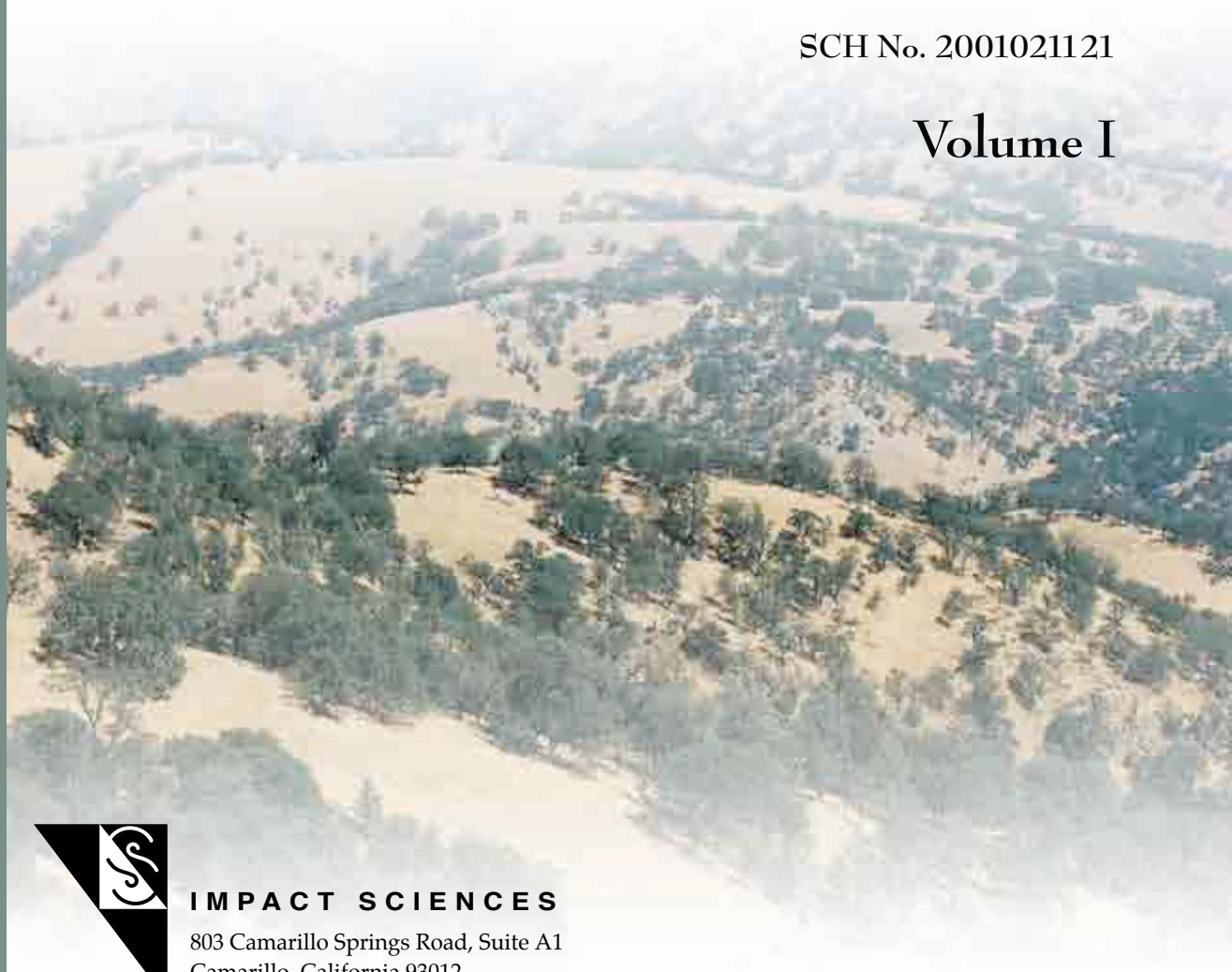
City of Santa Clarita

Draft Additional Analysis to the Final Environmental Impact Report for the

GATE-KING INDUSTRIAL PARK

SCH No. 2001021121

Volume I



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March 2006

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1.0 INTRODUCTION

On June 24, 2003, the City of Santa Clarita certified the Final Environmental Impact Report (SCH No. 2001021121) ("FEIR" or "EIR") for the Gate-King project. The City also adopted final resolutions and conditions on June 24, 2003. Subsequently, various parties challenged the City's certification of the FEIR and project approval in an action in Los Angeles County Superior (trial) Court entitled, *California Oak Foundation v. City of Santa Clarita* (2003). The trial court found in favor of the City in all respects and upheld certification of the EIR. The trial court decision was appealed.

In *California Oak Foundation v. City of Santa Clarita*, 133 Cal.App. 4th 1219 (2005), the case challenging the adequacy of the EIR for the project at issue in this Water Analysis, the Court of Appeal directed the trial court to issue a writ of mandate vacating the certification of the EIR because the City's discussion of water supplies was defective. Specifically, the Court found that the EIR did not adequately address uncertainties relating to Castaic's entitlement to 41,000 acre-feet per year (afy) of imported water purchased under the Monterey Agreement. *Id*. at 1236-41. The Court did not find other defects in the EIR. This Additional Analysis analyzes the availability of the 41,000 afy, including any related uncertainties, and addresses the Court's concerns in the original EIR. It completely replaces the water analysis presented in the City's prior EIR. The remainder of the City's prior EIR is considered adequate and is, therefore, not the subject of this Additional Analysis. Given that scope of this document is limited to the water issues cited by the Court, when commenting on this document, please limit comments to the information contained in this Draft Additional Analysis. A copy of the prior EIR is available at the City of Santa Clarita Planning Division, 23920 Valencia Boulevard, Suite 300, Santa Clarita, California 91355.

This Additional Analysis contains the following sections in addition to this **Introduction** (**Section 1.0**):

2.0 Summary,

3.0 Water Service,

4.0 List of Document Preparers and Organizations and Persons Contacted

5.0 References, and

Appendices

The following document is attached as an appendix: (1) Peremptory Writ of Mandate issued by the Los Angeles County Superior Court (**Appendix 1.0**). Additional information relevant to the analysis of water supply impacts is also attached as appendix material.

2.0 SUMMARY

The proposed Gate-King project would generate a total water demand of 386 acre-feet per year (afy)[1], which would be met by the Newhall County Water District (NCWD) through its access to local groundwater and water available through the Castaic Lake Water Agency (CLWA) and the Department of Water Resources' (DWR's) State Water Project (SWP).

As indicated in the *SB 610 Water Supply Assessment for the Gate-King Project (WSA)* and summarized below, an adequate supply of water is available to meet the demands of the Gate-King project in addition to existing and planned future uses in the Santa Clarita Valley. The supply available to meet the project's demand is the NCWD's supplies from local groundwater and the SWP.

Supplying water to the Gate-King project also would not substantially deplete groundwater supplies, because the previous discussion in this Additional Analysis of available local groundwater supplies confirms that there are sufficient local groundwater supplies to support the planned land uses of the Gate-King project site, in addition to existing and future cumulative development in the valley. As stated above, the use of local groundwater supplies to serve the Gate-King project, in conjunction with other existing and future cumulative development, would not cause any adverse effects to the Basin. The supplying of water to the Gate-King project also would not interfere substantially with groundwater recharge, because the best available evidence shows that no adverse impacts to the recharge of the Basin have occurred due to the existing or projected use of local groundwater supplies, consistent with the CLWA/purveyor groundwater operating plan for the Basin.

The detection of perchlorate in local groundwater supplies has raised concerns over the reliability of those supplies, in particular the Saugus Formation, where four wells have been removed from active service as a result of perchlorate. As discussed in both this Additional Analysis and the *2005 UWMP*, Chapter 5 and Appendix D, planning for remediation of the perchlorate and restoration of the impacted well capacity is substantially underway. While that work is being completed, non-impacted production facilities can be relied upon for the quantities of water projected to be available from the Alluvial aquifer and Saugus Formation during the time necessary to restore perchlorate-impacted wells. CLWA, the local retail water purveyors, the Department of Toxic Substance Control, and the U.S. Army Corps of Engineers continue to work closely on the perchlorate contamination issue. A more detailed discussion of pertinent events related to perchlorate contamination, containment, remediation, and water supply restoration is included in the *2005 UWMP*, Appendix D. This discussion is provided to illustrate that

[1] An acre-foot represents 43,560 cubic feet, or 325,850 gallons, of water. An acre-foot of water has been generally defined as "an irrigation-based measurement equaling the quantity of water required to cover an acre of land to a depth of one foot." See, *Brydon v. East Bay Mun. Utility Dist.* (1994) 24 Cal.App.4th 178, 182, fn. 1.

work toward the ultimate remediation of the perchlorate contamination, including the reactivation of impacted groundwater supply wells, has progressed on several integrated fronts over the last five years and is not expected to impede ongoing reliance on the Saugus aquifer as a source of water for the valley.

(A) Existing Supplies and Demand

Table 3.0-15, Existing Plus Project Demand and Supply for the Santa Clarita Valley, illustrates that existing (2005) supplies exceed project demand, in conjunction with existing demand in the Santa Clarita Valley, by approximately 42,674 af.

(B) Cumulative Supplies and Demand

(1) SB 610 Water Demand and Supply Scenario

In the WSA, NCWD concludes there will be a sufficient water supply available at the time the Gate-King project is ready for occupancy to meet the needs of the project in addition to existing and other planned future uses. An adequate supply of water is available in future average, single dry, and multiple dry years, as indicated below and in Additional Analysis **Section 3.0**.

Average Year Water Assessment. The *2005 UWMP* indicates that no shortages are anticipated within the CLWA service area in an average water year through 2030 if planned water supply programs are developed as estimated. Total projected water demands for the CLWA through the year 2030 are compared with the supplies projected to be available to meet demands in this analysis. As shown in **Table 3.0-16, Long-Term Projection Average/Normal Water Year Water Supply and Demand Assessment**, expected supplies would exceed expected demand by 17,001 acre-feet (af) in 2005, by 34,850 af in 2010, by 29,950 af in 2020, and by 22,300 af in 2030.

Single Dry-Year Water Assessment. The *2005 UWMP* evaluated the estimated dry-year demands and projected supplies for the year 2010 for the purpose of assessing a single dry year. If projected imported and local supplies are developed as indicated, no shortages are anticipated within the Agency's service area for the extreme-case single dry-year scenario analyzed. As shown in **Table 3.0-17, Long-Term Projection Single Dry Year and Multiple Dry Year**, Water Supply and Demand Assessment water supplies exceed demand by 16,460 af in the single dry year (2010). It should be noted that dry-year supplies available above demand reflect water supplies that would be called upon by purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand.

Multiple Dry-Year Water Assessment. The *2005 UWMP* estimated the minimum water supply available during each of the three water years, 2018, 2019, and 2020. The surface and groundwater supplies included in this analysis are reflective of supplies available during the 1987–1992 drought years and, in particular, 1990, 1991, and 1992. If projected imported and local supplies are developed as indicated, no shortages are anticipated within the CLWA service area in the dry-year scenarios analyzed. Years 1, 2, and 3 in **Table 3.0-16** represent demand projections for 2018 through 2020. As shown, water supplies would exceed demand by 21,690 to 33,670 af in multiple dry years. Again, it should be noted that dry-year supplies available above demand reflect water supplies that would be called upon by purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand.

(2) DMS Build-Out Scenario

The DMS Build-Out Scenario entails existing development, buildout of the near-term subdivision projects listed in Los Angeles County's DMS, plus the project. **Table 3.0-18, Scenario 1: DMS Build-Out Scenario Demand and Supply for the Santa Clarita Valley**, presented in **Section 3.0**, illustrates both the cumulative water demand (existing plus DMS) and supply for the Santa Clarita Valley. This cumulative water demand is compared to the near-term projected Santa Clarita Valley water supplies and the additional Newhall Ranch Specific Plan water supplies. As shown, there is an adequate supply of water expected in both average years and dry years, and no cumulative water supply impacts would occur. In fact, the table shows that water supplies exceed demand for the DMS development scenario by 38,031 to 39,631 af in average years and by 22,024 to 22,474 af in dry years. However, it should be noted that dry-year supplies available above demand reflect water supplies that would be available to purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand.

(3) Santa Clarita Valley Build-Out Scenario

The Santa Clarita Valley 2025 Build-Out Scenario entails buildout of lands under the current land-use designations indicated in the County's Areawide Plan and the City of Santa Clarita's General Plan by the year 2025, plus the proposed Gate-King project, plus all known active pending General Plan Amendment requests for additional urban development in the County unincorporated area and the City of Santa Clarita.

Table 3.0-19, Scenario 2: Santa Clarita Valley 2030 Build-Out Scenario Water Supplies, and **Table 3.0-20, Scenario 2: Santa Clarita Valley 2030 Build-Out Scenario Water Demand and Supply**, presented in **Section 3.0**, summarize the cumulative water demand and supply for this build-out scenario. As shown,

the Gate-King project is not expected to create any significant cumulative water availability impacts in either average or dry years. In addition, under the buildout scenario, there are adequate water supplies for the project, with no significant cumulative water supply impacts occurring in either average or dry years. In fact, the two tables show that year 2030 water supplies exceed demand under this scenario in average years by 22,630 af and in dry years by 7,380–20,470 af.

Based on this project-level environmental analysis and the WSA prepared by the NCWD, an adequate supply of water is available to serve the Gate-King project, in addition to existing and planned future uses in the Santa Clarita Valley. No significant water supply or water quality impacts are expected from supplying available water to meet the demands of both the project and cumulative development in the valley.

3.0 WATER SERVICE

1. SUMMARY

The proposed Gate-King project would generate a total water demand of 386 acre-feet per year (afy),[1] *which would be met by the Newhall County Water District (NCWD) through its access to local groundwater and water available through the Castaic Lake Water Agency (CLWA) and the Department of Water Resources' (DWR's) State Water Project (SWP).*

Based on this project-level environmental analysis and the Water Supply Assessment (WSA) prepared by the NCWD, an adequate supply of water is available to serve the Gate-King project, in addition to existing and planned future uses in the Santa Clarita Valley. No significant water supply or water quality impacts are expected from supplying available water to meet the demands of both the project and cumulative development in the valley.

2. INTRODUCTION

On November 2, 2005, the 2nd District of the State Court of Appeal reversed a prior superior court ruling and found that the water analysis prepared as part of the City of Santa Clarita's environmental impact report (EIR) for the Gate-King project was inadequate, and that a new water analysis is required. It found that in all other respects, the EIR was free from defects. This Additional Analysis serves as the new water analysis required by the court and completely replaces the prior analysis presented in the City's prior EIR. A copy of the prior EIR is available at the City of Santa Clarita Planning Division, 23920 Valencia Boulevard, Suite 300, Santa Clarita, California 91355. This Additional Analysis addresses topics including:

- CLWA's purchase of 41,000 afy of Table A Amount, the effect of litigation relating to this purchase, and its effect on water supplies available to the proposed project;
- the 2005 Urban Water Management Plan adopted by CLWA in December 2005 and the availability of water supplies for the proposed project;
- the effect of ammonium perchlorate contamination in local groundwater on the availability of water supplies for the proposed project; and
- the reliability of water supplies delivered to the Santa Clarita Valley through the State Water Project system.

1 An acre-foot represents 43,560 cubic feet, or 325,850 gallons, of water. An acre-foot of water has been generally defined as "an irrigation-based measurement equaling the quantity of water required to cover an acre of land to a depth of one foot." See, *Brydon v. East Bay Mun. Utility Dist.* (1994) 24 Cal.App.4th 178, 182, fn. 1.

3. EXISTING CONDITIONS

Water supply and demand in the Santa Clarita Valley is affected by existing conditions, including local climatic conditions, demographics in the region, existing topography and regional area geology and hydrology, surface water flows, effects of drought cycles both locally and regionally, and effects of urbanization in the valley. These existing conditions are more thoroughly addressed in the following documents:

(a) Water Supply Contract Between the State of California Department of Water Resources and CLWA, 1963 (plus amendments, including the "Monterey Amendment," 1995, and Amendment No. 18, 1999, the transfer of 41,000 acre-feet from Kern County Water Agency to CLWA)[2] (**Appendix 3.0-1**);

(b) Water Management Program, Valencia Water Company, 2001(**Appendix 3.0-2**);

(c) 2002 Semitropic Groundwater Storage Program and Point of Delivery Agreement Among the Department of Water Resources of the State of California, CLWA and Kern County Water Agency (**Appendix 3.0-3**);[3]

(d) 2002 Recycled Water Master Plan prepared by Kennedy/Jenks Consultants for CLWA (**Appendix 3.0-4**);

(e) 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002 (*2002 Slade Report*) (**Appendix 3.0-5**);

(g) California's Groundwater Bulletin 118, Santa Clara River Groundwater Basin, Santa Clara River Valley East Subbasin (*2003 Update*) (**Appendix 3.0-6**);

(h) CLWA Capital Improvement Program, prepared by Kennedy/Jenks Consultants, 2003 (**Appendix 3.0-7**);

(j) Groundwater Management Plan, Santa Clara River Valley Groundwater Basin, East Subbasin, prepared by Luhdorff & Scalmanini Consulting Engineers, December 2003 (**Appendix 3.0-8**);

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2 CLWA's contract rights to SWP water total 95,200 afy, including a water transfer of 41,000 afy approved in 1999 from Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's EIR prepared in connection with the 41,000 afy water transfer was challenged in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles Superior Court, Case No. PC018110). On appeal, the Court of Appeal, Second District, held that since the 41,000 afy EIR tiered off the Monterey Agreement EIR that was later decertified, CLWA would also have to decertify its EIR as well and prepare a new EIR (*Friends v. Castaic Lake Water Agency* (2002) 95 Cal. App 4th 1373). CLWA has not been enjoined from using any water that is part of the 41,000-afy transfer. CLWA has since prepared and circulated a new draft EIR for the transfer. The public comment period ended for the draft EIR and two separate hearings were held by CLWA to receive and consider public comments. CLWA approved and certified the new EIR on December 22, 2004. Two challenges to the new EIR were filed on January 24, 2005, in the Ventura County Superior Court (*Planning and Conservation League v. CLWA* and *California Water Impact Network v. CLWA*). These challenges are pending. The new certified EIR must be presumed to be adequate unless affected by a future judgment or order of the court.

3 Due to availability of SWP water during 2002, CLWA entered into a groundwater banking agreement in 2002. Pursuant to that agreement, 24,000 acre-feet of SWP water, contracted by CLWA, was stored within the Semitropic Groundwater Storage Program in Kern County so that CLWA may withdraw the water in future years of shortage. The Negative Declaration prepared by CLWA was challenged in *California Water Network v. Castaic Lake Water Agency* (Ventura County Superior Court Case No. CIV 215327). The trial court upheld the adequacy of the Negative Declaration. That case is presently on appeal in the Second District Court of Appeal, Sixth Division, Case No. B177978.

