-4099
Contact 3:	Adam Arriki
Day Phone:	
Night Phone:	

Department of Health Services

System #:	1910070	(4-50,4-53,4-56,4-59,4-66,4-70,4-71,34-7, 34-9)
Contact Person:	James Ko	
Phone:	(213) 977-6808	

Palm Ranch Irrigation District (Treated/M&I)
42116 50th Street West, Suite D
Quartz Hill, CA 93536

Billing

Contact:	Phillip Shott
Phone:	(661) 943-2469
Fax:	(661) 943-8184
E-mail:	pranch7314@aol.com

Emergency

Contact 1:	Phillip Shott
Day Phone:	(661) 943-2469
Night Phone:	(661) 266-9894
Cell Phone:	(661) 810-6488
Contact 2:	Pete Tuculet
Day Phone:	(661) 943-2469
Night Phone:	(661) 723-7894
Cell Phone:	(661) 810-5712

Department of Health Services

System #:	1910103
Contact Person:	Grazyna Newton
Phone:	(213) 580-5714 / (818) 349-7960

Quartz Hill Water District (Treated/M&I)
PO Box 3218
Quartz Hill, CA 93586

Billing
- Contact: Susan Greenhouse
- Phone: (661) 943-3170
- Fax: (661) 943-0457
- E-mail: sgreenhouse@qhwd.com

Emergency
- Contact 1: Chad Reed
- Day Phone: (661) 943-3170
- Night Phone: (661) 810-0381
- Contact 2: Brent Byrne
- Day Phone: (661) 943-3170
- Night Phone: (661) 810-2221

Department of Health Services
- System #: 1910130
- Contact Person: Grazyna Newton
- Phone: (213) 580-5734

Shadow Acres MWC (Treated/M&I)
PO Box 900669
Palmdale, CA 93590

Billing
- Contact: Jeanne Miller
- Phone: (661) 947-0200
- Fax: (661) 947-9701
- E-mail:

Emergency
- Contact 1: Jon Saitta
- Day Phone: (661) 435-5192
- Night Phone: (661) 435-5192
- Contact 2: Jim Wisneski
- Day Phone: (661) 947-0200
- Night Phone: (661) 224-1526

Department of Health Services
- System #: 1900301
- Contact Person: Steve Layne
- Phone: (661) 723-4549

Sunnyside Farms MWC **(Treated/M&I)**

PO Box 901025
Palmdale, CA 93590

Billing

Contact:	Jeanne Miller
Phone:	(661) 947-3437
Fax:	(661) 947-9701
E-mail:	

Emergency

Contact 1:	Chuck Laird
Day Phone:	(661) 406-6486
Night Phone:	(661) 406-6486
Contact 2:	Linda Enger
Day Phone:	(661) 947-2244
Night Phone:	(661) 947-2244

Department of Health Services

System #:	1900146
Contact Person:	
Phone:	(661) 723-4549

Westside Park MWC (Treated/M&I)

40317 11th Street West
Palmdale, CA 93551-3024

Billing

Contact:	Phil Wood
Phone:	(661) 273-2997
Fax:	(661) 266-7938
E-mail:	philw@rglobal.net

Emergency

Contact 1:	Bill Raggio
Day Phone:	(661) 272-4512
Night Phone:	(661) 272-4512
Contact 2:	Phil Wood
Day Phone:	(661) 273-2997
Night Phone:	(661) 273-2997

Department of Health Services

System #:	
Contact Person:	
Phone:	

White Fence Farms MWC (Treated/M&I)
41901 20th Street West
Palmdale, CA 93551

Billing
- Contact: Dotty Jernigan
- Phone: (661) 943-3316
- Fax: (661) 943-3576
- E-mail: wffwater@aol.com

Emergency
- Contact 1: Mike McCracken
- Day Phone: (661) 810-2223
- Night Phone: (661) 810-2223
- Contact 2: John Ukkestad
- Day Phone: (661) 272-0015
- Night Phone:

Department of Health Services
- System #: 1910249
- Contact Person: Susanna Cohen
- Phone: (213) 580-5723

White Fence Farms MWC #3 (Treated/M&I)
2606 West Avenue N-8
Palmdale, CA 93551

Billing
- Contact: Frank Anley
- Phone: (661) 266-8850
- Fax: (661) 266-8850
- E-mail: f.e.anley@att.net

Emergency
- Contact 1: Frank Anley
- Day Phone: (661) 266-8850
- Night Phone: (661) 947-3240
- Contact 2: Philip Anley
- Day Phone: (661) 224-6087
- Night Phone: (661) 943-5600

Department of Health Services
- System #: 1900523
- Contact Person: Grazyna Newton
- Phone: (213) 580-5734

EAST FEEDER

Los Angeles County Waterworks Districts (Treated/M&I)
PO Box 7508
Alhambra, CA 91802-7508

Billing
- Contact: Ramy Gindi
- Phone: (626) 300-3357
- Fax: (626) 300-3385
- E-mail: rgindi@ladpw.org

Emergency
- Contact 1: Craig David
- Day Phone: (661) 886-1673
- Night Phone:
- Contact 2: Ken Rosander
- Day Phone: (661) 400-3835
- Night Phone: (661) 722-4099
- Contact 3: Adam Arriki
- Day Phone:
- Night Phone

Department of Health Services
- System #: 1910203 (24-4,33-3)
- Contact Person: James Ko
- Phone: (213) 977-6808
- System #: 1910005 (38-4,38-5,38-6)
- Contact Person: Steve Sung
- Phone: (213) 580-5723

ACTON FEEDER

Los Angeles County Waterworks Districts (Treated/M&I)
PO Box 7508
Alhambra, CA 91802-7508

Billing

Contact:	Ramy Gindi
Phone:	(626) 300-3357
Fax:	(626) 300-3385
E-mail:	rgindi@ladpw.org

Emergency

Contact 1:	Craig David
Day Phone:	(661) 886-1673
Night Phone:	
Contact 2:	Ken Rosander
Day Phone:	(661) 400-3835
Night Phone:	(661) 722-4099
Contact 3:	Adam Arriki
Day Phone:	
Night Phone	

Department of Health Services

System #:	1910248	(37-10)
Contact Person:	Jeremy Chen	
Phone:	(213) 977-7372	

Lake Hughes Feeder (Willow PS)

Lake Elizabeth MWC (Untreated/M&I)
14960 Elizabeth Lake Rd
Elizabeth Lake, CA 93532

Billing

Contact:	Tom Guy
Phone:	(661) 724-1806
Fax:	(661) 724-1281
E-mail:	lakeelizabethwater@verizon.net

Emergency

Contact 1:	Tom Guy
Day Phone:	(661) 724-1806
Night Phone:	
Contact 2:	Kenneth Gray
Day Phone:	(661) 724-1806
Night Phone:	(661) 724-9274

Appendix H

ASSUMPTIONS FOR POPULATION GROWTH PROJECTIONS

The population growth projections encompass water purveyors located in areas currently served by AVEK primarily around the Antelope Valley and portions of eastern Kern County. This includes the City of Lancaster, portions of the City of Palmdale, various communities in Kern County, and two unincorporated areas in Los Angeles County. Communities in Kern County include the cities of Mojave, Boron, Edwards, and Rosamond, and the Edwards Air Force Base. Unincorporated communities in Los Angeles County include Acton and Lake LA area.

The base population shown in this report is taken from years 1990 and 2000 census data provided by California Department of Finance (DoF). Documentation can be retrieved at the following website: www.dof.ca.gov/HTML/DEMOGRAP/CALHIST2a.XLS.

Lancaster:
Population growth projections were based on the average growth rate of Palmdale from 2000 to 2020 as reported by Southern California Association of Government (SCAG) Documentation can be retrieved at their website: www.scag.ca.gov/forecast/downloads/2004GF.xls and from the Economic Roundtable Report produced by the Greater Antelope Valley Economic Alliance at: www.aveconomy.org.

Palmdale:
Population growth projection provided by SCAG. Documentation can be retrieved at their website - http://www.scag.ca.gov/forecast/downloads/2004GF.xls and from the Economic Roundtable Report produced by the Greater Antelope Valley Economic Alliance at: www.aveconomy.org. Since AVEK boundaries encompass approximately 50% of the City of Palmdale, only 50% of the projected population has been included in the tables and figures of this report.

Kern County:
Data for population growth projections are also provided by the DoF. Documentation for the projections can be retrieved at their website at:
www.dof.ca.gov/HTML/DEMOGRAP/DRU_Publications/Projections/P3/KERN.XLS. The DoF projections did not separate the cities mentioned above with the remaining cities in Kern County. Therefore, population growth data was extrapolated using year 2000 census data of the areas served by AVEK and the projected kern county growth rates from this DoF document. The population from this area accounts for approximately 11%-15% of the total population served by AVEK.

Los Angeles County:
Data for population growth projections are provided by the Economic Roundtable Report produced by the Greater Antelope Valley Economic Alliance at: www.aveconomy.org. The projections did not separate the areas served by AVEK with the remaining unincorporated cities in Los Angeles County. Therefore, population growth data was extrapolated using year 2000 census data and the projected growth rate of 'Unincorporated LA County' as provided in the Economic Roundtable Report. The population from this area accounts for approximately 6%-7% of the total population base served by AVEK.