(k) 2004 Santa Clarita Valley Water Report, May 2005 (*2004 Water Report*) (**Appendix 3.0-9**);

(l) Regional Groundwater Flow Model for the Santa Clarita Valley: Model Development and Calibration, prepared by CH2MHill, April 2004 (**Appendix 3.0-10**);

(m) Environmental Impact Report – Supplemental Water Project Transfer of 41,000 Acre-Feet of State Water Project Table A Amount (SCH No. 1998041127), prepared by Science Applications International Corporation for CLWA, December 2004 (**Appendix 3.0-11**);

(n) Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California, prepared by CH2MHill, December 2004 (**Appendix 3.0-12**);

(o) Analysis of Near-Term Groundwater Capture Areas for Production Wells Located Near the Whittaker-Bermite Property (Santa Clarita, California), prepared by CH2MHill, December 21, 2004 (**Appendix 3.0-13**);

(p) 2005 Urban Water Management Plan (*2005 UWMP*) (**Appendix 3.0-14**);

(q) Impact and Response to Perchlorate Contamination, Valencia Water Company Well Q2, prepared by Luhdorff & Scalmanini Consulting Engineers, April 2005 (*Q2 Report*) (**Appendix 3.0-15**);

(r) Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California, August 2005 (*2005 Basin Yield Report*) (**Appendix 3.0-16**);

(s) The State Water Project Delivery Reliability Report, prepared by the California Department of Water Resources, December 2005 (**Appendix 3.0-17**); and

(t) Interim Remedial Action Plan, prepared by Kennedy/Jenks Consultants, December 2005 (*IRAP*) (**Appendix 3.0-18**).

Taken together, these documents show that an adequate amount of local and state water exists to serve the proposed project, that the groundwater basin is not in a state of overdraft, and that the quality of drinking water in the Santa Clarita Valley meets all requirements for consumption. Because local existing conditions affect water supply and demand in the valley, including the Gate-King project site and surrounding areas, please refer to the above-referenced documents for pertinent water supply assessment information.

4. WATER AGENCIES OF THE SANTA CLARITA VALLEY

CLWA is the wholesale public water agency with a service area of 195 square miles in Los Angeles and Ventura counties. CLWA's Santa Clarita Water Division (SCWD) is one of four retail water purveyors in the Santa Clarita Valley. The other three retail purveyors are Los Angeles County Waterworks District #36, NCWD, and Valencia Water Company (VWC).

A. Castaic Lake Water Agency

CLWA was formed in 1962 through passage of the "Castaic Lake Water Agency Law."[4] At that time, CLWA's purpose was contracting with the California DWR to provide a supplemental supply of imported water from the SWP to the water purveyors in the Santa Clarita Valley. Since 1962, CLWA's purpose has been broadened to include: (a) acquisition of water from the state; (b) distribution of such water wholesale through a transmission system to be acquired or constructed by CLWA; (c) reclamation (recycling) of water; (d) selling of water at retail within certain boundaries; and (e) exercise of other related powers.

CLWA's service area in Los Angeles and Ventura counties extends to most of the incorporated cities within the geographic boundaries of Los Angeles County, and to a small portion of eastern Ventura County. **Figure 3.0-1** depicts CLWA's service area. As the public agency water wholesaler, CLWA provides about half of the potable water used by Santa Clarita Valley households and businesses. CLWA operates two potable water treatment plants, storage facilities and over 17 miles of transmission pipelines. CLWA supplies water from the SWP operated by DWR. This water supplements local groundwater supplies from the Santa Clara River Valley groundwater basin (east subbasin), and it is treated and delivered to the four local retail purveyors in Santa Clarita Valley. CLWA also delivers recycled water from one of two existing water reclamation plants in the Santa Clarita Valley owned and operated by the Sanitation Districts of Los Angeles County. The recycled water is used to meet a portion of the non-potable water demand (golf courses, landscape irrigation, etc.) in the valley.

CLWA is one of 29 SWP contractors with long-term water supply contracts with DWR.[5] CLWA's current water supply contract with DWR is for an annual contractual Table A Amount of 95,200 af. Table A Amount (formerly referred to as "entitlement") is named for the Table A in each SWP contractor's water supply contract. It contains an annual buildup in Table A Amounts of SWP water, from the first year of the water supply contract through a specific year, based on growth projections made before the water supply contract was executed. For most SWP contractors, the maximum annual Table A Amount was reached in 1990. The total of all SWP contractors' maximum Table A Amounts is currently about 4.17 million af.

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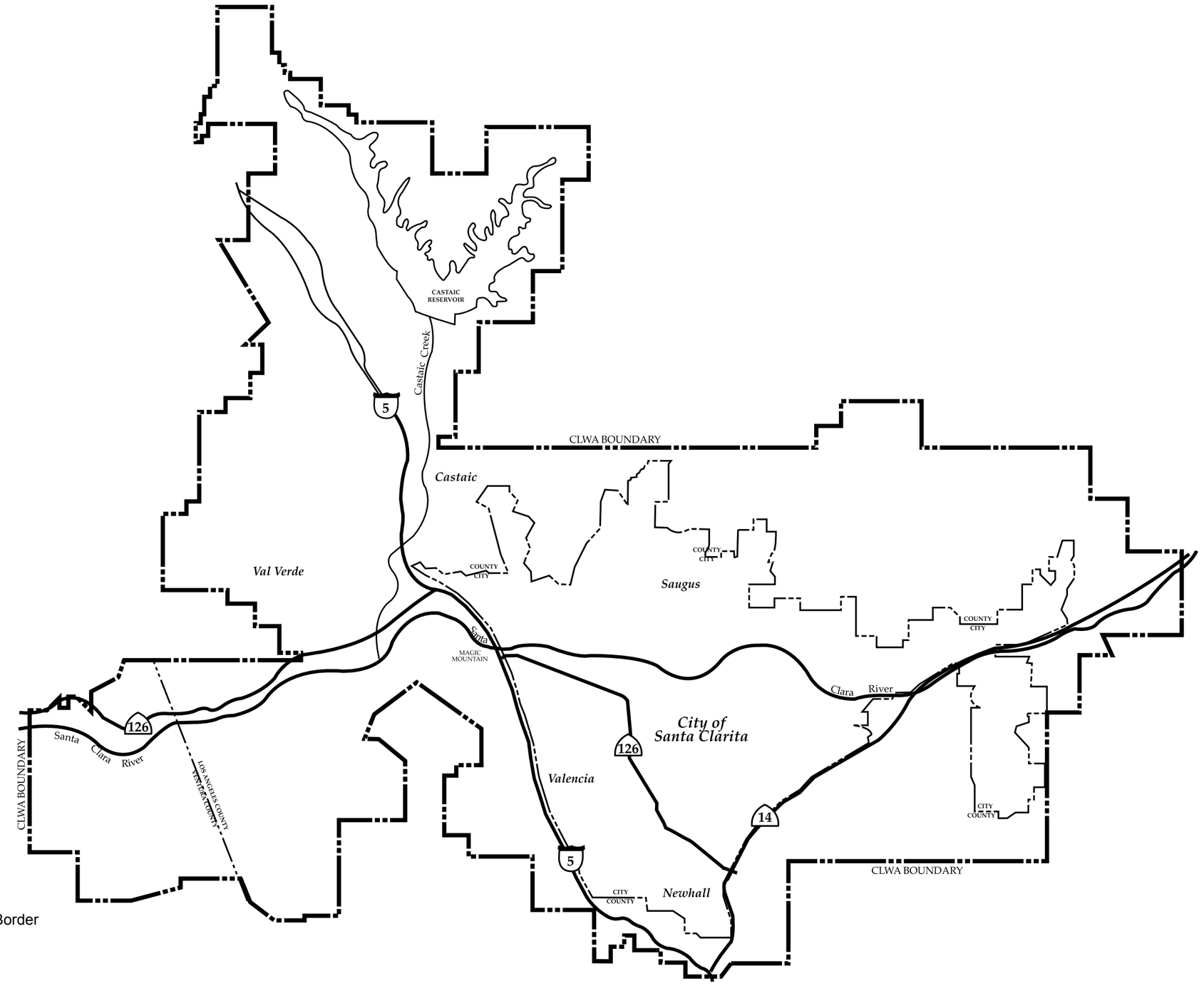
4 See, California Water Code Appendix, Section 103-1, 103-15.

5 The water supply contract, as amended, between CLWA and DWR is found in **Appendix 3.0-1** of this EIR.



SOURCE: PSOMAS and Associates – January 1999, Impact Sciences, Inc. – March 2006

FIGURE **3.0-1**

CLWA Service Area

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CLWA's original SWP water supply contract with DWR was amended in 1966 for a maximum annual Table A Amount of 41,500 af. In 1991, CLWA purchased 12,700 af of annual Table A Amount from a Kern County water district and in 1999 purchased 41,000 af of annual Table A Amount from another Kern County water district, for a current total annual Table A Amount of 95,200 af.[6] CLWA treats and then wholesales this imported water to the four local retail water purveyors through an extensive transmission pipeline system.

The reliability of SWP water is variable due to weather-related issues and environmental factors. This variability affects and may reduce the amount of water actually available for delivery in any given year. However, SWP water remains an important supplemental water supply source for the Santa Clarita Valley. An important element to enhancing the long-term water supply reliability of SWP supplies is the effective use of water banking/conjunctive-use programs, such as those described in the 2004 Water Report and the 2005 UWMP.[7]

B. Retail Water Purveyors

Four retail water purveyors provide water service to most residents of the Santa Clarita Valley. A description of the service areas of the local retail purveyors is provided below.

The Los Angeles County Waterworks District #36 service area encompasses approximately 7,635 acres and includes the Hasley Canyon area and the unincorporated community of Val Verde. The District obtains its water supply from CLWA and from local groundwater.

The Valencia Water Company (VWC) service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Newhall Ranch, Castaic, Stevenson Ranch, and Valencia. The VWC supplies water from local groundwater and recycled water and CLWA imported water.

CLWA Santa Clarita Water Division (SCWD) service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Canyon Country, Newhall, and Saugus. SCWD supplies water from local groundwater and CLWA-imported water.

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6 CLWA's EIR prepared in connection with the 41,000 afy water transfer was challenged in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles County Superior Court, Case No. BS056954) ("*Friends*"). That action was dismissed with prejudice (permanently) in February 2005. Separate legal challenges to CLWA's new EIR were filed in January 2005 (i.e., *Planning and Conservation League v. Castaic Lake Water Agency*, Los Angeles County Superior Court Case No. BS098724). A more detailed discussion of these new legal challenges and the reasons the challenges will have no impact on the amount of water available to CLWA is found in a later section of this EIR.

7 For a discussion of these water banking/conjunctive use programs, please refer to 2005 UWMP, Sections 3.4 and 3.5, at pp. 3-20 through 3-25 (**Appendix 3.0-14**).

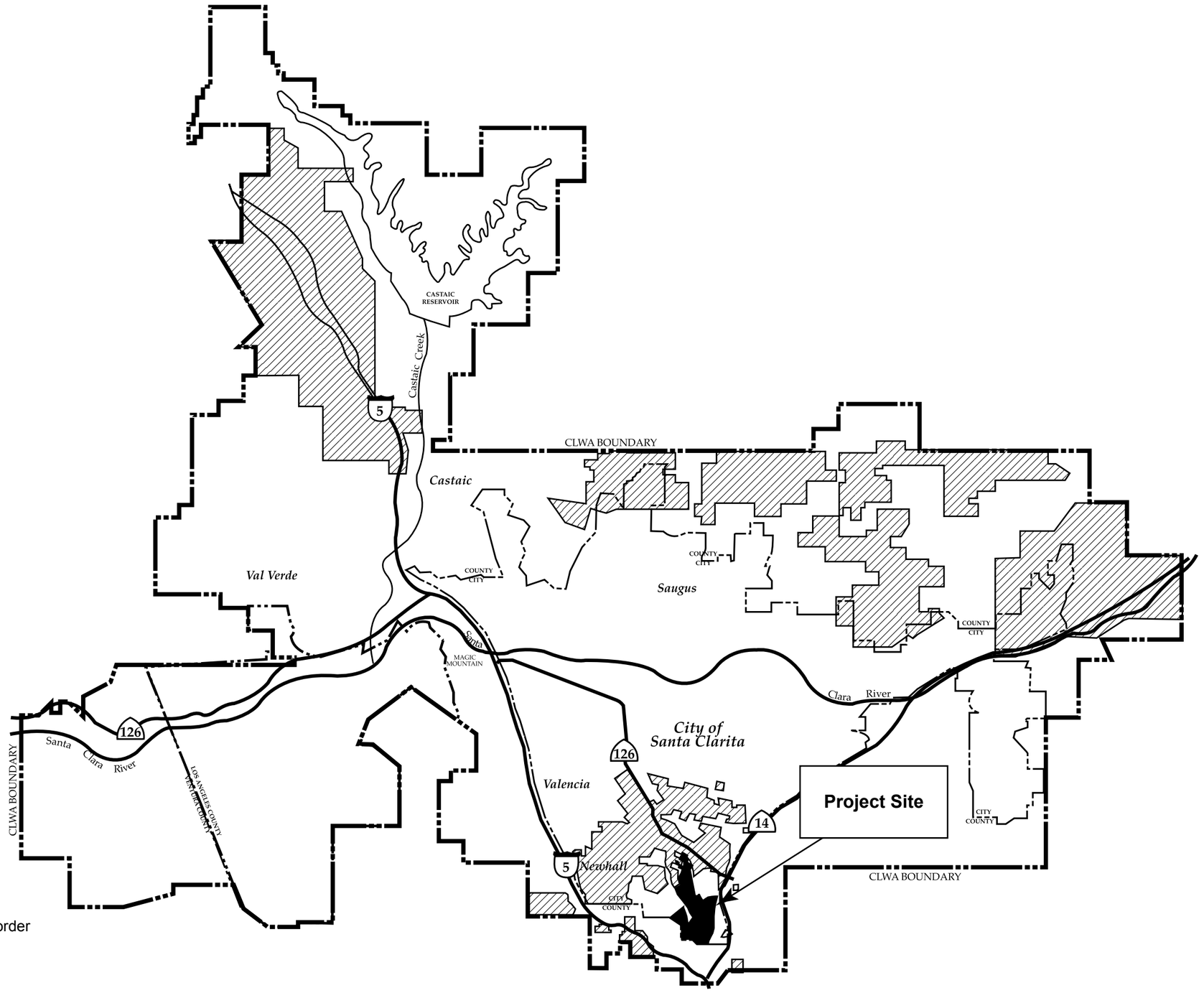
The Newhall County Water District (NCWD) service area includes a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Newhall, Canyon Country, Saugus, and Castaic. NCWD supplies water from local groundwater and CLWA imported water. The NCWD service area currently includes a portion of the Gate-King project site, and the remainder would require annexation. **Figure 3.0-2** illustrates the CLWA and NCWD service area, which includes the Gate-King project site.

As of 2005, the retail water purveyors served approximately 65,800 connections in the Santa Clarita Valley. The specific breakdown by purveyor is provided in **Table 3.0-1**, below.

Table 3.0-1
Retail Water Service Connections

Retail Water Purveyor	Connections
CLWA Santa Clarita Water Division (SCWD)	26,979
Los Angeles County Waterworks District #36	1,320
Newhall County Water District (NCWD)	9,204
Valencia Water Company	28,615
Total	**66,118**

Source: Valencia Water Company, January 2006.



SOURCE: PSOMAS and Associates – January 1999, Impact Sciences, Inc. – March 2006

FIGURE **3.0-2**

Newhall County Water District Service Area

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5. SANTA CLARITA VALLEY WATER SUPPLIES – HISTORIC AND EXISTING USES

A. Groundwater Supplies

This section focuses on the available local groundwater supplies in the Santa Clarita Valley, including a summary of the adopted Groundwater Management Plan for the local basin.[8]

(1) Santa Clara River Valley Groundwater Basin - East Subbasin

The sole source of local groundwater for urban water supply in Santa Clarita Valley is the groundwater basin identified in DWR Bulletin 118 (2003 Update) as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin). The Basin is comprised of two aquifer systems: the Alluvium and the Saugus Formation. The Alluvium generally underlies the Santa Clara River and its several tributaries, and the Saugus Formation underlies practically the entire Upper Santa Clara River area. There are also some scattered outcrops of terrace deposits in the Basin that likely contain limited amounts of groundwater. Since these deposits are located in limited areas situated at elevations above the regional water table and are also of limited thickness, they are of no practical significance as aquifers and, consequently, have not been developed for any significant water supply. **Figure 3.0-3** illustrates the mapped extent of the Santa Clara River Valley East Subbasin, which approximately coincides with the outer extent of the Alluvium and Saugus Formation. The CLWA service area and the location of the two existing water reclamation plants in the valley also are shown in **Figure 3.0-3**.

(2) Adopted Groundwater Management Plan

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

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8 The *2004 Water Report* (**Appendix 3.0-9**) and *2005 UWMP* (**Appendix 3.0-14**) contain useful local and regional water demand, supply, and reliability planning information, particularly in the context of the perchlorate contamination detected in municipal supply wells in the local groundwater basin. In addition, the *2005 Basin Yield Report* confirms that the CLWA/purveyor groundwater operating plan for the local groundwater basin in Santa Clarita Valley will not cause detrimental short- or long-term effects to the groundwater and surface water resources in the valley and, therefore, the local groundwater basin is sustainable. NCWD's WSA also provides useful information to the City of Santa Clarita for its consideration in making a determination on whether there are sufficient water supplies available to serve the Gate-King project, in addition to existing and planned future uses in the Santa Clarita Valley. NCWD prepared the WSA for the Gate-King project, because it is the operation of the public water system that will provide water service to the proposed project. These documents (and other water-related appendix materials) were used as sources for this analysis.

CLWA's service area. The adopted plan encompasses the Basin, and it is sometimes referred to as the CLWA Groundwater Management Plan or GWMP.[9]

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

Prior to preparation and adoption of the GWMP, a local Memorandum of Understanding (MOU) process among CLWA, the purveyors, and United Water Conservation District (UWCD) in neighboring Ventura County had produced the beginning of local groundwater management, now embodied in the GWMP. In 2001, those agencies prepared and executed the MOU. The MOU is a collaborative and integrated approach to several of the aspects of water resource management included in the GWMP. UWCD manages surface water and groundwater resources in seven groundwater basins, all located in Ventura County, downstream of the Basin. UWCD is a partner in cooperative management efforts to accomplish the objectives (goals) of the Basin, particularly as they relate to preservation of surface water resources that flow through the respective basins. As a result of the MOU, the cooperating agencies have undertaken the following measures: (1) integrated their database management efforts; (2) developed and utilized a numerical groundwater flow model for analysis of groundwater basin yield and containment of groundwater contamination; and (3) continued to monitor and report on the status of Basin conditions, as well as on geologic and hydrologic aspects of the overall stream-aquifer system.

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

- Monitoring of groundwater levels, quality, production and subsidence;
- Monitoring and management of surface water flows and quality;
- Determination of Basin yield and avoidance of overdraft;
- Development of regular and dry-year emergency water supply;

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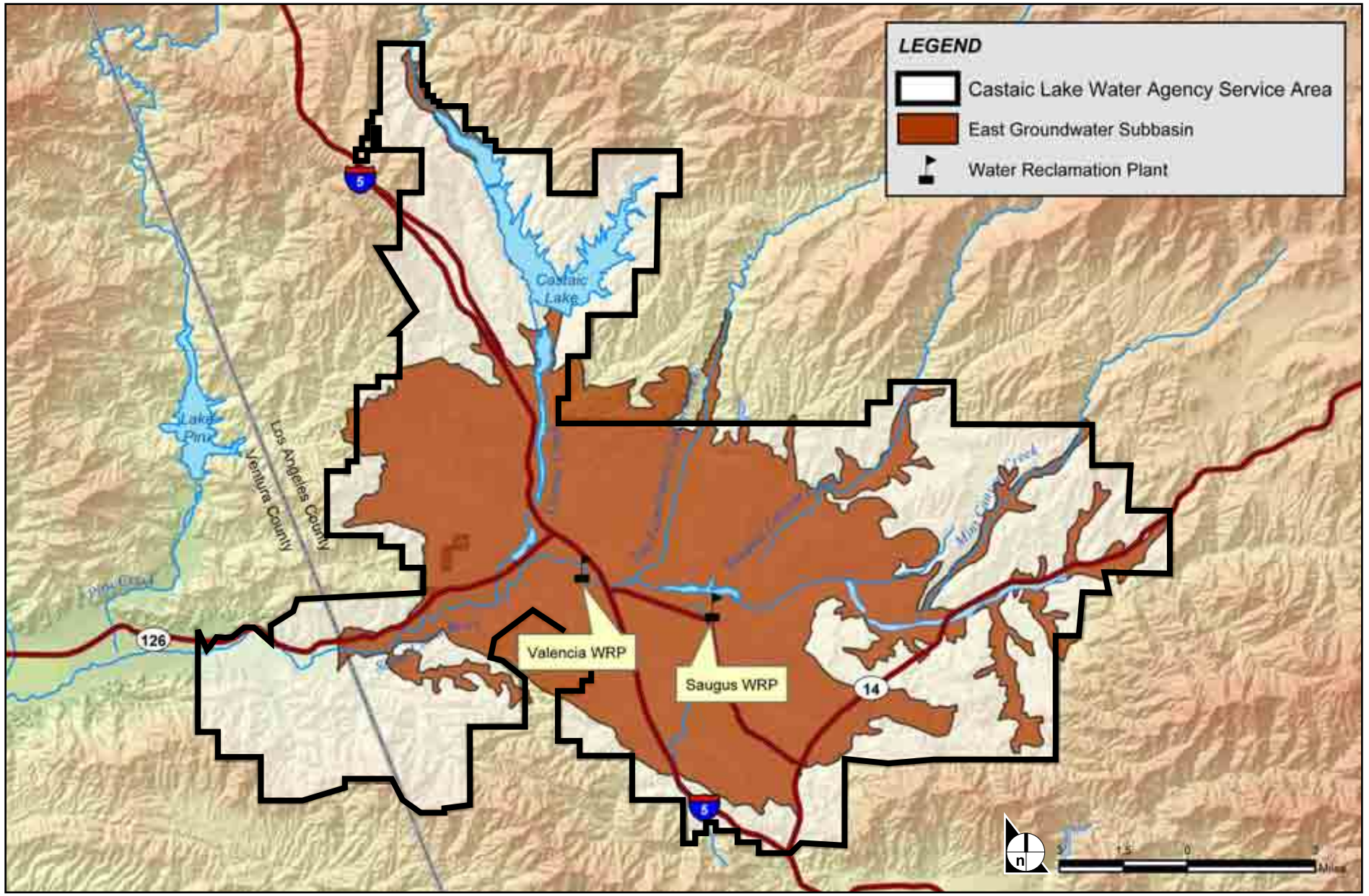
9 CLWA's Groundwater Management Plan, adopted December 10, 2003, is available for public review and inspection **in Appendix 3.0-8** of this EIR.



SOURCE: Luhdorff & Scalmanini Consulting Engineers – January 2006

FIGURE **3.0-3**

Santa Clara River Valley East Groundwater Basin – East Subbasin

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

Work on a number of the GWMP elements had been ongoing for some time prior to adoption of the GWMP. This work continues on an ongoing basis. The results of some of that work are reflected in Section 3.3, Groundwater, of the *2005 UWMP*, including Appendix C, Groundwater Resources and Yield in the Santa Clarita Valley, and Appendix D, Perchlorate Contamination and Impact on Groundwater Supplies in the Santa Clarita Valley. An important aspect of this work was completion of the 2005 Basin Yield Report (**Appendix 3.0-16**). The primary determinations made in that report are that: (1) both the Alluvial aquifer and the Saugus Formation are sustainable sources at the operational plan yields stated in the *2005 UWMP* over the next 25 years; (2) the yields are not overstated and will not deplete or "dry up" the groundwater basin; and (3) there is no need to reduce the yields shown in the *2005 UWMP*. Additionally, the Basin Yield Report concluded that neither the Alluvial aquifer nor the Saugus Formation is in an overdraft condition, or projected to become overdrafted.

(3) Available Groundwater Supplies

The groundwater component of overall water supply in the Santa Clarita Valley derives from a groundwater operating plan developed by CLWA and the local retail purveyors over the past 20 years to meet water requirements (municipal, agricultural, small domestic), while maintaining the Basin in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). This operating plan also addresses groundwater contamination issues in the Basin, all consistent with both the GWMP and the MOU described above. This operating plan is based on the concept that pumping can vary from year to year to allow increased groundwater use in dry periods and increased recharge during wet periods, and to collectively assure that the Basin is adequately replenished through various wet/dry cycles. Groundwater pumping can also be increased during dry periods when the amount of SWP water

is reduced. As described in the GWMP and the MOU, the operating yield concept has been quantified as ranges of annual pumping volumes.

The ongoing work of the MOU has produced two important reports. The first report, dated April 2004, documents the development and calibration of the groundwater flow model for the Santa Clarita Valley.[10] The second report, dated August 2005, presents the modeling analysis of the CLWA/retail water purveyor groundwater operating plan for the valley, and concludes that the plan will not cause detrimental short- or long-term effects to the groundwater and surface water resources in the valley, and, therefore, the plan is a reliable, sustainable component of water supply for the valley.[11] The analysis of sustainability for groundwater and interrelated surface water is described further in Appendix C to the *2005 UWMP* (see, **Appendix 3.0-14**).

The groundwater operating plan, summarized in **Table 3.0-2, Groundwater Operating Plan for the Santa Clarita Valley**, is further described below. The operating plan addresses both the Alluvium and Saugus Formation.

Alluvium – As stated in the 2004 Water Report and the *2005 UWMP*, the operating plan for the Alluvial aquifer involves pumping from the Alluvial aquifer in a given year, based on local hydrologic conditions in the eastern Santa Clara River watershed. Pumping ranges between 30,000 and 40,000 afy during normal/average and above-normal rainfall years. However, due to hydrogeologic constraints in the eastern part of the Basin, pumping is reduced to between 30,000 and 35,000 afy during locally dry years.

Saugus Formation – As stated in the 2004 Water Report and the *2005 UWMP*, pumping from the Saugus Formation in a given year is tied directly to the availability of other water supplies, particularly from the SWP. During average-year conditions within the SWP system, Saugus pumping ranges between 7,500 and 15,000 afy. Planned dry-year pumping from the Saugus Formation ranges between 15,000 and 25,000 afy during a drought year and can increase to between 21,000 and 25,000 afy if SWP deliveries are reduced for two consecutive years and between 21,000 and 35,000 afy if SWP deliveries are reduced for three consecutive years. Such pumping would be followed by periods of reduced (average-year) pumping, at rates between 7,500 and 15,000 afy, to further enhance the effectiveness of natural recharge processes that would recover water levels and groundwater storage volumes after the higher pumping during dry years.

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10 See, *Regional Groundwater Flow Model for the Santa Clarita Valley: Model Development and Calibration*, prepared for the Upper Basin Water Purveyors by CH2MHill, April 2004 (**Appendix 3.0-10**). This report was updated by CH2MHill in a report titled, *Calibration Update of the Regional Groundwater Flow Model for the Santa Clarita Valley, Santa Clarita, California*, August 2005. Copies of these two reports are available for public review and inspection in **Appendix 3.0-25** of this EIR.

11 See, *Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California*, prepared by CH2MHill in cooperation with Luhdorff & Scalmanini Consulting Engineers, August 2005. This report is available for public review and inspection in **Appendix 3.0-16** of this EIR.

Table 3.0-2
Groundwater Operating Plan for the Santa Clarita Valley

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

Source: 2004 Water Report (May 2005) and 2005 UWMP.

Three factors affect the availability of groundwater supplies under the groundwater operating plan. They are: (1) sufficient source capacity (wells and pumps); (2) sustainability of the groundwater resource to meet pumping demand on a renewable basis; and (3) protection of groundwater sources (wells) from known contamination, or provisions for treatment in the event of contamination. All three factors are discussed below, and are addressed in further detail in Chapter 5 and Appendices C and D to the *2005 UWMP* (see, **Appendix 3.0-14**).

For reference to the groundwater operating plan historical and projected groundwater pumping by retail water purveyor, please refer to **Table 3.0-3, Historical Groundwater Production by the Retail Water Purveyors**, and **Table 3.0-4, Projected Groundwater Production (Normal Year)**.

Table 3.0-3
Historical Groundwater Production by the Retail Water Purveyors

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

Notes:
(1) Pumping for municipal and industrial uses only. Does not include pumping for agricultural and miscellaneous uses.
Source: 2005 UWMP.

Table 3.0-4
Projected Groundwater Production (Normal Year)

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

Notes:
(1) The range of groundwater production capability for each purveyor varies based on a number of factors, including each purveyor's capacity to produce groundwater, the location of its wells within the Alluvium and Saugus Formation, local hydrology, availability of imported water supplies, and water demands.
(2) To ensure sustainability, the purveyors have committed that the annual use of groundwater pumped collectively in any given year will not exceed the purveyors' operating plan as described in the Basin Yield Study and reported annually in the Santa Clarita Valley Water Report. As noted in the discussion of the purveyors' operating plan for groundwater in Table 3-6 of the 2005 UWMP, the "normal" year quantities of groundwater pumped from the Alluvium and Saugus Formation are 30,000 to 40,000 afy and 7,500 to 15,000 afy, respectively.
(3) Groundwater pumping shown for purveyor municipal and industrial uses only.
Source: 2005 UWMP.

(a) Alluvial Aquifer

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

Adequacy of Supply. For municipal water supply, with existing wells and pumps, the three retail water purveyors with Alluvial wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells (not contaminated by perchlorate) of 36,120 gallons per minute (gpm), which translates into a current full-time Alluvial source capacity of approximately 58,000 afy.[12] Source capacity is the amount of water that can be physically produced (pumped) annually from the operational wells in the Santa Clarita

12 As stated, this figure includes the pumping capacity of Valencia Water Company's Well Q2, which was returned to active service as a result of the permitting and installation of wellhead treatment, which removes perchlorate pumped from the well to a non-detect level.

Valley. Alluvial pumping capacity from all the active municipal supply wells is summarized in **Table 3.0-5, Active Municipal Groundwater Source Capacity – Alluvial Aquifer Wells**. The locations of the various municipal Alluvial wells throughout the Basin are illustrated in **Figure 3.0-4**. These capacities do not include one Alluvial Aquifer well that has been inactivated due to perchlorate contamination (see discussion of **Water Quality** below), the SCWD Stadium well, which represents another 800 gpm of pumping capacity, or full-time source capacity of about 1,290 afy.

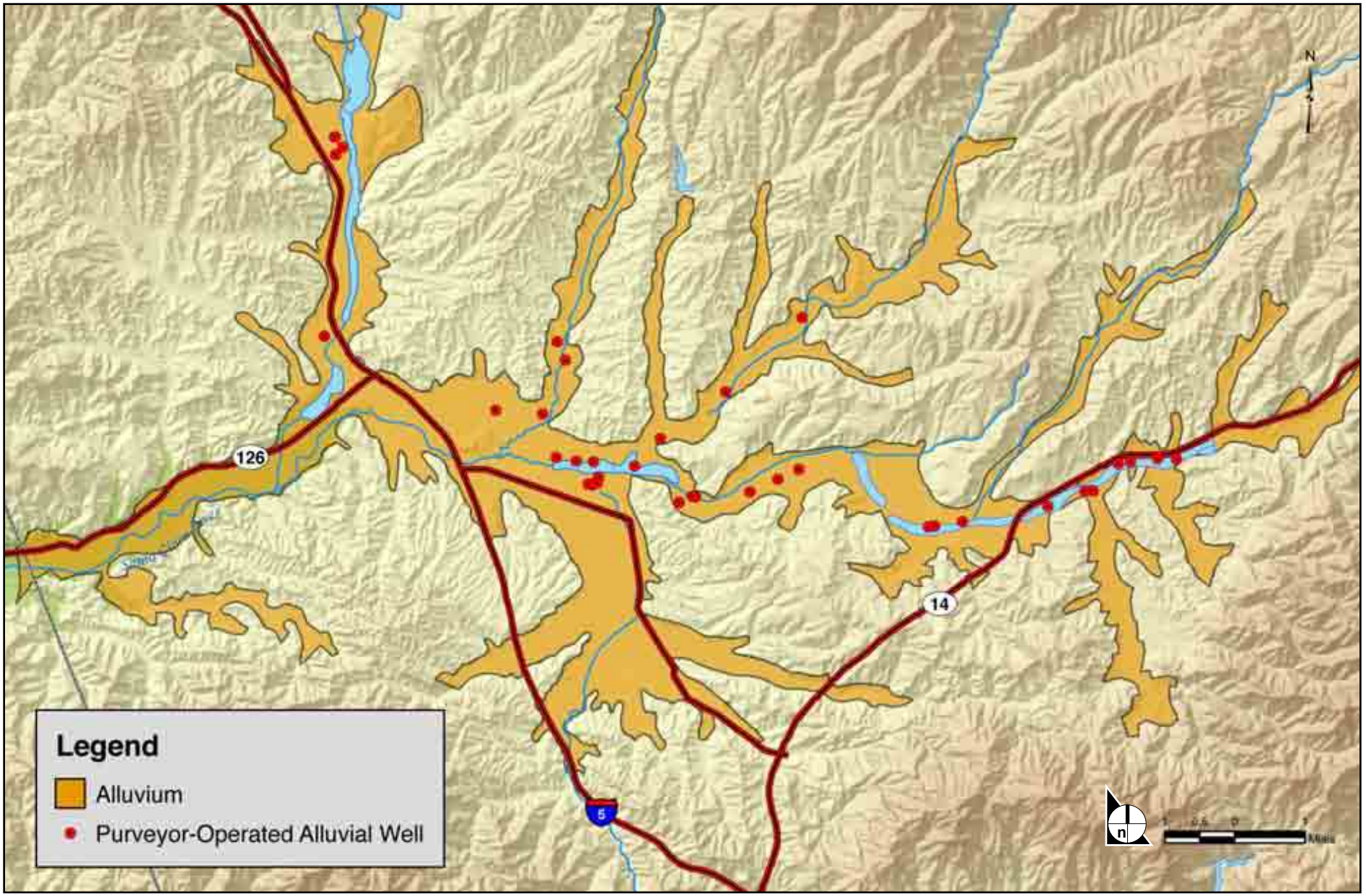
In terms of adequacy and availability, the combined active Alluvial groundwater source capacity of municipal wells is approximately 58,000 af annually. This is more than sufficient to meet the municipal, or urban, component of groundwater supply from the Alluvium, which is currently 20,000 to 25,000 afy of the total planned Alluvial pumping of 30,000 to 40,000 afy. (The balance of Alluvial pumping in the operating plan is for agricultural and other small, private pumping.) For additional information regarding the amount of groundwater that can be pumped from the Alluvium on a sustainable basis, see the **Sustainability** subsection below.

Sustainability. Until recently, the long-term renewability of Alluvial groundwater was empirically determined from approximately 60 years of recorded experience. This empirical data confirmed long-term stability in groundwater levels and storage, with some dry period fluctuations in the eastern part of the Basin, over a historical range of total Alluvial pumpage from as low as about 20,000 afy to as high as about 43,000 afy. These empirical observations have been complemented by the development and application of a numerical groundwater flow model, which has been used to predict aquifer response to the planned operating ranges of pumping. The numerical groundwater flow model also has been used to analyze the control of perchlorate contaminant migration under selected pumping conditions that would restore, with treatment, pumping capacity inactivated due to perchlorate contamination detected in some wells in the Basin. The latter use of the model is described in Chapter 5 of the *2005 UWMP*, which addresses the Saugus Formation and the overall approach to the perchlorate contamination found in four Saugus wells.

Table 3.0-5
Active Municipal Groundwater Source Capacity – Alluvial Aquifer Wells

Wells	Pump Capacity (gpm)	Max Annual Capacity (af)	Normal-Year Production[(1)] (af)	Dry-Year Production (af)
NCWD				
Castaic 1	600	960	385	345
Castaic 2	425	680	166	125
Castaic 4	270	430	100	45
Pinetree 1	300	480	164	N/A
Pinetree 3	550	880	545	525
Pinetree 4	500	800	300	N/A
NCWD Subtotal	2,645	4,230	16,606	1,040
SCWD				
Clark	600	960	782	700
Guida	1,000	1,610	1,320	1,230
Honby	950	1,530	696	870
Lost Canyon 2	850	1,370	741	640
Lost Canyon 2A	825	1,330	1,034	590
Mitchell 5B	700	1,120	557	N/A
N. Oaks Central	1,000	1,610	822	1,640
N. Oaks East	950	1,530	1,234	485
N. Oaks West	1,400	2,250	898	N/A
Sand Canyon	750	1,200	930	195
Sierra	1,500	2,410	846	N/A
SCWD Subtotal	10,525	16,920	9,860	6,350
Valencia Water Co.				
Well D	1,050	1,690	690	690
Well E-15	1,400	2,260	N/A	N/A
Well N	1,250	2,010	620	620
Well N7	2,500	4,030	1,160	1,160
Well N8	2,500	4,030	1,160	1,160
Well Q2	1,200	1,930	985	985
Well S6	2,000	3,220	865	865
Well S7	2,000	3,220	865	865
Well S8	2,000	3,220	865	865
Well T2	800	1,290	460	460
Well T4	700	1,120	460	460
Well U4	1,000	1,610	935	935
Well U6	1,250	2,010	825	825
Well W9	800	1,290	600	600
Well W10	1,500	2,410	865	865
Well W11	1,000	1,610	350	350
Valencia Subtotal	22,950	36,950	11,705	11,705
Total Purveyors	**36,120**	**58,100**[(2)]	**23,225**[(2)]	**19,095**[(2)]

Notes:
[(1)] Based on recent annual pumping.
[(2)] Currently active wells only; capacity will slightly increase by restoration of perchlorate-contaminated wells.
Source: Valencia Water Company.



SOURCE: Luhdorff & Scalmanini Consulting Engineers – January 2006

FIGURE **3.0-4**

Municipal Alluvial Well Locations; Santa Clara River Valley East Groundwater Subbasin

To examine the yield of the Alluvium, or the sustainability of the Alluvium on a renewable basis, the groundwater flow model was used to examine the long-term projected response of the aquifer to pumping for municipal and agricultural uses in the 30,000 to 40,000 afy range under average/normal and wet conditions, and in the 30,000 to 35,000 afy range under locally dry conditions. To examine the response of the entire aquifer system, the model also incorporated pumping from the Saugus Formation in accordance with the normal (7,500–15,000 afy) and dry-year (15,000–35,000 afy) operating plan for that aquifer. The model was run over a 78-year hydrologic period, which was selected from actual historical precipitation to examine a number of hydrologic conditions expected to affect both groundwater pumping and groundwater recharge. The selected 78-year simulation period was assembled from an assumed recurrence of 1980 to 2003 conditions, followed by an assumed recurrence of 1950 to 2003 conditions. The 78-year period was analyzed to define both local hydrologic conditions (normal and dry), which affect the rate of pumping from the Alluvium, and hydrologic conditions that affect SWP operations, which, in turn, affect the rate of pumping from the Saugus. The resultant simulated pumping cycles included the distribution of pumping for each of the existing Alluvial aquifer wells, for normal and dry years, respectively, as shown in **Table 3.0-5**.