Appendix I

- **EXCERPT FROM LOS ANGELES COUNTY WATERWORKS DISTRICT RECYCLED WATER SUPPLY ASSESSMENT**
- **SANITARY SURVEY UPDATE REPORT 2001**
- **WATER QUALITY WEBSITE INFORMATION**

THE FOLLOWING IS AN EXCERPT FROM THE LOS ANGELES COUNTY WATERWORKS DISTRICT'S DRAFT UWMP

2.3 Recycled Water Supplies

Another source of water that is available to the Antelope Valley but is not yet being utilized by the Study Area is recycled water. District No. 40 is currently leading an effort to develop a Recycled Water Facilities Plan for the Antelope Valley. This Facilities Plan recommends a backbone recycled water system to serve the Study Area.

2.3.1 Source Characteristics

Lancaster Water Reclamation Plant (LWRP), Palmdale Water Reclamation Plant (PWRP) and Rosamond Wastewater Treatment Plant (RWWTP) are three wastewater treatment plants in the Study Area. These three plants primarily provide secondary treated effluent. Currently, the only recycled water in the Study Area that is treated to a tertiary level is a small percentage of the wastewater at the LWRP through additional onsite facilities known as the Antelope Valley Tertiary Treatment Plant (AVTTP). Effluent management is challenging in Antelope Valley because the area is a closed basin with no river or other outlet to the Pacific Ocean. Effluent management options are restricted to methods such as reuse, evaporation, and percolation. LWRP, PWRP and RWWRP will all provide tertiary treated effluent with future upgrades. A description of each of the three treatment plants that may provide recycled water to the Study Area is provided below.

2.3.1.1 Lancaster Water Reclamation Plant (LWRP)

The LWRP, built in 1959 and located north of the City of Lancaster, is owned, operated, and maintained by the Los Angeles County Sanitation District No. 14 (District No. 14). LWRP, which has a permitted capacity of 16.0 mgd, treated an average flow of 13.3 mgd in 2004 to secondary standards for use agricultural irrigation, wildlife habitat, and recreation. Additionally, 0.6 mgd is currently treated to tertiary standards and used for landscape irrigation at the Apollo Lakes Regional County Park.

District No. 14 plans to upgrade the existing LWRP for a total capacity of 21 mgd by 2008 with a proposed future upgrade to 26 mgd by 2014. Tertiary treated effluent from the upgraded LWRP will be available for municipal reuse in addition to the existing uses.

2.3.1.2 Palmdale Water Reclamation Plant (PWRP)

PWRP, built in 1953 and located on two sites adjacent to the City of Palmdale, is owed, operated, and maintained by the Los Angeles County Sanitation District No. 20 (District No. 20). PWRP, which has a permitted capacity of 15.0 mgd, treated an average flow of 9.4 mgd in 2004 to secondary standards for land application or agricultural irrigation.

A recent revision to the Waste Discharge Requirements due to concerns of nitrate in the groundwater, requires District No. 20 to eliminate their existing practice of land application and agricultural irrigation above agronomic rates of treated effluent by October 15, 2008. By November 15, 2009, District No. 20 is required to prevent the discharge of nitrogenous compounds to the groundwater at levels that create a condition of pollution or violate the water quality objectives identified in the 1994 Water Quality Control Plan for the Lahontan Region (1994 Basin Plan). In response, the treatment capacity of the PWRP will be increased to 22.4 mgd and tertiary treatment added. Tertiary treated water is anticipated to be fully used for municipal purposes.

2.3.1.3 Rosamond Wastewater Treatment Plant (RWWTP)

RWWTP, located in the City of Rosamond, is owned, operated, and maintained by the RCSD. RWWTP, which has a permitted capacity of 1.3 mgd, treated an average flow of 1.1 mgd to undisinfected secondary standards for landscape irrigation on-site.

RCSD plans to increase the capacity to 1.8 mgd in 2010 through the addition of 0.5 mgd tertiary treatment facility. The tertiary treatment facility will then be upgraded to 1.0 mgd in 2018.

Design for the proposed treatment plant improvements is complete and has been approved by the State of California. Construction is currently delayed due to lack of funding. Once constructed, the plant would provide tertiary treated recycled water for landscape irrigation at median strips, parks, schools, senior complexes and new home developments.

2.3.2 Availability of Supply

For the purpose of this study, wastewater flow projections are being used to define the amount of recycled water available to the Study Area. These projections were determined from the Draft Facilities Plan and are for tertiary treated water only. They also consider recycled water that has already been contracted out to users outside of the Study Area. Table 2-7 provides a summary of the recycled water flow projections for the Study Area through 2030. The flow projections for LWRP and PWRP in 2005 include secondary treated effluent because the tertiary treatment plant upgrades are not yet constructed.

TABLE 2-7
RECYCLED WATER AVAILABILITY TO STUDY AREA 2005 – 2030

	2005	2010	2015	2020	2025	2030
LWRP[a] (mgd)	12	14.8	19	23	27.1	31.2
PWRP[b] (mgd)	10.0	13.2	16.4	19.5	22.4	25.5
RWWTP[c] (mgd)	0	0.5	1.0	1.0	1.0	1.0
Study Area (mgd)	22.0	28.5	36.4	43.5	50.5	57.7
Study Area (AFY)	24,700	32,000	40,800	48,800	56,700	64,800

Notes:
(a) Obtained from the *Lancaster Water Reclamation Plant 2020 Facilities Plan*, prepared by the Sanitation Districts of Los Angeles County, May 2004, less the 3.03 mgd already committed to contract.
(b) Obtained from the *Draft Palmdale Water Reclamation Plant 2025 Facilities Plan and Environmental Impact Report*, prepared by the Sanitation Districts of Los Angeles County, April 2005.
(c) Obtained from documentation and phone calls provided by RCSD in May 2005 and a RCSD fax received in August 2005.

Although Table 2-7 provides the volumes of recycled water available, actual use of recycled water is limited to demand. Table 2-8 provides the projections of recycled water demand for the Study Area assuming 100 percent delivery of Table A and existing groundwater pumping rates. The projections are based on a recycled water market assessment and are generally for agricultural irrigation, landscape irrigation, and wildlife habitat. Due to delays in funding, RCSD has yet to determine their recycled water demand or identify any recycled water users. Thus, for purposes of this report, a conservative estimate of zero demand was assumed. District No. 40 recycled water demands were determined from the addition of the City of Lancaster and City of Palmdale demands from the Facilities Plan. Use of recycled water would be encouraged through the use of financial incentives (i.e., recycled water would be available at a lower cost than the existing potable water supply).

TABLE 2-8
PROJECTED FUTURE USE OF RECYCLED WATER IN THE STUDY AREA (AFY)

	2010	2015	2020	2025	2030
District No. 40	2,720	5,440	8,160	10,880	13,600
Percent of Total Supply	2	4	6	8	10
Rosamond CSD	0	0	0	0	0
Percent of Total Supply	0	0	0	0	0
Quartz Hill WD	0	0	0	0	0
Percent of Total Supply	0	0	0	0	0
Study Area	2,720	5,440	8,160	10,880	13,600
Percent of Total Supply	2	4	5	7	8

2.3.3 Water Quality

The current and projected water quality of the treated wastewater at LWRP, PWRP and RWWTP that will be used for recycled water purposes is expected to meet tertiary treated standards as defined in California Water Code Title 22 regulations. Furthermore, the use of recycled water would allow for more potable water to available with the same water quality as

CALIFORNIA STATE WATER PROJECT WATERSHED

Sanitary Survey Update Report 2001

PREPARED BY:
California Department of Water Resources
Division of Planning and Local Assistance
Municipal Water Quality Investigations Program

UNDER THE DIRECTION OF:
The State Water Contractors

December 2001

Gray Davis	Mary D. Nichols	Thomas M. Hannigan
Governor	Secretary for Resources	Director
State of California	The Resources Agency	Department of Water Resources

2001 SANITARY SURVEY UPDATE

Contents

More detailed Contents information along with lists of Figures and Tables are provided at the beginning of each chapter. At the beginning of chapters 3 through 10, which address the State Water Project watersheds and water supply systems, the reader will find significance matrices ranking potential contaminant sources.

2001 SANITARY SURVEY UPDATE

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State of California
Gray Davis, Governor

The Resources Agency
Mary D. Nichols, Secretary for Resources

Department of Water Resources
Thomas M. Hannigan, Director

L. Lucinda Chipponeri
Deputy Director
for Legislation

Peggy Bernardy
Chief Counsel

Steve Macaulay
Chief Deputy Director

Jonas Minton
Deputy Director

Raymond Hart
Deputy Director

Division of Planning and Local Assistance
Naser J. Bateni, Chief

Water Quality Assessment Branch
Phil Wendt, Chief

Technical Services Section
Dan Otis, Chief

Prepared under the supervision of

Richard S. Breuer, Chief
Municipal Water Quality Investigations Unit

Prepared by

Michael Zanoli, Project Leader

Carol L. DiGiorgio, Fengmao Guo, Marvin Jung, William McCune, Steven Murphy, Murage Ngatia, James O. Sickman

DWR Division of Operations and Maintenance, Staff of the Environmental Assessment Branch

Editorial review, graphics, and report production

Brenda Main, Supervisor of Technical Publications

Marilee Talley, Lead Editor, Nikki Blomquist, Mike Durant, Chris Derr, Gretchen Goetti, Alice Dyer, Joanne Pierce

Research and editorial assistance

Kurtis Banchero, Nicholas George, Joseph Hemmer, Kathryn Staccoot

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Elaine Archibald	Archibald and Wallberg Consultants
William Brennan	Central Coast Water Authority
Richard Bruner	DWR Division of Planning and Local Assistance
Jerry Bruns	Central Valley RWQCB
Chris Chaloupka	State Water Resources Control Board
Douglas G. Cloud	Alameda County Water District
John Coburn	State Water Contractors
Rick DeLeon	Metropolitan Water District of Southern California
Russell E. Fuller	Antelope Valley East Kern Water Agency
David Gonzalez	DWR Division of Local Assistance – WQA – Field Support Unit
Richard Haberman	Department of Health Services – Drinking Water Field Operations Branch
Judy Heath	CALFED
Robert Hultquist	Department of Health Services
Larry Joyce	DWR Division of Operations and Maintenance
Marvin Jung	Marvin Jung and Associates
Carl Lischeske	California Department of Health Services – Division of Drinking Water and Environmental Management
Rich Losee	Metropolitan Water District Water District of Southern California
Bruce Macler PhD	U.S. Environmental Protection Agency
David Matthews	Santa Clara Valley Water District
Steve McLean	Castaic Lake Water Agency
David Okita	Solano County Water Agency
Dan Otis	DWR Division of Planning and Local Assistance
Dan Peterson	DWR Operations and Maintenance
Toran Ramadan	City of Napa
Walt Shannon	State Water Resources Control Board
K.T. Shum PhD	Contra Costa Water District
John Stewart	Napa County FC & WCD
Mick Stewart	Metropolitan Water District of Southern California
Marvin Torobin	Metropolitan Water District of Southern California
Leah Walker	Department of Health Services
Phil Wendt	DWR Division of Planning and Local Assistance
Richard Woodard	Water Quality Consultant – State Water Contractors
Bill Wulff	Kern County Water Agency
Michael Zanoli	DWR Division of Planning and Local Assistance

2001 SANITARY SURVEY UPDATE

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Michael Anderson
Elaine Archibald
Dannas Barchtold
Benjamin Bass
Donna Bartkowiak
Elissa Calhoun
Central Valley Regional Water Quality Control Board-Fresno office
Christine Erickson
Doug Chee
Laura deAlfaro
Gopal Deol
Kevin Dunhoff
Rob Fagerness
Gary Fealconer
Sonny Fong
Dirk Gago
Ken Grimes
Greg Gunsenberg
Roberto Gomez
Johnny Gonzalez
Mark Gowdy
Joe Hardcastle
Laura Hidas
John E. Incon
Jeff Janik
Larry Joyce
John Kemp
Mary Ann Mann
John Meeks
Dan Mills
Barry Montoya
Frank Morris
Angela O'Brien
Dan Peterson
Misty Pope
Louis Pratt
Turan Ramadan
Doug Rischbieter
Leo Sarmiento
Vicki Shiflett
Mark Vale
Terri Wegener

2001 SANITARY SURVEY UPDATE

STATE WATER PROJECT CONTRACTORS

Alameda County Flood Control and Water Conservation District Zone 7
Alameda County Water District
Antelope Valley-East Kern Water Agency
Casitas Municipal Water District
Castaic Lake Water Agency
Central Coast Water Authority
City of Yuba City
Coachella Valley Water District
County of Butte
County of Kings
Crestline-Lake Arrowhead Water Agency
Desert Water Agency
Dudley Ridge Water District
Empire-West Side Irrigation District
Kern County Water Agency
Littlerock Creek Irrigation District
Metropolitan Water District of Southern California
Mojave Water Agency
Napa County Flood Control and Water Conservation District
Oak Flat Water District
Palmdale Water District
Plumas County Flood Control and Water Conservation District
San Bernardino Valley Municipal Water District
San Gabriel Valley Municipal Water District
San Gorgonio Pass Water Agency
San Luis Obispo County Flood Control and Water Conservation District
Santa Clara Valley Water District
Solano County Water Agency
Tulare Lake Basin Water Storage District

Contents

Figure

1

Introduction and Background

1.1 PURPOSE OF THE WATERSHED SANITARY SURVEY UPDATE

The California Department of Health Services (DHS), under California Surface Water Treatment regulations, requires that all water purveyors perform a sanitary survey of their water source watersheds and update it every 5 years. These regulations implement the federal Surface Water Treatment Rule (SWTR), which became effective on 31 December 1990.

The purpose of a watershed sanitary survey is to:

- Describe control and management practices,
- Describe potential contaminant sources or activities (PCSs) and their effect on drinking water source quality,
- Determine if appropriate treatment is provided, and
- Identify actions and recommendations to improve or control contaminant sources.

1.2 HISTORY OF THE SWP SANITARY SURVEY UPDATE 2001

After completion of the initial State Water Project (SWP) *Sanitary Survey* in 1990, a SWP Sanitary Survey Action Committee (SSAC) was formed. It consisted of staff from the California Department of Water Resources (DWR) and DHS's Drinking Water Program, representatives of the State Water Contractors and consultants. The SSAC's role was to follow up on the report's recommendations. The SSAC's work resulted in the State Water Project Action Plan. This action committee has continued to meet over the years, and although individual membership has changed, the SSAC makeup has remained the same.

The SSAC has taken on the task of providing guidance for the 5-year updates of the *Sanitary Survey*. The *Sanitary Survey Update Report 1996* focused on changes in SWP watersheds and water quality since 1990. The update also provided information from site visits to watersheds—Del Valle, San Luis, Pyramid, Castaic, Silverwood, Perris, Barker Slough/North Bay Aqueduct watershed, and the open channel section of Coastal Aqueduct. An emphasis was placed on the occurrence of coliforms and the pathogens *Giardia* and *cryptosporidium*. The *Update 1996*, completed in May 1996, included the results of an extensive database search on toxic sites within SWP watersheds.

1.3 COORDINATION WITH STAKEHOLDERS

Preparation for the *Sanitary Survey Update Report 2001* began July 1999 with SSAC meetings to discuss and develop a work plan and scope of work. The SSAC approved a draft work plan and schedule in September 1999 and adopted the final work plan in December 1999.

In May 2000, SSAC members with specific expertise and/or access volunteered to work as a subgroup to expedite the information retrieval, evaluation, and feedback process for the 2001 update. Those seven members represented DHS, SWP contractors, Metropolitan Water District of Southern California (MWDSC), Santa Clara Valley Water District (SCVWD), DWR's Operations and Maintenance Division (O&M), and the California Urban Water Agencies (CUWA).

Following work plan development, DWR's Municipal Water Quality Investigations (MWQI) management and staff, DHS staff, and the SSAC established agreements to help assure adequate progress, the obtainment of necessary information, and feedback on document content quality.

In conjunction with the agreements, this group—SSAC subgroup, MWQI and DHS staff—held frequent and focused meetings and conference calls

to track progress, discuss schedule and resource issues, and prioritize tasks.

DHS granted a schedule extension, which was requested because of staffing resource issues and difficulty in obtaining available information. The original delivery date of January 2001 for the final review draft was eventually changed to 4 May 2001. Because of time constraints, not all chapters were reviewed by the SSAC prior to the release of the final review draft. The SSAC, DHS, and DWR staff conducted a thorough review of the final review draft chapters and after a review of the comments, the document was edited to achieve technical accuracy and consistent formatting.

1.4 2001 SANITARY SURVEY ASSESSMENT APPROACH

Sanitary Survey Update Report 2001 offers detailed evaluations of study areas and issues that were selected based on actions and recommendations from previous reports and concerns stemming from new data and information. Findings and recommendations in *Update 1996* led to extensive studies of the Barker Slough watershed and pathogens in source waters. Each of these follow-up activities is covered in detail in its own chapter.

The SSAC work plan specified that *Sanitary Survey Update 2001* would rely on existing data and information from DWR, MWDSC, and other agencies and would require extensive coordination and cooperation to obtain relevant information from several federal, State, and local sources.

During work plan development, it was agreed to provide information in *Sanitary Survey Update 2001* to make it useful for SWP utilities in complying with the California Drinking Water Source Assessment and Protection (DWSAP) Program. The relationship of the *Sanitary Survey Update 2001* to the DWSAP Program is discussed in section 1.8. *Sanitary Survey Update 2001* is not required by the DWSAP Program but much of its PCS information is readily available for incorporation into a source water assessment as required by the DWSAP Program.

A key task in the work plan was the preparation of a sanitary survey questionnaire and its distribution to SWP contractors. This approach was also used for the *Sanitary Survey Update 1996*. The questionnaire was used to obtain information in the most efficient and direct way possible on contaminant sources, available data, and major water quality issues. Of the 29 contractors, 12 responded to the questionnaire (several contractors were not using SWP water at the time).