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

Aquifer Protection. After addressing the issues of pumping capacity and long-term sustainability of the Alluvial aquifer, the remaining key consideration related to current and future use of the Alluvium is the impact of perchlorate contamination. As of this writing, perchlorate has been detected in two Alluvial municipal-supply wells in the basin; however, wellhead treatment has been permitted and installed at one of the two impacted wells, VWC's Well Q2. The treatment removes perchlorate pumped from the well to a non-detect level. As discussed in the *2005 UWMP*, Chapter 5 and Appendix D, there has been extensive investigation of the extent of perchlorate contamination which, in combination with the

groundwater modeling previously described, has led to the current plan for integrated control of contamination migration and restoration of impacted pumping (well) capacity in 2006.

In summary, the short-term response plan for the protection of other Alluvial wells, downgradient from the former Whittaker-Bermite site, is to promptly install wellhead treatment to ensure adequate water supplies. This plan complements the longer-term source control actions being undertaken by the Whittaker-Bermite property owner under supervision of the Department of Toxic Substances Control (DTSC) to address perchlorate contamination in the northern Alluvium (to the north of the former Whittaker-Bermite site), and the subsequent restoration of the one other perchlorate-contaminated Alluvial well (Stadium well). The long-term plan also includes the CLWA groundwater containment, treatment and restoration project to prevent further downstream migration of perchlorate, the treatment of water extracted as part of the containment process, and the recovery of lost local groundwater production from the Saugus Formation.[13]

(b) Saugus Formation

Based on historical operating experience and extensive recent testing and groundwater modeling analysis, the Saugus Formation can supply water on a long-term sustainable basis in a normal range of 7,500 to 15,000 afy, with intermittent increases to 25,000 to 35,000 af in dry years. The dry-year increases, based on limited historical observation and modeled projections, demonstrate that a small amount of the large groundwater storage in the Saugus Formation can be pumped over a relatively short (dry) period (i.e., 25,000 to 30,000 afy of pumping from the Formation is about 0.015 percent of the approximately 1.65-million-acre-feet of the Formation's estimated storage capacity[14]). This would be followed by recharge (replenishment) of that storage during a subsequent normal-to-wet period when pumping would be reduced.

Adequacy of Supply. For municipal water supply with existing wells, the three retail water purveyors with Saugus wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells (not contaminated by perchlorate) of 14,900 gpm, which translates into a full-time Saugus source capacity of 24,000 afy. Saugus pumping capacity from all the active municipal supply wells is summarized in **Table 3.0-6, Active Municipal Groundwater Source Capacity—Saugus Formation Wells**, and the locations of the various active municipal Saugus wells are illustrated in **Figure 3.0-5**. These capacities do not include

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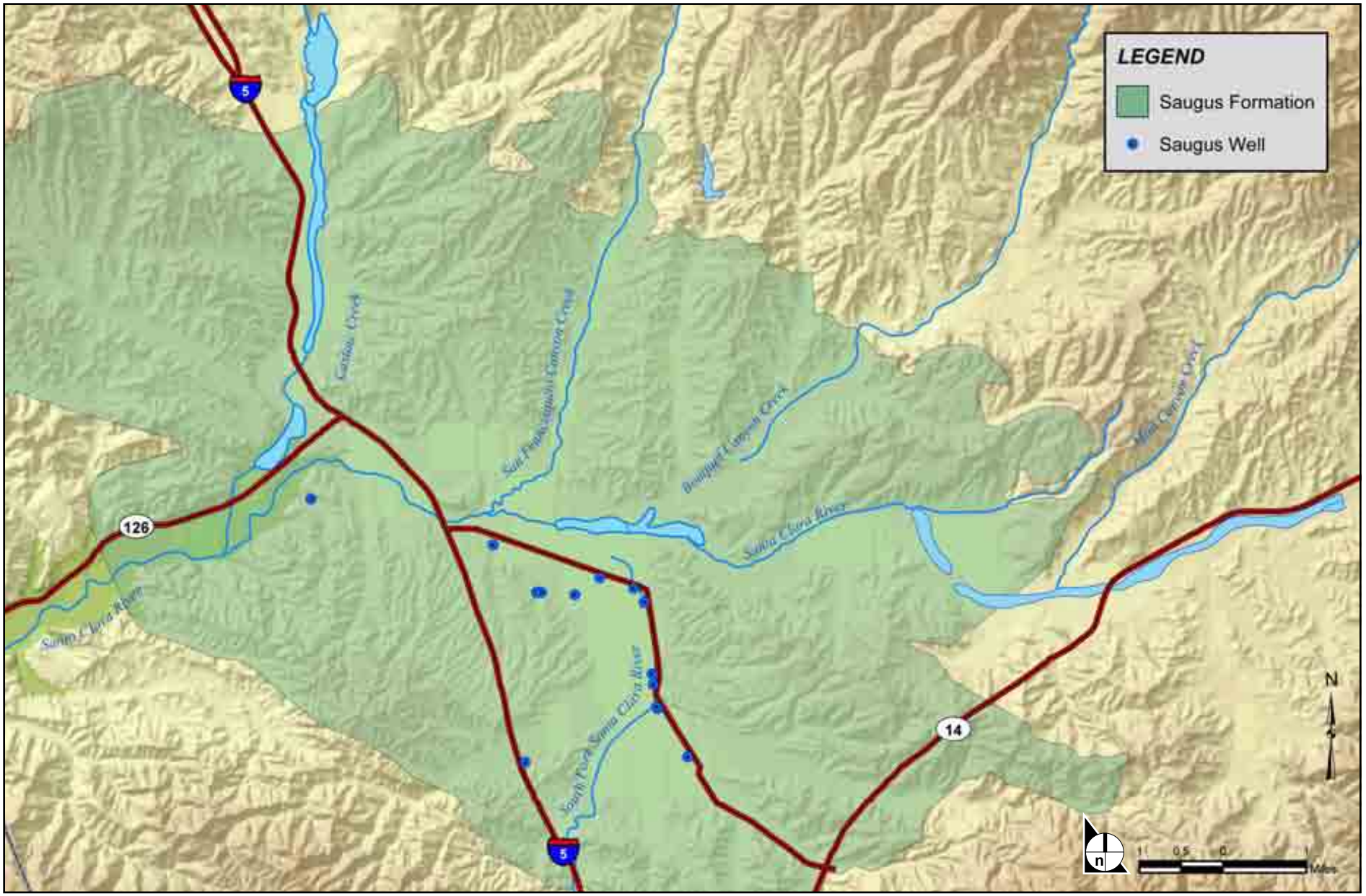
13 For further information regarding CLWA's groundwater containment, treatment and restoration project, please refer to Appendix E of the *2005 UWMP* (see, **Appendix 3.0-14**).

14 The storage capacity of the Saugus Formation has most recently been estimated to be 1.65 million acre-feet between depths of 300 feet and approximately 2,500 feet (to the base of the Saugus, or to the base of fresh water if shallower than 2,500 feet). See pp. 27 and 28 of the *2004 Santa Clarita Valley Water Report*, dated May 2005 (**Appendix 3.0-9**).



SOURCE: Luhdorff & Scalmanini Consulting Engineers – January 2006

FIGURE **3.0-5**

Saugus Well Locations; Santa Clara River Valley, East Groundwater Subbasin

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

Table 3.0-6
Active Municipal Groundwater Source Capacity—Saugus Formation Wells

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

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

In terms of adequacy and availability, the combined active Saugus groundwater source capacity of municipal wells of 24,000 afy is more than sufficient to meet the planned use of Saugus groundwater in normal years of 7,500 to 15,000 afy. During the currently scheduled two-year timeframe for restoration of impacted Saugus capacity (as discussed further in Chapter 5 of the *2005 UWMP*), this currently active capacity is more than sufficient to meet water demands, in combination with other sources, such as available SWP water, flexible storage account water, water presently stored in groundwater banks, etc., if both of the next two years are dry. At that time, the combination of currently active capacity and restored impacted capacity, through a combination of treatment at two of the impacted wells and replacement well construction, will provide sufficient total Saugus capacity to meet the planned use of Saugus groundwater during multiple dry-years of 35,000 af, if that third year is also a dry year.

Sustainability. Until recently, the long-term sustainability of Saugus groundwater was empirically determined from historical experience. The historical record shows fairly low annual pumping in most years, with one four-year period of increased pumping up to about 15,000 afy that produced no long-term

depletion of the substantial groundwater storage in the Saugus. Those empirical observations have now been complemented by the development and application of the numerical groundwater flow model, which has been used to examine aquifer response to the operating plan for pumping from both the Alluvium and the Saugus and also to examine the effectiveness of pumping for both contaminant extraction and control of contaminant migration within the Saugus Formation. The latter aspects of Saugus pumping are discussed in further detail in Chapter 5 of the *2005 UWMP* (see, **Appendix 3.0-14**).

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

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

Aquifer Protection. The remaining key consideration related to current and future use of the Saugus Formation is the impact of perchlorate contamination. The nature and extent of the contamination, and the plans to contain the migration of perchlorate and restore impacted Saugus well capacity are addressed in CLWA's groundwater containment, treatment and restoration project, as discussed in the *2005 UWMP*, Chapter 5 and Appendix E (**Appendix 3.0-14**). This project proposes to contain further downstream migration of perchlorate from the former Whittaker-Bermite site, treat water extracted as part of the containment process, and recover lost groundwater production from the impacted wells in the Saugus Formation.

(c) Impacted Alluvial and Saugus Wells

A small group of wells that have been impacted by perchlorate represent a temporary loss of well capacity within the CLWA service area. Of the six wells that were initially removed from active water supply service upon the detection of perchlorate, four wells with a combined flow rate of 7,200 gpm remain out of service, as discussed further in Chapter 5 of the *2005 UWMP* (**Appendix 3.0-14**). However, CLWA and the purveyors have developed an implementation plan that would restore this well capacity. The implementation plan includes a combination of treatment facilities and replacement wells.

Treatment facilities for several of the impacted wells will be operational in 2006 and the production restoration (replacement) wells will be operational by 2010. Additional information on the treatment technology and schedule for restoration of the impacted wells is provided in Chapter 5 of the *2005 UWMP*. Additional information concerning water quality issues and replacement capacity is also provided in Chapter 5 of the *2005 UWMP*.

B. Water Quality in the Alluvial Aquifer and Saugus Formation

(1) Overview

The groundwater quality of the Alluvial aquifer and the Saugus Formation consistently meets drinking water standards set by the U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Health Services (DHS). The water is delivered by the local retail purveyors in the CLWA service area for domestic use without treatment, although the water is disinfected by the retail purveyors prior to delivery. An annual Consumer Confidence Report is provided to all Santa Clarita Valley residents who receive water from the local retail water purveyors in the CLWA service area. In that report, there is detailed information about the results of the testing of groundwater quality and treated SWP water supplied to the residents of the Santa Clarita Valley. Water quality regulations are constantly changing as contaminants that are typically not found in drinking water are discovered and new standards are adopted. In addition, existing water quality standards are becoming more stringent in terms of allowable levels in drinking water.

(2) Groundwater Quality – Alluvium

Groundwater quality is a key factor in assessing the Alluvial aquifer as a municipal and agricultural water supply. In terms of the aquifer system, there is no convenient long-term record of water quality, (i.e., water quality data in one or more single wells that spans several decades and continues to the present). Thus, in order to examine a long-term record of water quality in the Alluvium, individual records have been integrated from several wells completed in the same aquifer materials and in close

proximity to each other to examine historical trends in general mineral groundwater quality throughout the basin. Based on these records of groundwater quality, wells within the Alluvium have experienced historical fluctuations in general mineral content, as indicated by electrical conductivity (EC), which correlates with fluctuations of individual constituents that contribute to EC. The historic water quality data indicates that, on a long-term basis, there has not been a notable trend and, specifically, there has not been a decline in water quality within the Alluvium.

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

Specific conductance throughout the Alluvium is currently below the Secondary (aesthetic) Upper Maximum Contaminant Level of 1600 micromhos per centimeter (μmhos/cm). The presence of long-term consistent water quality patterns, although intermittently affected by wet and dry cycles, supports the conclusion that the Alluvial aquifer is a viable ongoing water supply source in terms of groundwater quality.

Perchlorate. The most notable groundwater quality issue in the Alluvium is perchlorate contamination. In 2002, one Alluvial well (Stadium well), located near the former Whittaker-Bermite facility, was inactivated for municipal water supply due to detection of perchlorate slightly below the Notification Level.[15] In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. VWC's response was to remove the well from active water supply service and to rapidly seek approval for installation of wellhead treatment and return of the well to service. As part of outlining its plan for treatment and return of the well to service, VWC analyzed the impact of the temporary inactivation of the well on its water supply capability; and the analysis determined that VWC's other sources are sufficient to meet demand and the inactivation of Well Q2, thus, had no impact on VWC's water supply

15 "Notification level" means the concentration level of a contaminant in drinking water delivered for human consumption that the state DHS has determined, based on available specific information, does not pose a significant health risk but warrants notification pursuant to applicable law. Notification levels are non-regulatory, health-based advisory levels established by the state DHS for contaminants in drinking water for which maximum contaminant levels have not been established. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of maximum contaminant levels, but have not yet undergone or completed the regulatory standard setting process prescribed for the development of maximum contaminant levels. Notification levels are not drinking water standards.

capability.[16] VWC proceeded through mid-2005 to gain approval for installation of wellhead treatment (ion-exchange as described below), including environmental review, and completed installation of the wellhead treatment facilities in September 2005. Well Q2 was returned to active water supply service in October 2005.

Ongoing monitoring of all active municipal wells near the Whittaker-Bermite site has shown no detections of perchlorate in any active Alluvial wells. However, based on a combination of proximity to the Whittaker-Bermite site and prevailing groundwater flow directions, complemented by findings in the ongoing on-site and off-site investigations by Whittaker-Bermite and the Army Corps of Engineers (ACOE), there is logical concern that perchlorate could impact nearby, downgradient Alluvial wells (see, *2005 UWMP*, Appendix D [**Appendix 3.0-14**]). As a result, provisions are in place to respond to perchlorate contamination if it should occur. The groundwater model was used to examine capture zones around Alluvial wells under planned operating conditions (pumping capacities and volumes) for the time period through currently scheduled restoration of impacted wells in 2006.[17] The capture zone analysis of Alluvial wells generally near the Whittaker-Bermite site, shown in **Figure 3.0-6**, suggests that inflow to those wells will either be upgradient of the contamination site, or will be from the Alluvium beyond where perchlorate is most likely to be transported, with the possible exception of the VWC's Pardee wellfield, which includes Wells N, N7, and N8. Although the capture zone analysis does not show the Pardee wells to be impacted, they are considered to be at some potential risk due to the proximity of their capture zone to the Whittaker-Bermite site.

The combined pumping capacity of VWC's Pardee wells is 6,200 gpm, which equates to about 10,000 af of maximum annual capacity. However, in the operating plan for both normal- and dry-year Alluvial pumping, the planned use of those wells represents 2,940 afy of the total 30,000 to 40,000 afy Alluvial groundwater supply. Thus, if the wells were to become contaminated with perchlorate, they would represent an amount of the total Alluvial supply that could be readily replaced, on a short-term interim basis, by utilizing an equivalent amount of imported water from CLWA, from existing groundwater banks, or by utilizing existing capacity from other Alluvial wells (see, **Table 3.0-5**, above). Furthermore, if the Pardee wells were to become contaminated by perchlorate contamination, VWC has made site provisions at its Pardee wellfield for installation of wellhead treatment. Such treatment would be the

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16 See, *Impact and Response to Perchlorate Contamination, Valencia Water Company, Well Q2*, prepared for Valencia Water Company by Luhdorff & Scalmanini Consulting Engineers, April 2005. This report is available for public review and inspection in **Appendix 3.0-15** of this EIR.

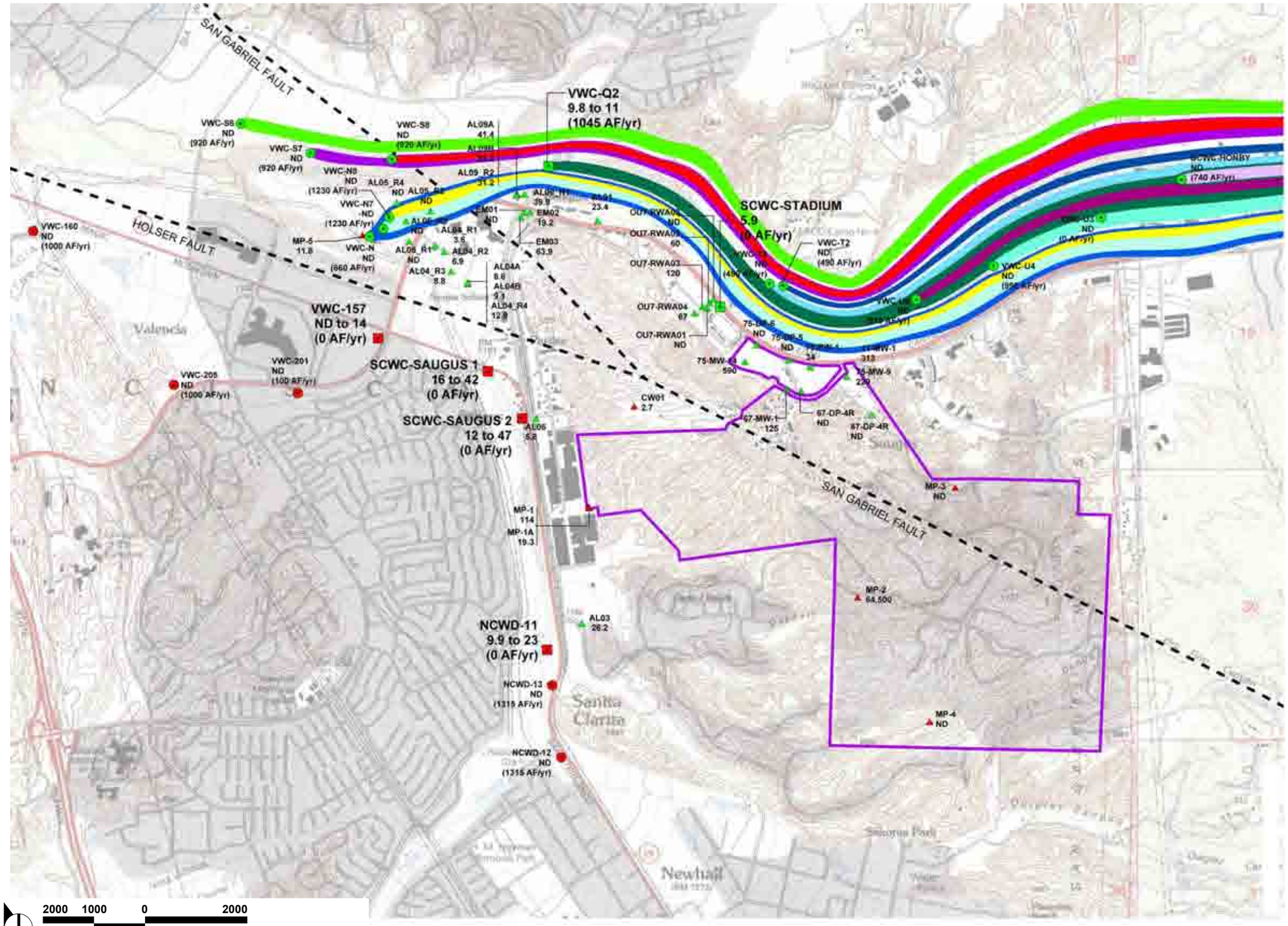
17 See, Technical Memorandum entitled, *Analysis of Near-Term Groundwater Capture Areas for Production Wells Located Near the Whittaker-Bermite Property (Santa Clarita, California)*, prepared by CH2MHill, for the Santa Clarita Valley Water Purveyors, dated December 21, 2004. This memorandum is available for public review and inspection in **Appendix 3.0-13** of this EIR.

same methodology as installed at VWC's Well Q2, and would result in the impacted Pardee wells being promptly returned to active service in a matter of months.

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

(3) Groundwater Quality – Saugus Formation

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



LEGEND

CONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

UNCONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

MONITORING WELL
- ALLUVIUM
- SAUGUS

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

NOTES:

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

SOURCE: Luhdorff & Scalmanini Consulting Engineers – January 2006

FIGURE **3.0-6**

Forecasted Two-Year Groundwater Capture Zones for Active Alluvial Production Wells Located Closest to the Whittaker-Bermite Property Santa Clarita, California

112-021•03/06

Perchlorate. As with the Alluvium, the most notable groundwater quality issue in the Saugus Formation is perchlorate contamination. Since 1997, four Saugus wells have been inactivated for water supply service due to the presence of perchlorate. While the inactivation of those wells does not limit the ability of the purveyors to meet water demands, there is a program and schedule in place that involves installation of treatment facilities to both extract contaminated water and control migration in the Saugus Formation, such that the impacted capacity is restored and perchlorate migration is controlled in 2006. To date, there has been no additional detection of perchlorate in any other municipal-supply wells in the Saugus Formation.

In the interim, the question of whether existing active Saugus wells are likely to be contaminated by perchlorate migration prior to the installation of treatment and pumping for perchlorate contamination control has been evaluated by using the groundwater flow model to analyze capture zones of existing active wells through 2006, the scheduled period for permitting, installation of treatment, and restoration of impacted capacity. For that analysis, recognizing current hydrologic conditions and available supplemental SWP supplies, the rate of Saugus pumping was conservatively projected to be in the normal range (7,500 to 15,000 afy) for the near term. The results of the capture zone analysis, illustrated in **Figure 3.0-7**, were that the two nearest downgradient Saugus wells, VWC's Wells 201 and 205, would draw water from very localized areas around the wells and would not draw water from locations where perchlorate has been detected in the Saugus Formation. As shown in the figure, the capture zone analysis projected Well 201 would potentially draw Saugus groundwater from areas located up to 450 feet east of the well, but was unlikely to draw water from areas farther to the east through that time period. During the same time, Well 205 would potentially draw Saugus groundwater from areas as much as 650 feet to the east and northeast of this well.

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

(4) Perchlorate Treatment Technology

Effective technologies presently exist to treat perchlorate in water in order to meet drinking water standards. In a publication from the U.S. EPA, *Region 9 Perchlorate Update*,[18] the U.S. EPA discussed the current state of perchlorate treatment technology, and the current and planned treatment development efforts being carried out as part of U.S. EPA Superfund program studies, U.S. Air Force research, water

[18] See, U.S. EPA Internet website, *Perchlorate*, and *Region 9 Perchlorate Update*, found at http://www.epa.gov/ogwdw/ccl/perchlor/perchlo.html.

utility-funded studies, and the federally funded research effort underway by the East Valley Water District, California and the American Water Works Association Research Foundation (AWWARF). The U.S. EPA also summarized two of the technologies that are in use today, which are capable of removing perchlorate from groundwater supplies, the ion exchange and biological treatment methods.

A number of full-scale perchlorate treatment systems have been implemented in California and other states. In an effort to evaluate the various available treatment technologies, CLWA commissioned an investigation to identify and evaluate alternative treatment processes effective in removing perchlorate. The scope of that investigation included resolving permitting issues pertaining to the construction and certification of a treatment facility, conducting bench-scale and pilot-scale tests to determine treatment process performance, and preparing preliminary capital and operations and maintenance cost estimates.

Three treatment technologies, an ion exchange system, and two biological systems were selected for study. All three systems were determined to be effective in removing perchlorate.[19] However, there was considerable uncertainty with respect to the capital and operations and maintenance costs associated with each process. Therefore, a technical group comprised of representatives from CLWA, the retail water purveyors, and consultants retained by Whittaker-Bermite agreed to solicit competitive bids for the design, construction, and operation of both ion exchange and biological treatment systems. After thorough evaluation of several bids, the technical group determined that ion exchange is the preferred technology based upon treatment performance, ease of regulatory compliance, and comparison of costs associated with construction and operations and maintenance.

The preferred single-pass, ion exchange treatment technology does not generate a concentrated perchlorate waste stream that would require additional treatment before discharge to a sanitary sewer or a brine line (if one is available). This technology incorporates an active resin (a material that attracts perchlorate molecules) that safely removes the perchlorate from water. The resin is contained in pressure vessels and the water is pumped through the vessel. The resin is eventually replaced with new resin after a period of time. The old resin is removed and transported by truck to an approved waste disposal site where it is safely destroyed. This technology is robust and reliable for use in drinking water systems.

DHS has approved operation of perchlorate treatment plants, and those plants currently in operation are listed in **Table 3.0-7, Perchlorate Treatment Summary**.

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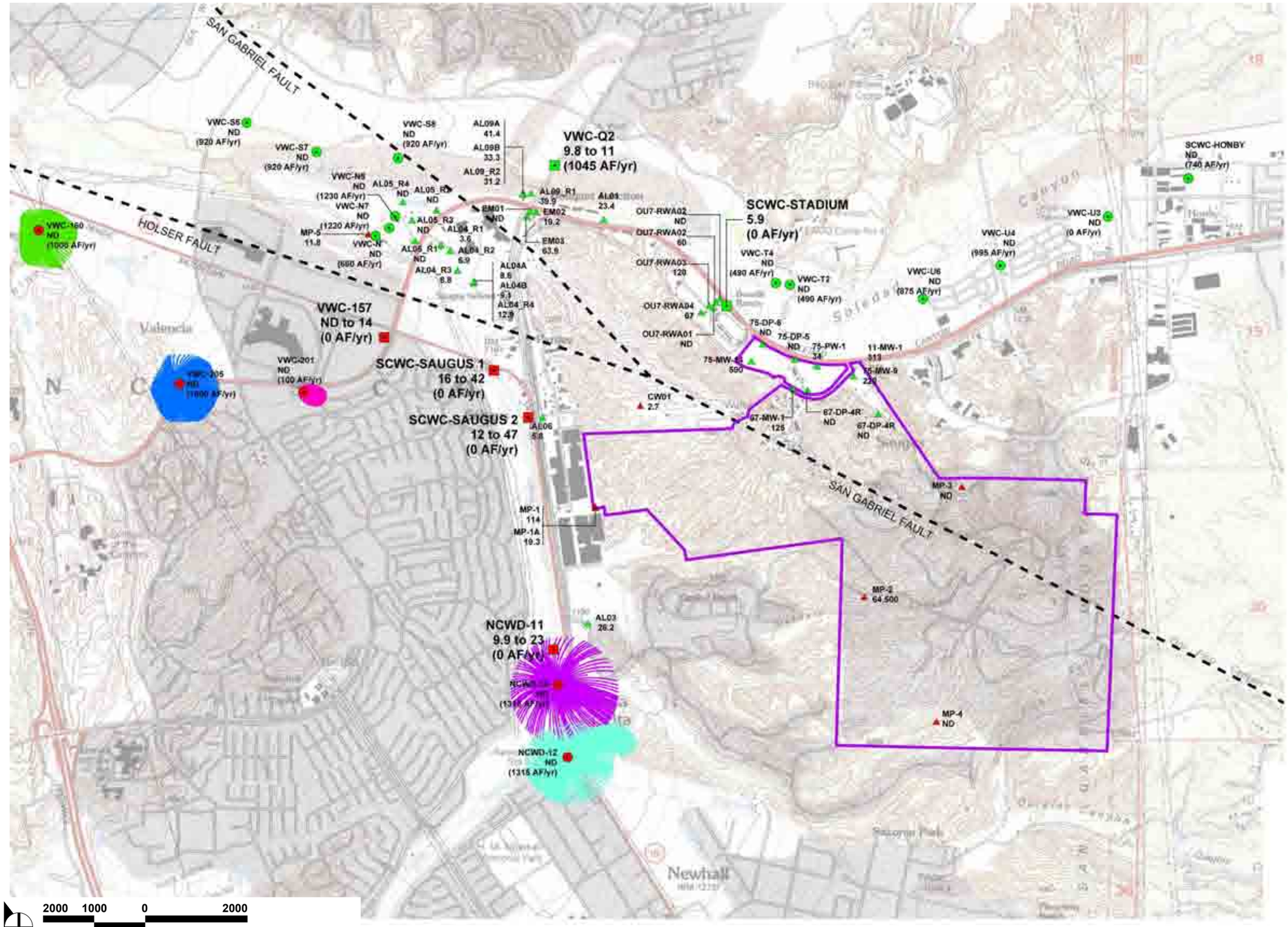
19 See, *Treatment of Perchlorate Contaminated Groundwater from the Saugus Aquifer, TM 3 Bench and Pilot Test Results*, Carollo Engineers, February 2004. A copy of this report is available for public review and inspection in **Appendix 3.0-26** of this EIR.



LEGEND

CONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

UNCONTAMINATED PRODUCTION WELL
- ALLUVIUM
- SAUGUS

MONITORING WELL
- ALLUVIUM
- SAUGUS

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

NOTES:

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

SOURCE: Luhdorff & Scalmanini Consulting Engineers – January 2006

FIGURE **3.0-7**

Forecasted Two-Year Groundwater Capture Zones for Active Saugus Production Wells Located Closest to the Whittaker-Bermite Property Santa Clarita, California

112-021•03/06

Table 3.0-7
Perchlorate Treatment Summary

Location	Treatment Plant Capacity (gpm)	Concentration of Perchlorate in Groundwater (ppb)	Concentration of Perchlorate after Treatment (ppb)
1) Valencia Water Company (Santa Clarita Valley – Well Q2)	1,300	<11	ND
2) La Puente Valley County Water District (Baldwin Park)	2,500	< 200	ND
3) San Gabriel Valley Water Company (El Monte)	7,800	< 80	ND
4) Lincoln Avenue Water Company (Altadena)	2,000	< 20	ND
5) City of Riverside	2,000	< 60	ND
6) City of Rialto	2,000	< 10	ND
7) City of Colton	3,500	< 10	ND
8) Fontana Union Water Company	5,000	< 15	ND

Source: *Perchlorate Contamination Treatment Alternatives*, prepared by the Office of Pollution Prevention and Technology Development, Department of Toxic Substances Control, California Environmental Protection Agency, Draft January 2004.
ND = non-detect. The non-detect level represents concentrations less than 4 parts per billion.
ppb = parts per billion.

Based on (1) the results of CLWA's investigation of perchlorate removal technologies; (2) the technical group's evaluation; and (3) DHS' approval of single-pass ion exchange for treatment in other settings, CLWA and the local retail water purveyors are planning single-pass ion exchange for the treatment technology for restoration of impacted capacity (wells) in accordance with the permitting, testing, and installation process described in the *2005 UWMP*. The wellhead treatment installed at VWC's Well Q2 in October 2005 is the same single-pass ion exchange as is planned for restoration of impacted Saugus well capacity in 2006/2007.

(5) Other Groundwater Quality Issues

Chloride/Nitrate. Groundwater monitoring in Alluvial aquifer wells has shown both chloride and nitrate concentrations to meet or exceed the Basin Plan groundwater objectives. The Basin Plan includes groundwater quality objectives for various constituents. These objectives are designed to protect groundwater for municipal drinking water purposes.

Methyl-Tertiary Butyl Ether (MTBE). MTBE has been a concern for the past several years, and on May 17, 2000, DHS adopted a primary Maximum Contaminant Level (MCL) for MTBE of 0.013 mg/L. CLWA and the local water purveyors have been testing for MTBE since 1997 and, to date, have not detected it in any of the production wells.

C. Imported Water Supplies

(1) Available Imported Water Supplies to the Santa Clarita Valley

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

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

CLWA takes delivery of its SWP water at Castaic Lake, a terminal reservoir of the West Branch. From Castaic Lake, CLWA delivers its SWP supplies to the local retail water purveyors through an extensive transmission pipeline system.

In the early 1960s, DWR began entering into individual SWP water supply contracts with urban and agricultural public water supply agencies located throughout northern, central, and southern California for SWP water supplies. CLWA is one of 29 water agencies (commonly referred to as "contractors") that has an SWP water supply contract with DWR. Each SWP contractor's SWP water supply contract contains a "Table A," which lists the maximum amount of water a contractor may request each year throughout the life of the contract. Table A is used in determining each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year. The total planned annual delivery capability of the SWP and the sum of all contractors' maximum Table A amounts was originally 4.23 million af. The initial SWP storage facilities were designed to meet contractors' water demands in the early years of the SWP, with the construction of additional storage facilities planned as demands increased. However, essentially no additional SWP storage facilities have been constructed since the early 1970s. SWP conveyance facilities were generally designed and have been constructed to deliver maximum Table A amounts to all contractors. After the permanent retirement of

some Table A amount by two agricultural contractors in 1996, the maximum Table A amounts of all SWP contractors now totals about 4.17 million af. Currently, CLWA's annual Table A Amount is 95,200 af.[20,21]

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

Consistent with other urban SWP contractors, SWP deliveries to CLWA have increased as its requests for SWP water have increased. **Table 3.0-8, Historical Total SWP Deliveries to Purveyors**, and **Table 3.0-9, CLWA Demand Projections Provided to Wholesale Supplier (DWR) CLWA Demand Projections Provided to Wholesale Supplier (DWR)**, present historical total SWP deliveries to CLWA municipal purveyors and CLWA SWP demand projections provided to DWR (CLWA's wholesale supplier), respectively. The deliveries indicated below do not necessarily reflect the amount of SWP water available to CLWA in any given year. Most recently in 2005, CLWA received approximately 58,000 af of water (i.e., 38,001 af delivered to Santa Clarita Valley purveyors and 20,000 af stored in the Rosedale-Rio Bravo Groundwater Bank). However, additional water was available to CLWA, if it had requested it.

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20 CLWA's original SWP water supply contract with DWR was amended in 1966 for a maximum annual Table A Amount of 41,500 af. In 1991, CLWA purchased 12,700 af of annual Table A Amount from a Kern County water district, and in 1999 purchased an additional 41,000 af of annual Table A Amount from another Kern County water district, for a current total annual Table A Amount of 95,200 af.

21 See, **Section 5C(2)** of this EIR.

Table 3.0-8
Historical Total SWP Deliveries to Purveyors[(1)]

Year	Deliveries (af)	Year	Deliveries (af)
1980	1,125	1993	13,393
1981	5,816	1994	14,389
1982	9,659	1995	16,996
1983	9,185	1996	18,093
1984	10,996	1997	22,148
1985	11,823	1998	20,254
1986	13,759	1999	27,282
1987	16,285	2000	32,579
1988	19,003	2001	35,369
1989	21,618	2002	41,768
1990	21,613	2003	44,419
1991	7,968	2004	47,205
1992	13,911	2005	38,001

Notes:
(1) Includes CLWA SCWD, LACWWD #36, NCWD, and VWC.
Source: 2005 UWMP and the Santa Clarita Valley water purveyors, 2006.

Table 3.0-9
CLWA Demand Projections Provided to Wholesale Supplier (DWR) (af)

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

Source: 2005 UWMP.

In an effort to assess the impacts of these varying conditions on SWP supply reliability, DWR issued its *State Water Project Delivery Reliability Report* in May 2003. The report assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. DWR updated this report in 2005 (Updated Report) and provided updated delivery reliability estimates to the SWP contractors. In the Updated Report, DWR provided a recommended set of analyses for SWP contractors to use in preparing their 2005 UWMPs.[22] The Updated Report indicates that the SWP, using existing facilities operated under current regulatory and operational constraints, and with all contractors requesting delivery of their full Table A Amounts in most years, could deliver 77 percent of total Table A Amounts on a long-term average basis. The Updated Report also projects that SWP deliveries during multiple-year dry periods could average about 25 to 40 percent of total Table A Amounts and could possibly be as low as 5 percent

22 As part of the Monterey Settlement Agreement discussed in more detail below, DWR is to prepare an assessment every two years of SWP delivery reliability, which SWP contractors are to use in their water planning efforts. DWR has completed an update of its analysis of SWP delivery reliability. DWR's Updated Report is found in **Appendix 3.0-17** of this EIR.

during an unusually dry single year. During wetter years, or more than 25 percent of the time, 100 percent of full Table A Amounts is projected to be available.

The SWP supplies projected to be available for delivery to CLWA were determined based on the total SWP delivery percentages identified by DWR in its Updated Report. **Table 3.0-10**, below, shows SWP supplies projected to be available to CLWA in average/normal years (based on the average delivery over the study's historic hydrologic period from 1922-1994). **Table 3.0-11, Wholesale Supply Reliability**, summarizes estimated SWP supply availability in a single dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple dry-year period (based on a repeat of the worst-case, historic four-year drought of 1931–1934). Reliability and dry-year planning of water supplies are further described in Chapter 6, Reliability Planning, of the *2005 UWMP* (see, **Appendix 3.0-14**).

Table 3.0-10
Wholesaler Identified and Quantified Existing and Planned Sources of Water Available to CLWA for Average/Normal Years[(1)]

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

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

Table 3.0-11
Wholesale Supply Reliability[(1)]

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

Notes:
(1) The percentages of Table A Amount projected to be available are taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005). Supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by these percentages.
(2) Based on the worst-case, historic single dry year of 1977.
(3) Supplies shown are annual averages over four consecutive dry years, based on the worst-case historic four-year dry period of 1931–1934.
Source: 2005 UWMP.

As part of its water supply contract with DWR, CLWA has access to a portion of the storage capacity of Castaic Lake. This Flexible Storage Account allows CLWA to borrow up to 4,684 af of the storage in Castaic Lake. Any of this amount that CLWA borrows must be replaced by CLWA within five years of its withdrawal. CLWA manages this storage by keeping the account full in normal and wet years and then delivering that stored amount (or a portion of it) during dry periods. The account is refilled during the next year that adequate SWP supplies are available to CLWA to do so. CLWA has recently negotiated with Ventura County water agencies to obtain the use of their Flexible Storage Account. This will allow CLWA access to another 1,376 af of storage in Castaic Lake. CLWA access to this additional storage will be available on a year-to-year basis for 10 years, beginning in 2006. Consequently, for the 10-year period, CLWA could have access to up to an additional 6,060 af annually from this program.

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water may periodically be available, including "Article 21" water, Turnback Pool water, and DWR dry-year purchases. Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. The Turnback Pool is a program where contractors with allocated Table A supplies in excess of their needs in a given year may turn back that excess supply for purchase by other contractors who need additional supplies that year. The Turnback Pool can make water available in all types of hydrologic years, although generally less excess water is turned back in dry years. As urban contractor demands increase in the future, the amount of water turned back and available for purchase will likely diminish. In critical dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies. Because the availability of these supplies is somewhat uncertain, they are not included as supplies in the *2005 UWMP*. However, CLWA's access to these supplies when they are available may enable it to improve the reliability of its SWP supplies beyond the values used throughout the *2005 UWMP*.