1.5 SCOPE OF WORK FOR EACH SWP WATERSHED

During the development process for *Sanitary Survey Update 2001*, DWR stated that new field reconnaissance surveys and additional monitoring studies would not be performed specifically for the update. The exception was a 4-year study of the Barker Slough watershed because *Sanitary Survey Update 1996* recommended an investigation.

The major *Sanitary Survey Update 2001* tasks performed for each watershed study include:

- Review and evaluation of the results from the questionnaire sent to SWP contractors,
- Personal communication with staff of various agencies and review of pertinent reports and data about major water quality issues,
- Delineation and mapping of each source watershed area,
- Evaluation of areas and contaminants of known or suspected concern, as directed by DHS and the SSAC,
  - Development of inventories of PCSs and activities in each area,
  - Determination of the susceptibility of the water supplies of each area to those contaminant sources and activities,
- Reports and summaries of the results; identification and rating of significant PCSs and development of recommended actions to reduce the susceptibility of water supplies to existing and future water quality problems.

1.6 SELECTION AND EVALUATION OF POTENTIAL CONTAMINANT SOURCES

The general types of PCSs used in the *Sanitary Survey Update 2001* were developed with SSAC input and the *American Water Works Association Guidance Manual*. They are presented below.

- Recreation
- Wastewater treatment facilities (includes treatment plant effluent discharges, storage, transport, treatment, disposal to land, and septic systems)
- Urban runoff
- Animal populations (includes grazing, dairies, and wild animal populations)
- Algal blooms
- Agricultural activities (includes agricultural cropland use, pesticide/herbicide use, and agricultural drainage)
- Mining
- Solid or hazardous waste disposal facilities
- Logging

- Unauthorized activity (includes illegal dumping, leaking underground tank)
- Traffic accidents/spills
- Groundwater discharges
- Seawater intrusion
- Geologic hazards (landslides, earthquakes, floods)
- Fires
- Land use changes

Different PCSs can require different approaches and types of data for evaluation. In general, susceptibility to PCSs in a given watershed was determined through the questionnaire and information and data obtained in response to the following criteria:

- Frequency of drinking water regulations (maximum contaminant levels) being actually or nearly exceeded at the water treatment plant intakes, reservoirs, and in the treated water, including complaints about taste and odor.
- Constituents of concern (COC) causing additional water treatment costs or affecting treatment operations (for example, TOC removal requirement).
- Proximity of PCS to source water (for example, reservoirs, streams) and/or treatment plant intakes.
- Beach closures due to high bacteria counts or wastes or spills associated with certain PCSs (for example, water recreation, sewage spills, septic tank leaks).
- Available water quality data on receiving water downstream of PCS areas and upstream of the nearest water supply diversions. Comparison between these locations, including at the water supply intake.
- The lack of data or the need to do a more thorough assessment of the susceptibility of the watershed to 1 or more PCSs.

1.7 REPORT ORGANIZATION

1.7.1 CHAPTER PRESENTATION

The *Sanitary Survey Update 2001* watershed chapters are organized by geographical areas, such as the 4 Southern California reservoirs, or by spatial connection, such as the 5 sections of the California Aqueduct. Figure 1-1 shows the approximate geographical location of the watersheds covered in the chapters and their corresponding sections of the SWP. The following SWP structures and their corresponding watersheds are covered in *Sanitary Survey Update 2001*:

- SWP reservoirs
  - Pyramid Lake
  - Castaic Lake
  - Silverwood Lake
  - Lake Perris
  - San Luis Reservoir
  - Lake Del Valle
- SWP aqueducts
  - North Bay Aqueduct (Barker Slough watershed)
  - South Bay Aqueduct
  - California Aqueduct sections:
    - H. O. Banks Pumping Plant to O'Neill Forebay/ Check 13
    - O'Neill Forebay
    - O'Neill Forebay to Arvin
    - Arvin to Kern River Intertie (Check 28)
    - Kern River Intertie to East/West Bifurcation (Check 41)
  - Coastal Branch
  - East Branch and West Branch
- Harvey O. Banks Delta Pumping Plant
  - The Sacramento San Joaquin Delta and waterbank of the Sacramento and San Joaquin rivers

Figure 1-1 Sanitary Survey Chapters and Corresponding Watersheds

At the beginning of each watershed section, a summary matrix shows the assessed threat a PCS poses for that particular watershed and water supply system. The matrix also shows the chapter section where the PCS is presented in detail. The chapter then presents the following information:

- Descriptions of land use, geology and soils, vegetation, and hydrology of each watershed area or descriptions of the SWP aqueduct branches for the water supply system site.
- Identification of PCSs for each area.
- Summary of water quality data.
- Discussion of the significance of the PCS(s) to each area.
- Watershed management practices.

Including this introductory chapter, 5 chapters do not focus on a particular watershed. Chapter 2 summarizes current laws and regulations for drinking water. Chapter 11 describes the SWP Emergency Action Plan and related information. Chapter 12 presents and discusses pathogen data, which DHS and the SSAC considered necessary to include in this report. Chapter 13 contains conclusions and recommendations for the PCSs and water quality issues presented in chapters 3 through 10.

1.7.2 SIGNIFICANCE MATRICES

Significance matrices provide a new approach for the SWP *Sanitary Survey* to give the reader a visual summary of the relative importance of PCSs in a watershed. Each watershed chapter begins with a matrix, which operates as a "road map" by providing a quick assessment of the most important PCSs and directing the reader to corresponding chapter sections. The matrices are not absolute ratings of importance. A chapter should be read completely to gain a full understanding of the potential threats to drinking water quality. Each PCS that threatens drinking water contamination of a water supply system was rated as follows:

- ● PCS is a highly significant threat to drinking water quality
- ◒ PCS is a medium threat to drinking water quality
- ◎ PCS is a potential threat, but available information is inadequate to rate the threat.
- ○ PCS is a minor threat to drinking water quality

In each matrix, symbols represent ratings, and numbers stand for the chapter section in which the PCS is discussed. The ratings were based on data and information collected during research for *Sanitary Survey Update 2001*. Some data provided a clear connection between the PCS and its potential to contaminate drinking water. Some information was anecdotal and based on the collective knowledge and experience of the author investigating a source, as well as other SS Update authors and staff of the DWR Water Quality Assessment Branch. In some cases, where a PCS was a clear source of the contaminant but the linkage as a threat was unclear, the PCS was given a medium rating. Sometimes a PCS was a clear source of the contaminant, but evidence and data indicated the source was not a threat to drinking water. In these cases, the PCS received a minor threat rating, for example, pesticides in the Delta waterbody.

Chapter headings for PCSs initially were drawn from a master list approved by the SSAC work team in fall 1999. The list had to be varied and expanded because of the extreme variation in geographical areas and settings for each chapter.

1.7.3 DEVELOPMENT OF CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations in chapter 13 were developed at 5 workshops where SSAC and other staff reviewed and discussed authors' drafts and provided extensive input and revision. Detail of the process and content is provided in the introduction to chapter 13. It must be emphasized that chapter 13 is not a "stand-alone" chapter and that each chapter must be reviewed to obtain a complete picture of the status of a particular watershed. Only significant PCSs were included in chapter 13's conclusions and recommendations.

1.8 RELATIONSHIP WITH DHS'S DRINKING WATER SOURCE ASSESSMENT AND PROTECTION (DWSAP) PROGRAM

Under the 1996 reauthorization of the Safe Drinking Water Act (SDWA), all states must complete a source water assessment (SWA) for public water systems by 2003. A SWA document is prepared to determine the existence of PCSs, to determine the appropriate monitoring needed, to inform the public, and to assist in the development of watershed protection programs. The DWSAP Program presents a set of standardized procedures for conducting a SWA. The DHS allows watershed sanitary surveys, like the *Sanitary Survey Update Report 2001*, as alternative methods of determining a water source's vulnerability.

While its requirements are similar, *Sanitary Survey Update Report 2001* contains more information than a SWA. Because of the vast size of the SWP, many subwatersheds interconnect with it. The major tasks of developing this sanitary survey consisted of separate assessments for each of the subwatersheds selected for inclusion. The DWSAP Program assessment and vulnerability summary of sources that are part of the SWP may be based on the information contained in this *Sanitary Survey Update*.

DHS will use the *Sanitary Survey Update Report 2001* as the basis of the DWSAP Program's source water assessment for SWP facilities and for the preparation of vulnerability summaries for those facilities. DHS will work with contractors and water utilities to complete the SWAs. Water utilities then will be required to include information about the assessments and vulnerability summary language in their Consumer Confidence Reports (Walker pers. comm).

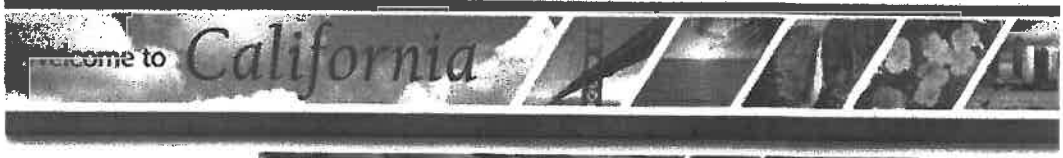
There are 6 information requirements that SWP contractors will be required to supply for their DWSAP Program assessments. Contractors will prepare their own DWSAP Program assessments for DHS, based on *Sanitary Survey Update 2001* information, to include the following:

1) Location of Supply Source.
2) Delineation of Source Areas and/or Protection Zones—Watershed will be designated as the source area/protection zone. This sanitary survey will provide the detailed information on the watershed, so each contractor's SWA can refer to the *2001 Sanitary Survey Update Report*.
3) Evaluation of Physical Barrier Effectiveness—DHS will provide standard language on this.
4) Inventory of Possible Contaminating Activities—This is identified in the *2001 Sanitary Survey Update Report*. Water contractors can refer to the update and provide limited description in DWSAP Program document.
5) Vulnerability Ranking—After review of raw water quality data provided by DWR and the water contractors, a consistent approach for each contractor to use in assessing vulnerability will be developed.
6) Assessment Map—*2001 Sanitary Survey Update Report* contains maps of watershed showing major land uses pipelines, any intakes, etc.

Reference

PERSONAL COMMUNICATION

Walker, Leah, Senior Engineer, Department of Health Services, Drinking Water Program. 1999. E-mail to Mike Zanoli, DWR. Nov 23.



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Mission:

To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

1416 9th Street,
Sacramento, CA 95814

Mailing Address:
P. O. Box 942836,
Sacramento, CA 94236

DWR

Water Quality

- Water Quality
  - State Water Project Water Quality - *Division of Operations and Maintenance*
    The State Water Project water quality program collects detailed information on concentrations and distribution of chemical, physical, and biological parameters at more than thirty sites in the California Aqueduct and associated reservoirs.
  - Municipal Water Quality - *Division of Environmental Services*
    Site includes publications, program resources, projects and data related to drinking water quality.
  - Office of Water Quality - *Division of Environmental Services*
    Meet the overall water quality needs of DWR and to provide a central focal point for the collection and dissemination of water quality information.
  - Bay-Delta Hearing and Program Development - *State Water Project Analysis Office*
    Includes water rights hearings information, workshops, and Environmental Impact Reports.
  - South Delta Improvement Project (SDIP) - *Bay-Delta Office*
    The SDIP works to incrementally maximize diversion capability into Clifton Court Forebay, while providing an adequate water supply for diverters within the SDWA, and reducing the effects of State Water Project exports on both aquatic resources and direct fish losses in the South Delta.
  - North Delta Improvement Project (NDIP) - *Bay-Delta Office*
    The NDIP works to implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, to the extent practicable.
  - Northern District Water Quality - *Division of Planning and Local Assistance*
    Water bodies are assessed for water quality characteristics, risks to beneficial uses, and effects of watershed management.
  - Central District Water Quality - *Division of Planning and Local Assistance*
    Assists local agencies and watershed groups with the collection, analysis, and storage of water quality data from rivers, streams, lakes, and reservoirs throughout its district boundaries.
  - San Joaquin District Water Quality - *Division of Planning and Local Assistance*
    Provide assistance and technical advice to local water agencies and to the general public on water quality conditions and on water well standards.
  - Southern District Water Quality - *Division of Planning and Local Assistance*
    Technical assessments are conducted that provide unique and consistent information on the status, trends, and causes of groundwater and surface water quality conditions.
  - Southern Field Division Water Quality Programs - *Division of Operations and Maintenance*

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- Hetch Hetc
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Monitors the water quality of its four Southern California reservoirs to provide its State Water Project contractors with the most current reservoir conditions.

- Water Data Library - *Division of Planning and Local Assistance*
  Grab sample water quality data collected by DWR.
- California Data Exchange Center (CDEC) - *Division of Flood Management*
  Real-time decision support system to DWR Flood Management and other flood emergency response organizations, providing operational and historical hydrologic and meteorlogic data, forecasts, and reports.
- San Joaquin River Real-time Program - *Division of Planning and Local Assistance*
  The Real-time Water Quality Management Program uses telemetered stream stage, salinity data and computer models to simulate and forecast water quality conditions along the lower San Joaquin River.

- Land & Water Use
- Ecosystem/Watershed Restoration
- Sacramento-San Joaquin Delta
- Drainage
- Environmental Analysis & Review
- Ecological Studies
- Environmental Compliance & Evaluation
- Environmental Documentation
- Invasive Species

Back to Top of Page

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Appendix J

- **ANTELOPE VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWMP) EXECUTIVE SUMMARY**

This plan defines a clear vision and direction for the sustainable management of groundwater reserves in the Antelope Valley Region.

Executive Summary

ANTELOPE VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN OVERVIEW

The California Water Plan 2005 update is the basis for all Integrated Regional Water Management (IRWM) planning efforts underway throughout the State, including this IRWM Plan for the Antelope Valley Region. It represents a fundamental transition in how the State looks at water resource management, and how the State government needs to be more involved at a local and regional level with governing agencies and interest groups to better identify and address State-wide water concerns.

The State recognizes that there is a need to consider a broader range of resource management issues, competing water demands, new approaches to ensuring water supply reliability, and new ways of financing.

IRWM planning was derived from Proposition 50 which was passed by California voters in November 2002, authorizing $3.4 billion in general obligation bonds to fund a variety of specified water and wetlands projects. It set aside $380 million for grants related to the implementation of IRWM Plans and is jointly administered by the California Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB).

Proposition 50 states that IRWM Plans should include a description of the region and participants, regional objectives and priorities, water management strategies, implementation, impacts and benefits, data management, financing, stakeholder involvement, relationship to local planning, and state and federal coordination. This Antelope Valley Integrated Regional Water Management (IRWM) Plan includes a discussion of the specified elements, as summarized below.

INTRODUCTION (SECTION 1)

Several years ago, leaders and agencies in the Antelope Valley Region recognized the need for regional cooperation and planning. In an effort to represent the broad interests within the Antelope Valley Region, a number of organizations joined to form a Regional Water Management Group (RWMG) to work together and create this IRWM Plan. Members of the RWMG include the Antelope Valley-East Kern Water Agency (AVEK), Antelope Valley State Water Contractors Association (AVSWCA), City of Lancaster, City of Palmdale, Littlerock Creek Irrigation District, Los Angeles County Sanitation District (LACSD) Nos. 14 and 20, Los Angeles County Waterworks District No. 40 (LACWWD 40), Palmdale Water District (PWD), Quartz Hill Water District (QHWD), and Rosamond Community Services District (RCSD). These agencies agreed to contribute funds to help develop the AV IRWM Plan, provide and share information, review and comment on drafts, adopt the final AV IRWM Plan, and assist in future grant applications for the priority projects identified in this IRWM Plan.

> *"We have a responsibility for future generations, and we have a responsibility just as responsible citizens, to protect this groundwater resource and make sure that we use it in the best way possible."*
>
> – Adam Ariki,
> Los Angeles County Waterworks District No. 40

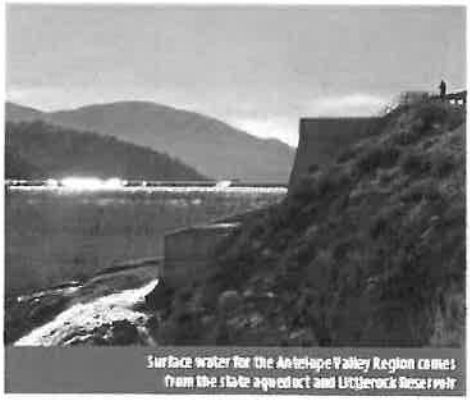
In January 2007, the RWMG and other community participants (the Stakeholders) set about developing a broadly supported water resource management plan that defines a meaningful course of action to meet the expected demands for water within the entire Antelope Valley Region through 2035. They chose to create the water resource management plan consistent with the State sponsored Integrated Regional Water Management Program that makes grant funds available to support sound regional water management. The goals of the AV IRWM Plan are to address:

- How municipal and industrial (M&I) purveyors can reliably provide the quantity and quality of water that will be demanded by a growing population;
- Options to satisfy agricultural users' demand for reliable supplies of reasonable cost irrigation water; and
- Opportunities to protect and enhance the current water resources (including groundwater) and the environmental resources within the Antelope Valley Region.

The RWMG acknowledged that a separate process (called adjudication) related to groundwater management was also underway. Members of the RWMG and other stakeholders discussed at length whether it was possible (and if possible, how) to develop a Regional Water Management Plan before the adjudication was settled. The members of the RWMG agreed that since the IRWM Plan and the adjudication were focused on different aspects of water management, they could proceed in parallel. This IRWM Plan contains information to help take action to meet shared objectives for long-term water management for the entire region. The results of the adjudication will help provide important clarity and certainty between groundwater users about how the groundwater resources will be managed, but other important water management actions can and should be taken without waiting for a final adjudicated solution. Members of the RWMG agreed that no information developed for the purposes of the IRWM Plan should be interpreted to interfere in any way with the adjudication process. The data provided in this report were not prepared in a manner suitable to answer the questions being addressed in the adjudication.