(2) Litigation Effects on Availability of Imported Water

For the past few years, there have been a series of court challenges to decisions and documents concerning water supply that have been argued to create uncertainty about water reliability for the Santa Clarita Valley. The City is aware of these legal challenges but has determined, based on substantial evidence in the record, that these challenges are not likely to affect the short- or long-term reliability of

water supplies as projected to be available in the 2005 UWMP and other analyses, reports, and documents on which this water analysis relies. The following section summarizes the litigation, its status, and explains why the City concurs with, and is entitled to rely on, the water supply conclusions reached by the expert water agencies, CLWA and NCWD, about the reliability of water supplies.

(a) Litigation Concerning California Environmental Quality Act (CEQA) Review of the Monterey Agreement

In *Planning and Conservation League v. Department of Water Resources*, 83 Cal.App. 4th 892 (2000), the Court of Appeal, Third Appellate District, decertified an EIR prepared by the Central Coast Water Agency (CCWA) to address the "Monterey Agreement," a statement of principles to be incorporated into an omnibus revision of the long-term contracts between the DWR and local water contractors governing the supply of water under the SWP. The Monterey Agreement was the culmination of negotiations between DWR and six local water contractors to settle disputes arising out of the allocation of water during times of shortage. The Monterey Agreement contemplated revisions in the methodology of allocating water among contractors and provided a mechanism for the permanent transfer of Table A water amounts from one contractor to another. The Monterey Agreement was implemented by the execution of legally binding contracts between DWR and the two largest water contractors: Kern County Water Agency (KCWA) and Metropolitan Water District of Southern California (The Monterey Amendments). Although the court set aside the EIR prepared by CCWA, it did not set aside, invalidate, or otherwise vacate the Monterey Agreement or the Monterey Amendments. No court has ordered any stay or suspension of the Monterey Agreement pending certification of a new EIR and the DWR and contracting water agencies continue to abide by the Monterey Agreements, as implemented by the Amendments, as the operating framework for the SWP.

Following decertification of the original Monterey Agreement EIR, the PCL litigants entered into the Monterey Settlement Agreement in 2003, designating DWR as the lead agency for the preparation of an EIR to address the Monterey Agreement. DWR is currently in the process of preparing that EIR. The Monterey Settlement Agreement also declared that certain water transfers between contracting agencies were "final." A 41,000-afy Kern-Castaic transfer (discussed further below) was not among those "final" transfers but rather was recognized to still be subject to dispute, due to then-pending litigation in Los Angeles Superior Court challenging the EIR prepared for that transfer. (*Friends of the Santa Clarita River v. Castaic Lake Water Agency*, see discussion below.) DWR's EIR will analyze the potential environmental effects relating to the Monterey transfers, including a focused analysis of the 41,000-afy transfer, which will be provided as part of a broader analysis of past and future permanent transfers of Table A Amounts.

(b) Litigation Concerning CEQA Review of the 41,000-afy Transfer

Of CLWA's 95,200 af annual Table A Amount, 41,000 afy was permanently transferred to CLWA in a contract approved by DWR in 1999 by Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA prepared an EIR in connection with the 41,000 afy water transfer, which was challenged in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles County Superior Court, Case No. BS056954) ("*Friends*"). On appeal, the Court of Appeal, Second Appellate District, held that since CLWA's original 41,000 afy EIR tiered from the Monterey Agreement EIR that was later decertified (see supra, *Planning and Conservation League v. Dept. of Water Resources* [2000] 83 Cal. App. 4th 892, above), CLWA would also have to decertify its EIR as well and prepare a revised EIR. The court refused, however, to enjoin CLWA from using any part of the 41,000-afy transfer pending preparation of a new EIR. As discussed further below, *Friends* was dismissed with prejudice (permanently) in February 2005. Its original EIR for the 41,000-afy transfer having been decertified, CLWA prepared and circulated a revised Draft EIR for the 41,000-afy transfer, received and responded to public comments regarding the revised Draft EIR, and held two separate public hearings concerning the revised Draft EIR. CLWA approved the revised EIR for the 41,000-afy transfer on December 22, 2004, and lodged the certified EIR with the Los Angeles Superior Court as part of its return to the trial court's writ of mandate in *Friends*. Thereafter, as noted above, *Friends* was dismissed with prejudice (permanently). In January 2005, two separate and new legal challenges to CLWA's revised EIR for the 41,000-afy transfer were filed in the Ventura County Superior Court by the Planning and Conservation League and by the California Water Impact Network. These cases have been consolidated and transferred to Los Angeles County Superior Court and are still pending.

The new pending challenges to the adequacy of CLWA's revised EIR for the 41,000-afy transfer, and DWR's pending preparation of a new Monterey Agreement EIR, arguably introduce an element of potential uncertainty regarding the 41,000-afy transfer, although based on a review of all the surrounding circumstances, these events do not significantly affect the reliability of the transfer amount, and, therefore, it is still appropriate for the City of Santa Clarita to conclude that CLWA and NCWD properly included the transfer amount as part of CLWA's 95,200 afy Table A Amount, for several reasons. First, the 41,000-afy transfer was completed in 1999 in a DWR/CLWA water supply contract amendment approved by DWR. Since 2000, DWR has allocated and annually delivered the water in accordance with the completed transfer.[23] In connection with that transfer, CLWA paid approximately $47 million for the additional 41,000 afy Table A supply, the monies have been accepted by Kern-Castaic, the sale price has been financed through the sale of CLWA tax-exempt bonds, and, as noted, DWR has expressly approved and amended CLWA's long-term water supply contract to reflect the increase in CLWA's SWP Table A

[23] This contract was never legally challenged and, therefore, is considered permanent and in full force and effect.

Amount and the permanent transfer/reallocation of SWP Table A supply between SWP contractors. This contract has never been set aside but continues in full force and effect. Second, the Court of Appeal held that the only defect in the 1999 EIR was that it tiered from the Monterey Agreement EIR, which was later decertified. This defect has now been remedied by CLWA's preparation and certification of a revised EIR that did not tier from the Monterey Agreement EIR. This new EIR must be deemed to be legally adequate until and unless it is set aside by a court. Third, the Monterey Settlement Agreement expressly authorized the operation of the SWP in accordance with the Monterey Amendments. The Monterey Amendments, which are still in effect and have not been set aside by any court, authorized SWP contractors to transfer unneeded SWP supply amounts to other contractors on a permanent basis. Specifically, the Monterey Agreement provisions authorized 130,000 af of agricultural SWP contractors' entitlements to be available for sale to urban SWP contractors. CLWA's 41,000 af acquisition was a part of the 130,000 af of SWP Table A supply that was transferred, consistent with the Monterey Amendments. Although DWR is still in the process of preparing the EIR to address the Monterey Agreement, the court in the PCL litigation refused to set aside the Monterey Agreement pending preparation of that EIR. Fourth, the Court of Appeal in *Friends* refused to enjoin the 41,000-afy transfer, and instead required preparation of a revised EIR, which EIR CLWA has now completed and certified. Fifth, CLWA's amended water supply contract documenting the 41,000-afy transfer remains in full force and effect, and no court has ever questioned the validity of the contract or enjoined the use of this portion of CLWA's Table A Amount. For all these reasons, the City is entitled to rely on CLWA's and NCWD's determination that it is reasonable to include the 41,000-afy transfer in its calculation of available water supplies. With respect to the new Monterey Agreement EIR, CLWA has concluded that its use of the 41,000 afy is not legally bound to the Monterey Agreement litigation or to DWR's new EIR for the Monterey Agreement and may occur independently of that Agreement. That DWR did not oppose CLWA's completion and certification of the new EIR for the water transfer, independent of DWR's new Monterey Agreement EIR, supports this view. Thus, the pending legal challenges to the revised EIR and DWR's preparation of a new Monterey Agreement EIR are not expect to impact the amount of water available to CLWA as a result of the completed 41,000-afy transfer.

It should also be noted that in separate litigation relating to the West Creek project that was approved by the County of Los Angeles in 2005, on January 6, 2006, the Santa Barbara County Superior Court issued a decision indicating that the EIR prepared for the West Creek project contained substantial evidence in the record to support the decision to rely upon the 41,000-afy transfer for planning purposes. The court reasoned that even if there is some risk to the availability of the 41,000 afy arising out of DWR's yet-unfinished preparation of a new EIR for the Monterey Agreement, an adverse final judgment in the Monterey litigation is not likely, in the long term, to adversely affect the transfer as (a) such litigation is unlikely to "unwind" completed and executed water transfers such as the 41,000-afy year transfer, (b)

existing SWP water supply contract provisions allow such transfers without the need for the Monterey Agreement, and (c) existing law allows CLWA to enter into contracts outside the context of the Monterey Agreements. A complete copy of the West Creek decision is provided in **Appendix 3.0-19** of this Additional Analysis.

In *California Oak Foundation v. City of Santa Clarita*, 133 Cal. App. 4th 1219 (2005), a case challenging the adequacy of the EIR for the project at issue in this Water Analysis, the Court of Appeal directed the trial court to issue a writ of mandate vacating the certification of the EIR because the City's discussion of water supplies was defective. Specifically, the Court found that the EIR did not adequately address uncertainties relating to Castaic's entitlement to 41,000 afy of imported water purchased under the Monterey Agreement. *Id*. at 1236-41. The Court did not find other defects in the EIR. This Additional Water Analysis analyzes the availability of the 41,000 afy—including any related uncertainties—and addresses the Court's concerns in the original EIR.

(c) Litigation Concerning the Adequacy of CEQA Review for the Semitropic Water Bank

See footnote 23, supra.

(d) Litigation Concerning the Adequacy of the 2005 UWMP

In February 2006, the California Water Impact Network and Friends of the Santa Clara River ("Petitioners") filed another lawsuit, challenging the adequacy of CLWA's and NCWD's 2005 Urban Water Management Plan (UWMP) on multiple grounds. The main arguments presented in this suit are that the UWMP overstates the reliability of both groundwater and surface water supplies, fails to provide an adequate discussion of perchlorate contamination, fails to adequately address the reliability of the 41,000-afy transfer, relies on a flawed model for predicting SWP deliveries, fails to address the effect of global warming and regulatory water quality controls on water deliveries from the SWP, and fails to identify the impact of private wells on the Santa Clarita River watershed.

The City acknowledges that a challenge to the adequacy of the 2005 UWMP has been filed but concludes that it may assume that the recently adopted UWMP is legally adequate, unless and until it is set aside by a court of competent jurisdiction. That has not occurred. Under Water Code Section 10910(c)(2), moreover, water supply assessments are entitled to rely the most recently adopted UWMP if the projected water demand associated with the proposed project was accounted for in the most recently adopted UWMP. The WSA prepared by NCWD in this case complied with Section 10910(c)(2) and incorporated data from the most recently adopted UWMP. Further, the allegations of legal inadequacy made by Petitioners were raised in the multiple hearings before the CLWA and NCWD during their

respective review of the UWMP prior to their adoption of the document. CLWA responded to, and rejected, these allegations of inadequacy. A copy of CLWA's responsive document (which was incorporated into NCWD's record of proceedings in its adoption of the UWMP) is attached at **Appendix 3.0-20**. Provided below is an analysis of the issues raised in the recent UWMP litigation as it pertains to the water supplies available to the proposed project.

(3) Areas of Further Controversy and Disagreements Among Experts

In the recent litigation brought against the adequacy of the 2005 UWMP,[24] several allegations have been made regarding the information presented in the Plan. The City of Santa Clarita's response to the issues raised as a result of the litigation is presented below. Prior to the adoption of the UWMP, CLWA and the valley water purveyors prepared a response to the issues raised in this litigation. That response is presented in **Appendix 3.0-20** of this Additional Analysis.

(4) Issues Outside the Scope of this Additional Analysis

In its petition challenging the adequacy of CLWA's 2005 UWMP, the Petitioners allege that the 2005 UWMP is deficient because it did not present an analysis of several different impacts caused by urbanization generally (i.e., impacts to biological resources and impacts to local water quality and quantity). The City of Santa Clarita is aware of these allegations but believes that the State Water Code does not require that an UWMP present an analysis of *impacts*. A UWMP is not an EIR; it is an analysis of water supply and demand for a service area. Nor does state law require that an EIR be prepared for a UWMP prior to its approval. The UWMP, therefore, cannot be invalid for having allegedly failed to discuss the impacts of urbanization.

With respect to the urbanization impacts of this project, the Court of Appeal decision required the City of Santa Clarita to provide decision makers with a revised water supply analysis that describes the influence CLWA's purchase of 41,000 af per year of Table A Water from the Kern County Water Agency will have on water supplies in the Santa Clarita Valley. The Court found that the Gate-King EIR adequately analyzed the project's other impacts relating to biology and water quality and those topics are, therefore, not addressed in this Additional Analysis. For these reasons, and despite the pending litigation involving the 2005 UWMP, the City believes that it is appropriate to rely on the information presented in the 2005 UWMP as an adequate representation of the water supplies available to the Santa Clarita Valley and the Gate-King project. The City also believes that it is inappropriate for this Additional Analysis to address issues that were found to have been adequately addressed in the existing EIR.

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24 *California Water Network v. Castaic Lake Water District* (Superior Court Case No. CIV23935, County of Ventura).

(5) Consideration for Private Wells

In the legal challenge to the UWMP, the Petitioners allege that private well pumping is not considered in the UWMP. This is not correct. The purveyors have indicated that an estimate for private well pumping (e.g., agricultural pumping, homeowner pumping, pumping to supply the Wayside Honor Rancho, etc.) was factored into the groundwater modeling performed jointly by CLWA and the purveyors as reported in the *2004 Santa Clarita Valley Water Report* (Water Report), dated May 2005, specifically and the UWMP generally (information from the Water Report was used in preparation of the 2005 UWMP). As stated in the Water Report, "Water supply for a small percentage of Valley residents is provided by individual private water supply wells … Pumping as reported herein includes an estimate of groundwater pumped from private wells; it is expected that this estimate will be refined in future reports as more information about the private wells is obtained." (See, *2004 Santa Clarita Valley Water Report*, dated May 2005, page 10.)

In the UWMP, private well pumping is assumed as part of the estimates for future demand as reported in the Plan. Consequently, private well pumping is included in the UWMP supply and demand tables and figures presented in the Plan (see, Table 2-2, Projected Water Demands, reference to "Agricultural/Private Uses;" Figure 2-3, Historical vs. Projected Demand (both with and without agricultural demand); and Tables 6-2, 6-3 and 6-4, average- and dry-year supplies and demand).

(6) Water Quality

Petitioners allege that because water in the SWP is high in chlorides and other contaminants, CLWA will not be able to receive as much water through the SWP as it shows in the 2005 UWMP. This issue was addressed in CLWA's EIR prepared for the 41,000-afy transfer, certified in December 2004 and included in **Appendix 3.0-5** to this Additional Analysis. That EIR explains that,

> "The Project [41,000 afy transfer] does not contemplate or cause a change in regulatory water quality compliance levels. The Project does not include or cause an increase in contaminant levels of Castaic's SWP water deliveries. New TMDL requirements approved by the Regional Water Quality Control Board are not part of or caused by the Project. As shown by DEIR Table 3.15-4 and as discussed on pages 3.15-8 through 3.15-9 and 3.15-25, the average water quality for SWP deliveries to CLWA is well below MCL (Maximum Contaminant Level) standards for chlorides, nitrates and other constituents. As shown by DEIR Table 3.15-10 water quality test results for drinking water within CLWA, including both SWP water and groundwater supplies, show typical values well below MCL standards for identified constituents, including chloride, nitrate and trihalomenthanes (THMs). The issue of chloride concentration deals with indirect impacts to local surface water from water discharges after use. As set forth on DEIR pages 3.15-24 and 3.15-25, the primary cause for high chloride concentration is water softeners. As DEIR page 3.15-25 notes, Sanitation Districts of Los Angeles County has adopted an ordinance that prohibits the installation and use of self-regenerating water softeners in the Santa Clarita Valley." (See page 475)

> "As DEIR Section 4.2.15 states, because all new development will be regulated by that ordinance, indirect chloride loading impacts to local surface water will be mitigated to a less than significant level. With respect to THMs, which can be produced under certain conditions by water treatment processes using chlorine, CLWA's Rio Vista Water Treatment Plant uses a treatment process that utilizes both chlorine and ozonation, and is in compliance with THM MCL standards. As noted in DEIR Section 6.3.3.1, CLWA is upgrading the Earl Schmidt Filtration Plant to comply with current and proposed water quality regulations. The Earl Schmidt Filtration Plant and the Rio Vista Water Treatment Plant will be in compliance with water quality standards by June 2005." (See page 476)

In summary, because chloride contamination in SWP water is below Maximum Contaminant Levels, other regional mitigation measures are in place to address chloride levels (such as limits on the use of water softeners), and, in all events, approval of this project will not influence or change existing chloride rates in imported SWP water, the City believes it appropriate to rely on the water quality and water supply information presented in the 2005 UWMP on the issue of chloride contamination.

Regarding ammonium perchlorate, the Petitioners allege that the amount of water available from local groundwater supplies is overstated and that the effects of perchlorate contamination are not adequately analyzed in the 2005 UWMP. This Additional Analysis contains an extensive analysis of this issue, as does the UWMP. As stated in this Additional Analysis, the results of study completed as part of the GWMP are reflected in Section 3.3, Groundwater, of the *2005 UWMP*, including Appendix C, Groundwater Resources and Yield in the Santa Clarita Valley, and Appendix D, Perchlorate Contamination and Impact on Groundwater Supplies in the Santa Clarita Valley. An important aspect of this work was completion of the 2005 Basin Yield Report (**Appendix 3.0-16**). The primary determinations made in that report are, despite perchlorate contamination, that (1) both the Alluvial aquifer and the Saugus Formation are sustainable sources at the operational plan yields stated in the *2005 UWMP* over the next 25 years; (2) the yields are not overstated and will not deplete or "dry up" the groundwater basin; and (3) there is no need to reduce the yields shown in the *2005 UWMP*. Additionally, the Basin Yield Report concluded that neither the Alluvial aquifer nor the Saugus Formation is in an overdraft condition or projected to become overdrafted.

As concluded in the UWMP and separately in this Additional Analysis, perchlorate contamination is not expected to reduce the amount of groundwater available from the Alluvial aquifer or the Saugus Formation. No evidence has been presented to undermine this conclusion.

(7) Surface Water Shortfalls

The Petitioners allege that the 2005 UWMP overstates the amount of "Table A" water that will be available to the Santa Clarita Valley in the future. They state that the state DWR SWP modeling (CALSIM II) overstates the amount of water the SWP will deliver during average and dry years.

The model was developed by DWR and the U.S. Bureau of Reclamation to model the SWP, among other statewide water projects. The model uses linear programming to route water through a network given use-defined constraints and priority weights. Like any model, it is subject to critique but it is nonetheless considered by DWR to be a generally well-rated and accurate method for water reliability forecasting. The DWR website explains that,

> "CALSIM II provides a reasonable planning level simulation of existing project operations, recognizing that the operating environment and regulatory requirements for the projects are in a constant state of transition and change. Since CALSIM II is not a detailed operations model, it does not capture many of the complexities of forecasted and actual operations of project facilities. In determining the suitability of these studies to a particular analysis, the user should consult all documentation that accompanies this release and the TCT and BST as appropriate. Like any model, it is subject to critique but it is nonetheless considered by DWR to be the most up-to-date and accurate method for water forecasting available today. Even CALSIM II critics concede it is an improvement over prior models used by DWR. The main critique appears to be that it is could made better by simplifying it and opening it up to greater array of users through training and workshops."[25]

An article published by *San Francisco Estuary & Watershed Science*,[26] March 2005, states, "The CALSIM II model is the most prominent water management model in California. It is a complex model of a complex part of California's changing multi-purpose water system. As such, analytical controversies and misunderstandings are inevitable…The fact that so many individuals have concerns regarding the uses and applicability of CalSim II is a sign that the model is being used and is worthy of ongoing applications, discussions, and development."