REGION DESCRIPTION (SECTION 2)

The Antelope Valley Region of California is home to over 444,000 people living in many different communities. Residents within this Region have experienced tremendous changes over the past generation due to a rapid increase in population coming from nearby large cities. Current forecasts of population growth suggest even larger changes



Surface water for the Antelope Valley Region comes from the state aqueduct and Littlerock Reservoir

will occur before 2035. Water plays a central role in the health and well being of all residents within the Antelope Valley Region. People use water for drinking, bathing, household and outdoor activities, agriculture, business endeavors, recreation, and to sustain and enhance natural habitats. This common need for water links communities together in many ways. When anyone uses water, the ability of other people to use water within the Antelope Valley Region can be affected.

The Antelope Valley Region encompasses approximately 2,400 square miles in northern Los Angeles County, southern Kern County, and western San Bernardino County. Major communities within the Antelope Valley Region include Boron, California City, Edwards Air Force Base, Lancaster, Mojave, Palmdale and Rosamond. All of the water currently used in the Antelope Valley Region comes from two sources: (1) naturally occurring water within the Antelope Valley Region (surface water and groundwater accumulated from rain and snow that falls in the Antelope Valley and surrounding mountains), and (2) State Water Project water (surface water that is collected in northern California and imported into the Antelope Valley and other areas around the state).

"This plan is going to provide a long-range benefit to the Antelope Valley and will be able to continue to provide for economic development, particularly with residential development throughout the Antelope Valley Region."

– Gretchen Gutierrez,
Antelope Valley Building Industry Association

The number of residents within the Antelope Valley Region expanded more than 330 percent between 1970 and 2005, growing from 103,000 people in 1970 to 444,000 people in 2005. Forecasters expect the population to continue to swell, potentially reaching 1,174,000 residents by the year 2035. As the number of people living and working in the

Antelope Valley Region increases, the competition for water supply increases, and the challenge of maintaining good water quality and managing the interconnected water cycle becomes more challenging.

Creation of a proactive, "smart" design for the fast-developing Antelope Valley Region makes this IRWM Plan essential to efficient and effective water management.

ISSUES AND NEEDS (SECTION 3)

Water managers and local planners face many daunting challenges related to supporting the well being of the Antelope Valley Region. Past activities have created problems that need to be addressed and expected increases in population growth make resolving these problems even more difficult. In order to help address the broad challenges, the AV IRWM Plan was organized to address issues and needs in the following categories. Section 3 of the Plan describes these issues and needs in detail.

Supplies are Variable and Uncertain

Determining the amount of water available for use at any given time (now or in the future) is more challenging than one might imagine. The amount of water supply available varies considerably due to changes in weather, rain and snow, and other conditions. All water supplies within the Antelope Valley Region come from two sources: (1) local rain and snow, or (2) imports of water from outside the Antelope Valley Region. The local water supplies come from rainfall and snowmelt that percolate into the groundwater aquifers or are captured in Littlerock Reservoir. Current estimates of water supplies made available from local rainfall and snowmelt vary widely (30,300 to 81,400 acre-feet per year (AFY).[1,2] Imported water comes from the State Water Project, which has historically varied. The currently available supplies from imported water can also vary widely from year to year (6,400 to 74,300 AFY).

Demand is Greater than Supply

One fundamental challenge in the Antelope Valley Region is that demand for water exceeds available supplies. The

The expected rapid growth in the Antelope Valley Region will affect water demand and increase the threat of water contamination from additional wastewater and urban runoff without proper management.

demand for water clearly exceeds even the higher estimates of currently available supplies. By 2010 the demand for water in an average year by 2010 will be 274,000 AFY and by 2035 could be 447,000 AFY. Even using the higher estimates of available supply, this means demand could exceed supply by 73,600 AFY in 2010 and by 236,800 AFY in 2035. The expected imbalance between supply and demand in 2035 is about the same as currently available supplies. If communities do not begin conserving water more effectively, the Region will need twice the water as it currently has in order to meet demand in 2035.

Historically, water supplies within the Antelope Valley Region have been used primarily for agriculture; however, due to population growth, water demands from residential and business uses have increased significantly and this trend is expected to continue. The expected continuation of rapid growth in the Antelope Valley Region will affect water demand and increase the threat of water contamination from additional wastewater and urban runoff. More residents will also lead to higher demand for water-based recreation.

Much of the water used within the Antelope Valley Region is extracted from groundwater aquifers. The amount of water pumped within the Antelope Valley Region has varied tremendously since the early 1900s. The United States Geological Survey estimated that groundwater pumping in 1919 was about 29,000 AFY and reached as high as 400,000 AFY in the 1950's. For many of those years, the amount of water being pumped was greater than the amount of water being replenished, creating an imbalance within the groundwater aquifers. Because the amounts pumped were greater than the amounts being replenished, groundwater levels have declined significantly throughout the Antelope Valley Region. The long-term depletion of aquifers cannot be continued indefinitely without serious

1 An acre-foot per year is enough water to cover an acre of land one foot deep and meet the water needs of a family of four for one year.

2 The analyses provided in the IRWM Plan are strictly for long-term planning purposes and have not been conducted to answer the questions being addressed within the adjudication. Once the detailed analysis of available local water supply are completed within the adjudication, the supply numbers for the IRWM Plan will need to be updated.

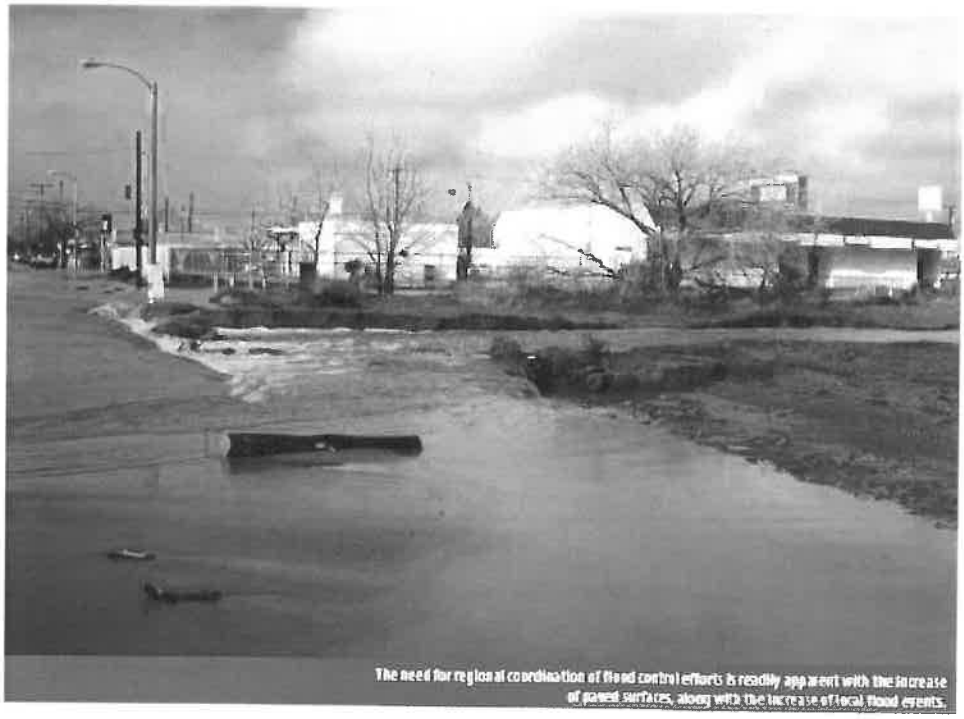
consequences. The historical declines in groundwater levels within the Antelope Valley Region have caused permanent damage to aquifers in some areas through land subsidence or sinking.

In order to prevent further damage from declining groundwater levels, many water providers and managers within the Antelope Valley Region recognize the need to balance the water being pumped from the aquifers with the water being put back. In response to this need, a legal process called adjudication is currently underway. If the adjudication process is successful, groundwater users within the Antelope Valley Region will create and abide by a plan to stabilize groundwater levels and prevent further damage that can result from declining groundwater levels. While determining a method to balance groundwater use with the amount of water being replenished is a necessary piece to creating a viable water management strategy within the Antelope Valley Region, the adjudication likely will not provide any additional water supplies needed to meet the growing demands within the Antelope Valley Region.