The City of Santa Clarita believes that it is reasonable to rely on the projections of future water deliveries provided by DWR. As the state's expert on the functioning of the SWP, DWR has prepared and refined an extensive water model that is used to predict future water deliveries through the SWP. DWR provides the results of the modeling in its report entitled, *The State Water Project Delivery Reliability Report*, various dates, incorporated into this environmental document by reference and included in **Appendix 3.0-6**. The City is aware that the Petitioners believe the model to be inaccurate. However, the City has reviewed the comments provided to DWR regarding the accuracy of the modeling and believes that is it still appropriate to rely on the state's experts at DWR for such information until and unless a more accurate

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25 See http://modeling.water.ca.gov/hydro/studies/Version2_Benchmark.html; see also "CalSim II: Simulation of Historical SWP-CVP Operations," Technical Memorandum, Department of Water Resources, Bay-Delta Office, November 2003.

26 Inês C. Ferreira, Stacy K. Tanaka, Sarah P. Hollinshead and Jay R. Lund. Musings on a model: CalSim II in California's water community, *San Francisco Estuary & Watershed Science,* Volume III, Issue 1 (March 2005), Article 1. *San Francisco Estuary & Watershed Science* is an open access, peer-reviewed journal that publishes research about the science and resource management of San Francisco Bay, the Sacramento-San Joaquin River Delta, and the upstream watersheds. The journal is published jointly by the CALFED Science Program, the California Digital Library eScholarship Repository, and the University of California—Davis John Muir Institute of the Environment.

model is known to exist and available for use. At the current time, the CALSIM II model represents the best available model in the opinion of the statewide expert water agency, DWR.

The Petitioners also state that the court decision in *Planning and Conservation League v. U.S. Bureau of Reclamation* will limit future deliveries through the SWP because DWR's CALSIM II modeling is flawed. The petition states that the UWMP is flawed because it relies on "DWR's flawed CALSIM II modeling for SWP deliveries" without addressing the shortcomings documented in comments to CLWA and a 2003 peer review by scientists. It then says: "These flaws are so substantial that the U.S. District Court for the Northern District of California has issued a preliminary injunction barring the U.S. Bureau of Reclamation's reliance on this model to justify approval of its Central Valley Project – SWP Intertie Project."

The City believes that Petitioners may not have properly characterized the court's order. In the *Planning and Conservation League v. U.S. Bureau of Reclamation* preliminary injunction order, when discussing the likelihood of success on the merits, the Northern District court found three separate grounds on which Petitioners were likely to succeed, including one based on the argument that defendant's failure to reveal and discuss alleged shortcomings of the CALSIM II model violated National Environmental Policy Act (NEPA). It is important to note that the court did not appear concerned with the supposed shortcomings of the model, but rather with U.S. Bureau of Reclamation's failure to *disclose* the shortcomings. In fact, the court specifically stated that no model is perfect and the use of CALSIM II "alone does not show that Defendant was arbitrary and capricious in reaching its finding of no significant impact."

The statement in the 2005 UWMP petition regarding the Northern District court's decision is unclear. If Petitioners are saying that the court issued a preliminary injunction because the U.S. Bureau of Reclamation failed to address CALSIM II's shortcomings, that statement appears correct. On the other hand, if Petitioners are saying that the court issued the preliminary injunction because there are flaws in the CALSIM II model, that appears incorrect. The court's ruling was clearly based on the failure to *disclose* and address shortcomings in the model.

It has also been suggested that the 2005 UWMP cannot rely on the information presented in the May 2005 draft of *The State Water Project Delivery Reliability Report* because the information presented is inconsistent with the information presented in the November 2005 draft of the same document. Upon review of the drafts in question, the information presented in both versions regarding the CALSIM II results appears to be consistent for the purposes of modeling delivery reliability through the SWP systems and the City's assessment of water supply for the Gate-King project. The City agrees that no model is perfect and believes that it is appropriate to rely on state's expert on SWP modeling (DWR) in this case. For this

reason, the City believes it is appropriate to rely on the information presented in the 2005 UWMP regarding this topic.

(8) Reduced SWP Deliveries to CLWA Due to Stringent Minimum Flow and Maximum Salinity Standards

Petitioners allege that the Third District Court of Appeal's decision in the *State Water Quality Control Board Cases* requires the reduction of SWP deliveries to CLWA. This does not appear to be accurate. As relevant to this issue, the court determined the following:

- **Minimum Flow:** The State Water Quality Control Board (State Board), by adopting the San Joaquin River Agreement flow regime, failed to implement the 1995 Bay-Delta Plan with respect to the Vernalis pulse flow objective. The San Joaquin River Agreement flow regime, as admitted by the State Board, would not meet the pulse flow objective in the 1995 Plan, but would meet all other minimum flow objectives. Instead, the State Board tried to utilize a "staged implementation" of the Vernalis pulse flow objective, which would allow for adaptive management experiments for the chinook. Both the Court of Appeal and trial court refused to allow the State Board to do this, concluding that the State Board's approval of the Agreement "accomplished a de facto amendment of that plan without complying with the procedural requirements." The Court of Appeal affirmed the trial court's order that the State Board commence proceedings consistent with this determination.

- **Salinity:** The court determined that the State Board failed to adequately implement the southern Delta salinity objectives at three locations downstream of Vernalis. Although the 1995 Plan allowed for a phased-in approach at two locations, the State Board had delayed implementation at all three (by more than seven years) and "replaced" objectives at the sites. Although the Court of Appeal refused to find the State Board failed to implement an overall plan to achieve salinity objectives, it did conclude that the State Board again effectively amended the Plan with respect to these three locations without going through the proper procedure. As a result, the Court of Appeal ordered that, "[a]s with the Vernalis pulse flow objective, the Board must either fully implement the southern Delta salinity objective as set forth in the 1995 Bay-Delta Plan or must duly amend the plan."

To summarize, the Court ordered the State Board to either (1) comply with the 1995 Plan or (2) amend the Plan with respect to the Vernalis pulse flow objective and the salinity objectives at the three locations. It is not *required* to decrease water deliveries as a result of the court's decision as alleged. To date, the State Board has not taken any action on the basis that the decision is not final. Based on this information, the City of Santa Clarita believes that it can rely on the data provided in the 2005 UWMP and DWR's CALSIM II model as the best available information regarding the reliability of water deliveries from the SWP system.

(9) 41,000 afy Water Transfer

It is alleged that the UWMP does not adequately disclose that the 41,000-afy transfer purchased by CLWA from the Kern County Water Agency may not be available to the Santa Clarita Valley. Petitioners

allege that the purchase is not allowed until all litigation against the Monterey Agreement is complete. Given that this topic was the subject of the Superior Court order issued in the Gate-King case, this transfer is extensively addressed elsewhere in this environmental document. A summary of the reasons the City believes the transfer to be considered for planning purposes is presented (again) below.

The new pending challenges to the adequacy of CLWA's revised EIR for the 41,000-afy transfer, and DWR's pending preparation of a new Monterey Agreement EIR, arguably introduce an element of potential uncertainty regarding the 41,000-afy transfer, although based on a review of all the surrounding circumstances, these events do not significantly affect the reliability of the transfer amount, and, therefore, it is still appropriate for the City of Santa Clarita to conclude that CLWA and NCWD properly included the transfer amount as part of CLWA's 95,200 afy Table A Amount, for several reasons. First, the 41,000-afy transfer was completed in 1999 in a DWR/CLWA water supply contract amendment approved by DWR. Since 2000, DWR has allocated and annually delivered the water in accordance with the completed transfer. [27] In connection with that transfer, CLWA paid approximately $47 million for the additional 41,000 afy Table A supply, the monies have been accepted by Kern-Castaic, the sale price has been financed through the sale of CLWA tax-exempt bonds, and, as noted, DWR has expressly approved and amended CLWA's long-term water supply contract to reflect the increase in CLWA's SWP Table A Amount and the permanent transfer/reallocation of SWP Table A supply between SWP contractors. This contract has never been set aside but continues in full force and effect. Second, the Court of Appeal held that the only defect in the 1999 EIR was that it tiered from the Monterey Agreement EIR, which was later decertified. This defect has now been remedied by CLWA's preparation and certification of a revised EIR that did not tier from the Monterey Agreement EIR. This new EIR must be deemed to be legally adequate until and unless it is set aside by a court. Third, the Monterey Settlement Agreement expressly authorized the operation of the SWP in accordance with the Monterey Amendments. The Monterey Amendments, which are still in effect and have not been set aside by any court, authorized SWP contractors to transfer unneeded SWP supply amounts to other contractors on a permanent basis. Specifically, the Monterey Agreement provisions authorized 130,000 af of agricultural SWP contractors' entitlements to be available for sale to urban SWP contractors. CLWA's 41,000-af acquisition was a part of the 130,000 af of SWP Table A supply that was transferred, consistent with the Monterey Amendments. Although DWR is still in the process of preparing the EIR to address the Monterey Agreement, the court in the PCL litigation refused to set aside the Monterey Agreement pending preparation of that EIR. Fourth, the Court of Appeal in *Friends* refused to enjoin the 41,000-afy transfer, and instead required preparation of a revised EIR, which EIR CLWA has now completed and certified. Fifth, CLWA's amended water supply contract documenting the 41,000-afy transfer remains in full force and effect, and no court has ever questioned the validity of the contract or enjoined the use of this portion of CLWA's

[27] This contract was never legally challenged and, therefore, is considered permanent and in full force and effect.

Table A Amount. For all these reasons, the City is entitled to rely on CLWA's and NCWD's determination that it is reasonable to include the 41,000-afy transfer in its calculation of available water supplies. With respect to the new Monterey Agreement EIR, CLWA has concluded that its use of the 41,000 afy is not legally bound to the Monterey Agreement litigation or to DWR's new EIR for the Monterey Agreement and may occur independently of that Agreement. That DWR did not oppose CLWA's completion and certification of the new EIR for the water transfer, independent of DWR's new Monterey Agreement EIR, supports this view. Thus, the pending legal challenges to the revised EIR and DWR's preparation of a new Monterey Agreement EIR are not expected to impact the amount of water available to CLWA as a result of the completed 41,000-afy transfer.

It should also be noted that in separate litigation relating to the West Creek project that was approved by the County of Los Angeles in 2005, on January 6, 2006, the Santa Barbara County Superior Court issued a decision indicating that the EIR prepared for the West Creek project contained substantial evidence in the record to support the decision to rely upon the 41,000-afy transfer for planning purposes. The court reasoned that even if there is some risk to the availability of the 41,000 afy arising out of DWR's yet unfinished preparation of a new EIR for the Monterey Agreement, an adverse final judgment in the Monterey litigation is not likely, in the long term, to adversely affect the transfer as (a) such litigation is unlikely to "unwind" completed and executed water transfers such as the 41,000 afy year transfer; (b) existing SWP water supply contract provisions allow such transfers without the need for the Monterey Agreement; and (c) existing law allows CLWA to enter into contracts outside the context of the Monterey Agreements. A complete copy of the West Creek decision is provided **Appendix 3.0-3** of this Additional Analysis.

(10) Semitropic Groundwater Bank

The Petitioners allege that CLWA cannot use water stored in the Semitropic Groundwater Bank because of contamination. It is important to understand that CLWA entered into two storage projects at the Semitropic Groundwater Bank. The first project, in 2002, was not challenged. The second project, in 2003, was challenged. The second project is a 24,000-af storage project with a 10-year banking of water to firm up CLWA's water supply for existing uses, and was defined by CLWA as not providing water to accommodate new development. In *California Water Network and Friends of the Santa Clara River v. Castaic Lake Water Agency ["Network"]*, Ventura Superior Court No. 215327, the Court refused to invalidate the water storage project and upheld CLWA's environmental review for the water banking project, including the analysis of water quality generally and the quality of the water being pumped back to CLWA through the SWP transmission facilities. In an unpublished decision dated March 23, 2006, the Court of Appeal (Second Appellate District) affirmed the Superior Court decision and rejected each of appellant's arguments, including arguments that (1) CLWA was not the proper lead agency to prepare the CEQA analysis for the Semitropic banking project; (2) that perchlorate contamination would be spread by the

project; (3) that the banking project would induce growth; (4) that the project would have a significant impact on air quality or other impacts such as traffic, biological resources, noise, aesthetics, public services, utilities, or service systems; (5) that the invalidation of the 2000 UWMP invalidated the analysis of the project's impacts; and (6) that the approval of the project violated the Public Trust Doctrine.[28] Many of these rejected claims are the same claims Petitioners make in the challenge to the adequacy of the 2005 UWMP. (A copy of the Court of Appeal's unpublished decision in the Semitropic case is included as part of **Appendix 3.0-21**.)

The Semitropic banking project was also addressed by CLWA in its EIR prepared for the 41,000-afy transfer, certified in December 2004 and included in the **Appendix 3.0-11** to the Additional Analysis. That EIR states,

> "The 2002 and 2003 [Semitropic ground] water banking projects are short term and are separate and independent from the Project [41,000 afy transfer]. They [the groundwater banking projects] are not intended to, and do not, provide long-term water supply upon which new development can rely. Those water banking projects are not transfers as suggested in the comment; each constitutes a temporary one-time storage of prior SWP deliveries to CLWA, as described in DEIR Section 6.3.3.1." (See page 476)
>
> The issue of groundwater quality impacts resulting from pump-back provisions was raised in the *Network* case; the trial court concluded that the negative declaration adequately analyzed the issue. As the July 14, 2004 Ventura Superior Court decision in *Network* explained, "Petitioners contend that the initial study was inadequate, particularly in its water quality component. The delivery agreement between DWR, Castaic and the Kern County Water Agency requires that ground water re-introduced into the aqueduct must meet the terms of the Semitropic Turn-in Agreement (AR 13:2573), the net effect of which is that water must meet DWR's then current water quality criteria (AR 12:2248). As such, there is no potential for an outdated water quality standard to be applied." (See page 477)

Stored water in the Semitropic Groundwater Bank presently meets all Title 22 water quality standards except for arsenic. The U.S. EPA recently lowered the MCL in January 2006 from 50 parts per billion (ppb) to 10 ppb. However, this standard has not been adopted by the state DHS. Operators of Semitropic, Kern County Water Agency, DWR and the SWP contractors have worked together to develop a plan for blending based on water quality modeling that shows arsenic levels of blended aqueduct and pumped in groundwater from Semitropic within acceptable standards. Water delivered from Semitropic will meet all requirements prior to entering the SWP system, as required by Semitropic's Turn-In Agreement with DWR. Consequently, all water quality requirements will be met prior to the water entering the SWP system. Based on this information, the City believes it is reasonable to rely on the information contained in the 2005 UWMP regarding this dry-year supply as presented.

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28 Final EIR, Supplemental Water Project Transfer of 41,000 Acre-Feet of State Water Project Table A Amount, Volume II, SCH# 1998041127, Castaic Lake Water Agency, December 2004.

(11) CLWA's Contract with Semitropic Groundwater Bank

As stated in the 2005 UWMP, "CLWA plans to use this [Semitropic] supply only in dry years. For the single dry year, it was assumed that competition among Semitropic's banking partners for use of return facilities would limit CLWA's supply to about one-third of the storage available, or about 17,000 af. For the multiple dry-year period, it was assumed that the entire amount would be accessible and used sometime during the four-year period, so the average annual supply during that period would be one-fourth of the total available, or about 12,700 af. Since the stored water must be withdrawn within 10 years of when it was stored, it was assumed that this supply is available only through 2013." (See 2005 UWMP page 6-4.) [Emphasis Added]

The City believes that the 2005 UWMP appropriately stated that this supply source would only be available through 2013. This fact is consistently represented in the UWMP supply and demand figures. Based on this, the City believes it appropriate to rely on the UWMP with respect to this topic as present.

(12) Global Warming Effects

Considerable debate exists over the topic of global warming and the effects of climate change are not conclusively known. For instance, in an article presented in *Nature* (Online Version) entitled, "Pondering a Climate Conundrum in Antarctic," dated January 13, 2002, "Unique, distinct cooling trend discovered on Earth's southernmost continent Antarctica overall has cooled measurably during the last 35 years—despite a global average increase in air temperature of 0.06 degrees Celsius during the 20th century—making it unique among the Earth's continental." In another article published by the National Center for Policy Analysis entitled, "Myths of Global Warming," dated May 23, 1997, it states "While ground-level temperature measurements suggest the earth has warmed between 0.3 and 0.6 degrees Celsius since 1850, global satellite data, the most reliable of climate measurements, show no evidence of warming during the past 18 years. [] Even if the earth's temperature has increased slightly, the increase is well within the natural range of known temperature variation over the last 15,000 years. Indeed, the earth experienced greater warming between the 10th and 15th centuries—a time when vineyards thrived in England and Vikings colonized Greenland and built settlements in Canada." Both of these sources are provided in **Appendix 3.0-22** to this Additional Analysis. This conflicting information regarding the effects of climate change is also reflected in documents prepared by the state DWR. In its document entitled, *The State Water Project Delivery Reliability Report*, Public Draft, November 2005, the following is provided:

> "…This factor depends on how much rain and snow there will be in any given year and what the level of development (that is, the use of water) will be in the source areas. No model or analytical tool can predict the actual, natural water supplies for any year or years in the future. *Until we are able to better quantify the impacts of climate change on*

> *precipitation and runoff patterns in California*, future weather patterns are usually assumed to be similar to those in the past, especially where there is a long historical rainfall record." (See page 6) [Emphasis Added]
>
> "The month-to-month simulations are conducted over the 73-year period (1922–1994) of the adjusted historical rainfall/runoff data. This approach incorporates the over-arching assumption that the next 73 years will have the same rainfall/snowmelt amount and pattern, both within-year and from year to year, as the period 1922 through 1994. The studies do not incorporate any modifications to account for changes related to climate change or assess the risk of future seismic or flooding events significantly disrupting SWP deliveries. As tools are developed to address these risks and the resulting studies become available, the information will be incorporated into the assessment of SWP delivery reliability. The results of the CALSIM II studies conducted for this update to *The State Water Project Delivery Reliability Report 2002* (DWR 2003b) represent *the best available assessment* of the delivery capability of the SWP. (See page 9) [Emphasis Added]

As indicated by DWR, due to the uncertainty surrounding the topic of climate change, the DWR modeling completed to date is the "best available assessment of the delivery capability of the SWP." Based on this opinion by the state's expert on SWP modeling, the City believes it to be too speculative to conclusively analyze the effects of climate change on the reliability of the SWP at this time and, therefore, is terminating any further analysis of this topic.