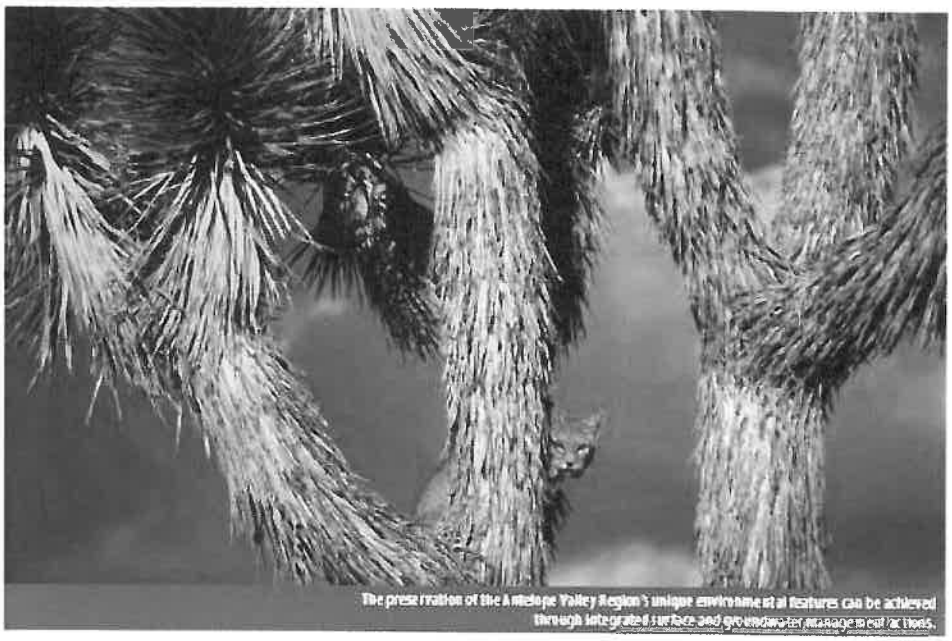
Recognizing the need to identify meaningful actions beyond the adjudication, members of the Group and other community participants agreed to focus on actions beyond the adjudication in the Plan. Participants in developing the AV IRWM Plan encourage a quick and collaborative settlement of the adjudication process, but the contents of the AV IRWM Plan identify and recommend actions that go well beyond the adjudication. The actions identified in the AV IRWM Plan can help meet the larger needs of the Antelope Valley Region but will require a solution from the adjudication to stabilize groundwater levels. Nothing in the IRWM Plan shall be interpreted to interfere in any way with the adjudication process.

Water Quality and Flood Management

The groundwater basin within the Antelope Valley Region is an undrained, closed basin, meaning there is no outlet for water to flow to the ocean. When water enters a closed basin, any minerals or chemicals in the water typically accumulate in the basin. Currently, groundwater quality is excellent within the principal aquifer but is not as good toward the northern portion of the dry lake areas. Some portions of the basin contain groundwater with high fluoride, boron, total dissolved solids, and nitrate concentrations. Arsenic is another emerging contaminant of concern in the Antelope Valley Region and has been observed in LACWWD 40, PWD, Boron, and QHWD wells. Research conducted by the LACWWD and the United States Geological Survey has shown the problem to reside primarily in the deep aquifer,



The need for regional coordination of flood control efforts is readily apparent with the increase of paved surfaces, along with the increase of local flood events.



The preservation of the Antelope Valley Region's unique environmental features can be achieved through integrated surface and groundwater management efforts.

and it is not anticipated that the existing arsenic problem will lead to future loss of groundwater as a water supply resource for the Antelope Valley.

Portions of the Antelope Valley Region are also subject to flooding from uncontrolled runoff in the nearby foothills, which can be aggravated by lack of proper drainage facilities and defined flood channels. This runoff can negatively affect the water quality of the underlying groundwater basin, and can create stagnant ponds in places where clay soils beneath the surface do not allow for percolation to occur. The need for regional coordination of flood control efforts becomes more readily apparent as urban development and paved surfaces increase throughout the Antelope Valley Region, along with the frequency of local flood events.

Environmental Resources

The Antelope Valley Region has many unique environmental features, and several plant and animal species are only found in this area. As the pressure for growth expands out into undeveloped or agricultural lands, the need to balance industry and growth against protection of endangered species and sensitive ecosystems requires difficult decisions and trade-offs, each resulting in a variety of unique impacts on water demands and supplies in the Region. The actions identified in the AVIRWM Plan can help to preserve open space and natural habitats in the greater the Antelope Valley Region while maximizing surface water and groundwater management efforts.

Water Management and Land Use

What people do on the land of the Antelope Valley and how they do it directly impacts many aspects of life, including the water cycle, within the Antelope Valley Region. Historically throughout California, land use planning and water use planning have been done almost independently of one another. The challenges identified within the Plan clearly show a need for much closer collaboration between

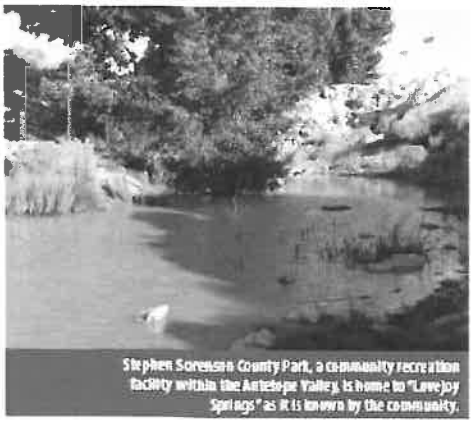
The expected rapid growth in the Antelope Valley Region will affect water demand and increase the threat of water contamination from additional wastewater and urban runoff without proper management.

land use planning efforts and water management planning efforts. Continued development within the Antelope Valley Region depends heavily on the successful completion of the objectives presented in the Plan to meet the growing demand for recreational opportunities while minimizing or avoiding the loss of local culture and values.

OBJECTIVES (SECTION 4)

The Stakeholders worked together to identify clear objectives and planning targets they want to accomplish by implementing the AV IRWM Plan (see Table ES-1). Although the AV IRWM Plan is intended to address the Antelope Valley Region's water resource management needs, this document also identifies several open space, recreation, and habitat targets as well. Refer to Section 4 of the AV IRWM Plan for details on how the objectives and targets were determined.

These objectives and planning targets represent the most important things the Stakeholders have chosen to work together to accomplish over the next several years. Everything done within the context of this IRWM Plan should contribute in some way to achieving these objectives. Also, because the planning targets are measurable, residents within the Antelope Valley Region can monitor how well the Plan is being implemented.



Stephen Sorensen County Park, a community recreation facility within the Antelope Valley, is home to "Lovejoy Springs" as it is known by the community.

Apollo Park Lake

Table ES-1 Antelope Valley Region Objectives and Planning Targets

Objectives	Planning Targets
Water Supply Management	
Provide reliable water supply to meet the Antelope Valley Region's expected demand between now and 2035.	Reduce (73,600 to 236,800 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.
	Provide adequate reserves (50,600 to 57,400 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.[3]
	Provide adequate reserves (0 to 62,000 AF/4 year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.[4]
Establish a contingency plan to meet water supply needs of the Antelope Valley Region during a plausible disruption of SWP water deliveries.	Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer, by June 2010.
Stabilize groundwater levels at current conditions.	Manage groundwater levels throughout the basin such that a 10-year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.
Water Quality Management	
Provide drinking water that meets customer expectations.	Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetics throughout the planning period.
Protect aquifer from contamination.	Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.
	Map contaminated sites and monitor contaminant movement, by December 2008.
	Identify contaminated portions of aquifer and prevent migration of contaminants, by June 2009.
Protect natural streams and recharge areas from contamination.	Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.
Maximize beneficial use of recycled water.	Increase infrastructure and establish policies to use 33% of recycled water to help meet expected demand by 2015, 66% by 2025, and 100% by 2035.
Flood Management	
Reduce negative impacts of stormwater, urban runoff, and nuisance water.	Coordinate a regional flood management plan and policy mechanism by the year 2010.
Environmental Resource Management	
Preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region.	Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface water and groundwater management by 2015.
Land Use Planning/Management	
Maintain agricultural land use within the Antelope Valley Region.	Preserve 100,000 acres of farmland in rotation[5] through 2035.
Meet growing demand for recreational space.	Contribute to local and regional General Planning documents to provide 5,000 acres[6] of recreational space by 2035.
Improve integrated land use planning to support water management.	Coordinate a regional land use management plan by the year 2010.

3 Dry year reserves determined by taking the dry year mismatch and adding the average year supplement. Assumes that the average year supplement equals the average year mismatch for any given year. Range determined from the maximum and minimum reserves.

4 As with single-dry year, multi-dry year reserves determined by summing the 4-year dry year mismatch and adding the 4-year average year supplement. Assumes that the average year supplement equals the average year mismatch for any given year. Range determined from the maximum and minimum reserves.

5 The phrase "in-rotation" means that not all 100,000 acres will be in agricultural production at one time rather the land will be rotated in cycles to make most efficient use of the land.

6 The City of Palmdale and City of Lancaster's General Plans provide a standard of 5 acres of parkland per 1,000 City residents. The Kern County General Plan provides a standard of 2.5 acres per 1,000 residents. The other local and regional General Plans do not provide a standard for "recreation or parkland" preservation. This planning target assumes a 2035 population of 1.17 million residents in the Antelope Valley Region.

WATER MANAGEMENT STRATEGIES (SECTION 5)

An overview and description of each of the Proposition 50 Water Management Strategies required to be considered in the AV IRWM Plan is provided in Section 5. These water management strategies include those that are currently utilized by the agencies and organizations in the Antelope Valley Region on an ongoing basis, the strategies now being implemented, and those that are planned for the future.

Additionally, in the AV IRWM Plan, the 20 different water management strategies identified in the IRWM Plan Guidelines (CWC §§ 79562.5 and 79564) were compared with those identified in the California Water Plan and then grouped into the AV IRWM Plan's five regional and broad-based water management strategy areas: water supply management; water quality management; flood management; environmental resource management; and land use management.

To help identify the many potential projects in the Antelope Valley Region and to assess the contribution of these projects towards meeting the AV IRWM Plan objectives and planning targets (as identified in Table ES-1, above), a "Call for Projects" form was sent out to all the Stakeholders to give them the opportunity to submit their project concepts for consideration. The Call for Projects provided an avenue to engage the Stakeholders in the information-sharing aspect of Plan development, and resulted in identification of many projects that provide multiple benefits that span more than one water management strategy.

IRWM PLAN AND PROJECTS INTEGRATION, EVALUATION AND PRIORITIZATION (SECTIONS 6 AND 7)

Many local agencies and other community participants have worked well together to create a Plan that identifies challenging issues and needs being faced by all Antelope Valley residents. Fortunately, this IRWM Plan also identifies actions that can help meet the objectives for the Antelope Valley Region and identifies methods for cooperative implementation of those actions.

Table ES-2 lists the projects and actions that the Stakeholders believe will help meet the Regional objectives. Implementing the high priority actions will require focused effort, broad community support, political resolve, and money. The Stakeholders are actively pursuing financial assistance through several grant programs to help leverage local investments. The RWMG is also working to establish a secure and long-lasting way to coordinate resources to meet the growing needs of the entire Antelope Valley Region.

Table ES-2 Stakeholder Prioritized Projects

Priority	Project	Project Sponsor
Water Supply Groundwater Recharge/Banking Infrastructure Projects		
High	Antelope Valley Water Bank	Western Development and Storage
	Aquifer Storage and Recovery Project - Injection Well Development	LACWWD 40
	Upper Amargosa Creek Recharge, Flood Control & Riparian Habitat Restoration Project	City of Palmdale, AVEK
	Water Supply Stabilization Project – Westside	AVEK/AVSWCA/LACWWD 40
Medium	Aquifer Storage and Recovery Project: Additional Storage Capacity	LACWWD 40
	Lower Amargosa Creek Recharge & Flood Control Project	J. Goit/City of Palmdale
	Water Supply Stabilization Project – Eastside Project	AVEK
Water Infrastructure Projects		
High	Avenue K Transmission Main, Phases I-IV	LACWWD 40
	Littlerock Dam Sediment Removal Project	PWD
	Wastewater Pipeline	RCSD
Low	Avenue M and 60th Street West Tanks	LACWWD 40
	Place Valves and Turnouts on Reclaimed Water Pipeline	RCSD

Table ES-2 Stakeholder Prioritized Projects (continued)

Priority	Project	Project Sponsor
Recycled Water Projects		
High	Antelope Valley Recycled Water Project Phase 2	LACWWD 40/Palmdale/ LACSD
	Groundwater Recharge Using Recycled Water Project	City of Lancaster
Medium	Groundwater Recharge – Recycled Water Project	PWD
	Kern County and Los Angeles County Interconnection Pipeline	RCSD
	Regional Recycled Water Project Phase 3	LACWWD 40/Palmdale/LACSD
	Tertiary Treated Water Conveyance and Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H	City of Lancaster
Low	Regional Recycled Water Project Phase 4	LACWWD 40/Palmdale/ LACSD
Water Conservation/Water Use Efficiency		
High	Comprehensive Water Conservation/Efficient Water Use Program	Antelope Valley Water Conservation Coalition/ LACWWD/PWD
Water Quality Projects		
High	Lancaster Water Reclamation Plan Stage V	LACSD
	Palmdale Water Reclamation Plan Existing Effluent Management Sites	LACSD
	Palmdale Water Reclamation Plan Stage V	LACSD
	Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation	LACWWD 40
Medium	Lancaster Water Reclamation Plan Stage VI	LACSD
	Lancaster Water Reclamation Plan Proposed Effluent Management Sites	LACSD
	Palmdale Water Reclamation Plan Stage VI	LACSD
	Palmdale Water Reclamation Plan Proposed Effluent Management Sites	LACSD
	Palmdale Water District New Treatment Plant	PWD
Low	42nd Street East, Sewer Installation	City of Palmdale
Flood Management Projects		
High	Development of Coordinated Antelope Valley Flood Control Plan	Cities of Lancaster, Palmdale, Los Angeles Department of Public Works (LADPW), Kern County
Medium	Quartz Hill Storm Drain	LADPW
	Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park	City of Palmdale
	Barrel Springs Detention Basin and Wetlands	City of Palmdale
	Hunt Canyon Groundwater Recharge and Flood Control Basin	City of Palmdale
Low	45th Street East Flood Control Basin (Q East Basin)	City of Palmdale
	Avenue Q and 20th Street East Basin (Q West Basin)	City of Palmdale
	Storm water Harvesting	Leona Valley Town Council
Environmental Resource Management Projects		
High	Ecosystem and Riparian Habitat Restoration of Amargosa Creek; Avenue J to Avenue H	City of Lancaster
Medium	Tropico Park Pipeline Project	RCSD
Land Use Management Projects		
High	Development of a Coordinated Land Use Management Plan	Cities of Lancaster, Palmdale, LADPW, Kern County /Antelope Valley Conservancy
	Amargosa Creek Pathways Project	City of Lancaster

FRAMEWORK FOR IMPLEMENTATION (SECTION 8)

The AV IRWM Plan is a dynamic document that identifies monitoring guidelines and sets forth procedures for measuring the success, benefits, and impacts of the AV IRWM Plan. An ongoing management process is proposed for evaluating, updating and maintaining the Plan, and a comprehensive implementation framework has been developed to establish and identify a capital improvement program and financial plan for both construction and operation and maintenance of the projects and management actions selected as "high priority" (see Table ES-2, for a list of the high priority projects).

The 11 public agencies that have joined together to create the RWMG have recognized the value of working collectively towards meeting the regional goals identified in this Plan. In order to do this, they have signed a Memorandum of Understanding (MOU) to define what their roles and responsibilities are in developing and moving forward with implementation of the AV IRWM Plan. The decision-making structure of the MOU provides the RWMG with the responsibility to make formal decisions regarding the scope and content of the AV IRWM Plan. While the structure and approach has been successful to create the plan, the RWMG discussed whether the MOU and facilitated broad agreement approach would work well to implement and update the Plan after it is adopted. Several potential options were discussed including selection of one willing existing agency within the RWMG, (the City of Palmdale for example), that would serve on behalf of the entire stakeholder group, or creation of a new legal entity, such as a new Joint Powers Authority (JPA) to lead the collaboration with the stakeholder group and help implement the IRWM Plan.

The stakeholders decided that they would like to continue using the current approach of facilitated broad agreement to implement and update the AV IRWM Plan. However, several of the RWMG Members expressed a desire to form a more formal governance structure to implement the Plan over the next several years. The stakeholders understand that creating a new, more formal governance structure that will maintain the positive momentum the group has demonstrated during the past year until the year 2035 will likely require a few years.

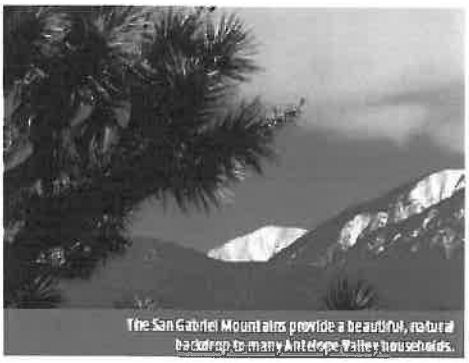
Implementation of the high priority projects in the IRWM Plan is currently the responsibility of the individual lead agency with the jurisdictional authority to approve the project. The Stakeholders and RWMG have chosen these projects because they want to take action on them within the next two to three years, and they directly address the objectives and targets of better management of resources within the Antelope Valley Region. Furthermore, implementing the projects together yield greater benefits to the Region then if each agency implemented on their own.

The collection, management, distribution and use of data collected as part of this IRWM Planning effort, and through implementation, are essential to making this a sustainable effort that will benefit the Antelope Valley Region for years to come. Data regarding water quantity and quality are currently collected and distributed by a number of different agencies. The Stakeholders have identified strategies in this IRWM Plan to ensure quick identification of data gaps, avoiding duplicative (and costly) studies that result in the same information, and integrating with other important regional, statewide programs, and federal needs.

This IRWM Plan identifies performance measures that will be used to evaluate strategy performance, monitoring systems that will be used to gather actual performance data, and mechanisms to change these strategies if the data collected shows the Antelope Valley Region's IRWM planning targets are not being met. The Stakeholders also recognized that additional technical detail is needed for several of the IRWM Plan's performance measures to be properly implemented and measurable. The Stakeholder group has agreed to continue to refine these performance measures as the AV IRWM Plan is implemented.

This IRWM Plan is necessarily a Stakeholder-driven Plan. The RWMG invites the public and interested Stakeholders to become active participants in the Region's ongoing efforts to:

- Identify, evaluate, prioritize, and implement solutions to the Region's complex water management issues, challenges, and conflicts; and
- Continue the development and evolution of this Plan.



The San Gabriel Mountains provide a beautiful, natural backdrop to many Antelope Valley households.

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