(13) Water Conservation Measures

Petitioners allege that the 2005 UWMP relies on unsupported claims of water conservation. As indicated in the 2005 UWMP, a 10 percent reduction in water demand is expected to occur during a drought as conservation measures are employed by water purveyors. As stated in the 2005 UWMP (page 2-11), "As a result of extraordinary conservation measures enacted during the [1987-1992 drought] period, the overall water requirements actually decreased by more than 10 percent." Support for this assumption is found on UWMP Figure 2-4 presented on page 2-10, where it is shown that historic water consumption decreased in 1991 by approximately 10 percent despite the fact that 1991 was an average rather than a wet water year. In cool wet years, water consumption is expected to decrease 10 percent due to reduced demand without conservation measures.[29] Such a reduction is not expected in average years. The reduction in consumption in 1991 was a result of the "extraordinary conservation measures" enacted by CLWA and the water purveyors in the Santa Clarita Valley.[30] The *2004 Water Report*, prepared by CLWA and the water purveyors, states that a 10 percent water demand reduction is feasible during a drought based on past experience. When a shortage occurs, water consumers typically increase their awareness of water usage and voluntarily reduce water demands. During the 1987–1992 drought, voluntary

29 *2005 UWMP*, p. 2-9.

30 Robert DiPrimio, President, Valencia Water Company, personal communication, March 24, 2006.

conservation efforts by area residents resulted in a decrease in water demand of about 20 percent per year.[31]

The 2005 UWMP presents an assessment of water conservation strategies in Chapter 7.0, Water Demand Management Measures. As stated, that chapter describes the water Demand Management Measures (DMMs) and the Best Management Practices (BMPs) implemented by CLWA as a part of water conservation programs to result in quantifiable water savings for the Valley. Establishing goals and choosing water conservation measures is a continuing planning process. Goals are developed, adopted, and then evaluated periodically. Specific conservation measures are phased in and then evaluated for their effectiveness, achievement of desired results, and customer satisfaction.

The California Urban Water Management Planning Act (Act) specifies 14 DMMs. The Act was revised in 2000 to relate the DMMs to the 14 BMPs of the California Urban Water Conservation Council (CUWCC). The CUWCC was formed in 1991 through the "Memorandum of Understanding Regarding Urban Water Conservation in California." The urban water conservation BMPs included in the MOU are intended to reduce California's long-term urban water demands. The BMPs are currently implemented by the signatories to the MOU on a voluntary basis. However, the CALFED Bay-Delta Program (now the California Bay-Delta Authority) included mandatory implementation of the BMPs and certification of water use efficiency programs in its final Environmental Impact Statement/Report and Record of Decision. Work toward this certification requirement has taken place during the five-year planning period since 2000, but to date, a final decision on such a requirement has not been made by the Bay-Delta Authority. Therefore, implementation of the BMPs/DMMs continues to be voluntary.

After adoption of the 2000 UWMP, CLWA signed the urban MOU in February 2001 on its own behalf as a water wholesaler and on behalf of the local retail water purveyors, thus meeting one of the recommendations of the 2000 UWMP. NCWD signed the MOU separately on its own behalf in September 2002. Los Angeles County signed the MOU prior to the 2000 UWMP on behalf of all its Waterworks Districts. The retail purveyors have voluntarily complied with those BMPs considered locally cost-effective, as discussed in 2005 UWMP Section 7.3.

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

31 *2004 Santa Clarita Valley Water Report*, May 2005, pp. 44 and 45.

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

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

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

CLWA implements BMP 8 on behalf of all the retailers. In addition, since signing the urban MOU, CLWA has been assisting the purveyors by implementing BMPs 2 (Residential Plumbing Retrofit) and 14 (Residential Ultra Low Flush Toilet Replacement Programs). CLWA and VWC also undertook a pilot program to assess the cost-effectiveness of BMP 5 (Large Landscape Conservation Programs and Incentives) and BMP 9 (Conservation Programs for Commercial, Industrial, and Institutional Accounts). These two BMPs will see increased focus during the next five-year planning period of this Plan. NCWD has been implementing all cost-effective BMPs since it signed the MOU.

Through implementation of the programs summarized above and the past experience in the Santa Clarita Valley during droughts, the City believes it is reasonable to rely on the assumptions made by CLWA and local water purveyors regarding expected levels of conservation during dry periods.

(14) Catastrophic Disruptions in State Water Project Deliveries

The City believes the CLWA has appropriately addressed the issue of catastrophic disruption to the SWP system. As indicated CLWA's EIR for the 41,000-afy transfer,

> "SWP and CLWA facilities are designed to resist damage upon the occurrence of a seismic event. CLWA maintains substantial reservoir storage for use should SWP deliveries be temporarily interrupted from any catastrophe. The potential for seismic or

other catastrophic damage significant enough to interrupt CLWA water deliveries is low, but the concern expressed in the comment is noted. Any such damage could disrupt CLWA water deliveries temporarily, but any such temporary interruption would have a less than significant impact on the DEIR projections for the long-term reliability of the Table A Amount proposed to be transferred by this Project. The Project is intended to provide an augmented water supply, over the long term, to CLWA and its purveyors. Short-term disruptions in delivering this water supply will cause inconvenience to all those reliant on CLWA's supplies. That inconvenience could occur equally today with CLWA's present sources of supply, should a catastrophic event occur. CLWA's purveyors have made provision for use of groundwater in the event CLWA deliveries are interrupted." (See page 446)

The 2005 UWMP states, beginning on page 8-7,

"Other events could result in significant outages and potential interruption of service. Examples of possible nature-caused events include a levee breach in the Delta near the Harvey O. Banks Pumping Plant, a flood or earthquake event that severely damaged the Aqueduct along its San Joaquin Valley traverse, or an earthquake event along either the West or East Branches. Such events could impact some or all SWP contractors south of the Delta. The response of DWR, CLWA, and other SWP contractors to such events would be highly dependent on the type and location of any such event. In typical SWP operations, water flowing through the Delta is diverted at the SWP's main pumping facility, located in the southern Delta, and is pumped into the California Aqueduct. During the relatively heavier runoff period in the winter and early spring, Delta diversions generally exceed SWP contractor demands, and the excess is stored in San Luis Reservoir. Storage in SWP aqueduct terminal reservoirs, such as Pyramid and Castaic Lakes, is also refilled during this period. During the summer and fall, when diversions from the Delta are generally more limited and less than contractor demands, releases from San Luis Reservoir are used to make up the difference in deliveries to contractors. The SWP share of maximum storage capacity at San Luis Reservoir is 1,062,000 af. CLWA receives its SWP deliveries through the West Branch of the California Aqueduct at Castaic Lake. The only other contractors receiving deliveries from the West Branch are Metropolitan and Ventura County Watershed Protection District (formerly known as the Ventura County Flood Control District). The West Branch has two terminal reservoirs, Pyramid Lake and Castaic Lake, which were designed to provide emergency storage and regulatory storage (i.e., storage to help meet peak summer deliveries) for CLWA and the other two West Branch contractors. Maximum operating capacity at Pyramid and Castaic lakes is 169,900 af and 323,700 af, respectively.

In addition to SWP storage south of the Delta in San Luis and the terminal reservoirs, a number of contractors have stored water in groundwater banking programs in the San Joaquin Valley, and many also have surface and groundwater storage within their own service areas. Three scenarios that could impact the delivery to CLWA of its SWP supply, previously banked supplies, or other supplies delivered to it through the California Aqueduct are described below. In any of these three SWP emergency outage scenarios, DWR and the SWP contractors would coordinate operations to minimize supply disruptions. Depending on the particular outage scenario or outage location, some or all of the SWP contractors south of the Delta might be affected. But even among those contractors, potential impacts would differ given each contractor's specific mix of other supplies and available storage. During past SWP outages, the SWP contractors have worked cooperatively to minimize supply impacts among all contractors. Past examples of such cooperation have included certain SWP contractors agreeing to rely more heavily on alternate supplies, allowing more of the outage-limited SWP supply to be delivered to other contractors; and exchanges among SWP contractors, allowing delivery of one contractor's SWP or other water to another contractor, with that water being returned after the outage was over."

Three scenarios are presented in the UWMP, including Scenario 1: Levee Breach Near Banks Pumping Plant; Scenario 2: Complete Disruption of the California Aqueduct in the San Joaquin Valley; and Scenario 3: Complete Disruption of the West Branch of the California Aqueduct. As stated on page 8-9,

> "In any of these three SWP emergency outage scenarios, DWR and the SWP contractors would coordinate operations to minimize supply disruptions. Depending on the particular outage scenario or outage location, some or all of the SWP contractors south of the Delta might be affected. But even among those contractors, potential impacts would differ given each contractor's specific mix of other supplies and available storage. During past SWP outages, the SWP contractors have worked cooperatively to minimize supply impacts among all contractors. Past examples of such cooperation have included certain SWP contractors agreeing to rely more heavily on alternate supplies, allowing more of the outage-limited SWP supply to be delivered to other contractors; and exchanges among SWP contractors, allowing delivery of one contractor's SWP or other water to another contractor, with that water being returned after the outage was over.
>
> Of these three SWP outage scenarios, the West Branch outage scenario presents the worst-case scenario for CLWA. In this scenario, CLWA would rely on local supplies and water available from Pyramid and Castaic Lakes. An assessment of the supplies available to meet demands in CLWA's service area during a six-month West Branch outage and the additional levels of conservation projected to be needed are presented in Table 8-4 for 2005 through 2030. During an outage, the local supplies available would consist of groundwater from the Alluvial Aquifer and the Saugus Formation, as well as recycled water. It was assumed that local well production would be unimpaired by the outage and that the outage would occur during a year when average/normal supplies would be available from the Alluvial Aquifer. Pumping from the Saugus was assumed to be one-half of the annual supplies available in a single dry year. Note that adequate well and aquifer capacity exists to pump at levels higher than those assumed in this assessment, particularly during a temporary period such as an outage. However, to be conservative, groundwater production was assumed to be one-half of annual supplies. Based on the assumption that additional voluntary conservation could reduce the amount of waste discharge, and therefore the amount of recycled water available, the amount of recycled water assumed to be available would be reduced by 25 percent.
>
> The water available to CLWA from Pyramid and Castaic Lakes includes flexible storage available to CLWA at Castaic Lake and emergency and potentially regulatory storage available in both Pyramid and Castaic Lakes. Regulatory storage, which is used to help meet high peak summer deliveries, may or may not be available depending on what time of year an outage occurs. For this assessment, regulatory storage was assumed to be unavailable. The amount of emergency storage assumed to be available to CLWA was based on CLWA's proportionate share of usable storage in each reservoir, where usable storage is maximum operating storage, less regulatory and dead pool storage. At Castaic Lake, this usable storage determination also excludes the three West Branch contractors' total flexible storage. CLWA's proportionate share of usable storage was assumed to be slightly less than three percent, based on its share of capital cost repayment at each reservoir. On this cost repayment basis, the proportionate shares of the Metropolitan and Ventura County Flood Control District are about 96 percent and one percent, respectively. Table 8-4 shows that, for a six-month emergency outage, additional conservation beyond the conservation BMPs described in Chapter 7 would be required, with the additional demand reductions ranging from three to 16 percent of the urban portion of total demand. It is likely that potential cooperation among SWP contractors and/or temporarily increased purveyor groundwater production during such an outage could increase supplies so that lower amounts, or even no amount, of additional conservation would be needed. However, even without such supply increases, these levels of additional conservation would be readily achievable. In an emergency such as this, these levels of additional conservation would likely be achieved through voluntary conservation, but mandatory measures would be enacted if needed.

As stated in these CLWA documents, the potential for water disruptions due to catastrophic events is extensively assessed. It is clear from these assessments that disruptions lasting a period of months is possible and that available local supplies would be used to offset the temporary disruption in SWP deliveries. If such disruptions were to last as long as 15 months as suggested by Petitioners, then the purveyors have it within their power to impose mandatory conservation measures as necessary to match supplies until SWP deliveries resume. Whether disruptions occur for 6 months or 15 months, it appears that CLWA has presented a reasonable basis to believe that sources of water would be available for this project and the Santa Clarita Valley as a whole during such an event, albeit not without inconvenience and in some cases possibly substantial inconvenience.

(15) Newhall Ranch Specific Plan Use of Groundwater

Petitioners allege that the 2005 UWMP is deficient because it fails to address the likelihood that the 20,000 home Newhall Ranch Specific Plan project will not be able to utilize water currently used there for agricultural irrigation due to excessive levels of total dissolved solid (TDS). This is incorrect as data show that groundwater to be used for Newhall Ranch meets TDS regulations.

TDS are a measure of the dissolved cations and anions, primarily inorganic salts (calcium, magnesium, potassium, sodium, chlorides, and sulfates). High TDS levels can impair agricultural, municipal supply, and groundwater recharge beneficial uses. Drinking water for the Newhall Ranch Specific Plan will be delivered by the VWC from wells in the Valencia Commerce Center. The Valencia Commerce Center is located just northeast of the Specific Plan site. It is important to note that these wells have already been approved for use as sources for drinking water by the state DHS. Results from laboratory testing conducted for the VWC wells, provided in **Appendix 3.0-23** of this Additional Analysis, show that TDS levels range from 890 to 900 mg/l. TDS is listed by DHS as a secondary contaminant, which means it is a "consumer acceptance" regulation, not a health-based standard. Recommended TDS levels are:

- Recommended Level – 500 milligrams per liter (mg/l)
- Upper Level – 1,000 mg/l
- Short Term Level – 1,500 mg/l

DHS states that "constituent concentrations ranging to the upper contaminant level are acceptable if it is neither reasonable nor feasible to provide more suitable waters." In addition, DHS states that constituent concentrations between the Upper and Short-Term levels can also be approved (1) if adequate progress is being demonstrated toward providing water of improved mineral quality; and (2) for other compelling reasons approved by the Department. As shown, water from these wells meet all water quality standards

for drinking water, including the secondary standards for TDS. Based on this information, the City of Santa Clarita believes that the 2005 UWMP is not flawed with respect to this issue.

In summary, in analyzing whether there is sufficient water to serve this project and likely cumulative development, the City of Santa Clarita may rely on expert water agencies' determination in the 2005 UWMP that there is sufficient water to serve anticipated growth, and may also rely on their determination that the arguments raised by Petitioners lack merit.

(16) Summary of City's Conclusions About Effect of Litigation on Sufficiency of Water Supplies

This Additional Analysis acknowledges that multiple court challenges have been filed against the adequacy of the EIR prepared for Monterey Agreement, for the 41,000-afy transfer, for the banking of water at Semitropic, and now against the adequacy of the 2005 UWMP. Based on the status of these suits, their likely outcome, and the fact that no court has yet set aside any of the water transfers or other physical activities approved under any of the challenged documents, the City has determined that there is substantial evidence in the record to support the conclusions in the 2005 UWMP and the 2006 WSA that there is sufficient water to serve this project as well as anticipated development.

D. Recycled Water Supplies

Recycled water is available from two existing water reclamation plants operated by the County Sanitation Districts of Los Angeles County (CSDLAC). CLWA has completed environmental review on the construction of Phase I of its Reclaimed Water System Master Plan, a multi-phased program to deliver recycled water in the Valley. CLWA currently has rights to use 1,700 afy of recycled water, and Phase I provides for the delivery of this amount. While actual use of recycled water currently totals approximately 500 afy, the amount of this supply currently available is 1,700 afy. In the *2005 UWMP*, the existing supply of recycled water assumed to be available is 1,700 afy in an average year, a single dry year, and in each year of a multiple dry-year period. CLWA projects an increase of 15,700 afy in the supply of recycled water by 2030, for a total of 17,400 afy. Similar to the existing recycled water supply, the 15,700 afy of planned recycled water supply is assumed to be available in an average year for non-potable purposes, a single dry year, and in each year of a multiple dry-year period. Use of recycled water frees up potable water for potable purposes.

E. Water Transfers, Exchanges And Groundwater Banking Programs

An important element to enhancing the long-term reliability of the total mix of supplies currently available to meet the needs of the Santa Clarita Valley is the use of water transfers, exchanges, and groundwater banking programs, such as those described below.

(1) Transfers and Exchanges

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

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

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

(a) Core Transfers

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

(b) Spot Market Transfers

Spot market transfers involve water purchased only during the time of need (usually a drought). Payments for these transfers occur only when water is actually requested and delivered, but there is usually greater uncertainty in terms of costs and availability of supply. Examples of such transfers were the Governor's Drought Water Banks of 1991 and 1992. An additional risk of spot market transfers is that the purchases may be subject to institutional limits or restricted access (e.g., requiring the purchasing agency to institute rationing before it is eligible to participate in the program).

(c) Option Contracts

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

(d) Future Market Transfers

The most viable types of water transfers are core and option transfers and, as such, represent CLWA's long-term strategy. The costs for these types of transfers have been estimated to be about $60 to $110 per af (equivalent to $1,100 to $2,000 per af for Table A Amount) for core transfers and $250 per af for option transfers. Although the option transfer costs might seem high, the equivalent average annual cost is much less—about $65 to $112 per af. Average annual option transfer costs are much lower due to the variable likelihood that the transfers will be needed.

Currently, CLWA is proceeding with environmental compliance to acquire a core transfer of an additional 11,000 afy of surface water from the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District, both located in Kern County. In 2004, CLWA signed an MOU with both districts to begin preliminary non-binding negotiations on the possible terms for participation in the program. Such terms would define a project subject to subsequent environmental analysis. The initial offering from the program is up to 11,000 afy of firm supply. In December 2004, CLWA, Buena Vista, and Rosedale-Rio Bravo executed a deposit agreement for the exclusive right to negotiate, and CLWA started preparing an EIR. CLWA anticipates that, upon completion of CEQA documentation, this program will be operational in 2006.

(2) Groundwater Banking Programs

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

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

In 2003, CLWA produced a *Draft Water Supply Reliability Plan*.[32] The plan outlines primary elements that CLWA should include in its water supply mix to obtain maximum overall supply reliability enhancement. These elements include both conjunctive use and groundwater banking programs, as well as water acquisitions. The Plan also contains a recommended implementation plan and schedule.

The reliability plan recommends that CLWA obtain total banking storage capacity of 50,000 af, with pumpback capacity of 20,000 af per year, by 2005 (pumpback capacity is the amount of the stored water that is available to be released to CLWA). For the long-term, CLWA should obtain a total of 183,000 af of storage capacity, with total pumpback capacity of 70,000 af per year by 2050. **Table 3.0-12, Recommended Schedule for Water Banking Capacity**, taken from the *2003 Draft Water Supply Reliability Plan*, presents an implementation schedule recommended for both storage and pumpback capacity beginning in 2005 and incrementally increasing through 2050.

32 CLWA's draft *Water Supply Reliability Plan* is provided in **Appendix 3.0-27** of this EIR.

Table 3.0-12
Recommended Schedule for Water Banking Capacity

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

Source: Draft Water Supply Reliability Plan, prepared by Kennedy/Jenks Consultants, 2003.

(a) Semitropic Water Banking

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

In 2002, CLWA stored an available portion of its Table A Amount (24,000 af) in an account in Semitropic's program.[33] In 2004, 32,522 af of available 2003 Table A Amount water was stored in a second Semitropic account.[34] In accordance with the terms of CLWA's storage agreements with Semitropic, 90 percent of the banked amount, or a total of 50,870 af, is recoverable through 2013 to meet CLWA water demands

33 CLWA's approval of this project and of its negative declaration was challenged under CEQA in the Ventura County Superior Court (*California Water Network v. Castaic Lake Water Agency* [Ventura County Superior Court Case No. CIV 215327]). Finding that CLWA's approval of this project and of its negative declaration did not violate CEQA, the trial court entered judgment in favor of CLWA. However, Petitioners have filed an appeal with the California Court of Appeal, Second Appellate District, Division 6, Court of Appeal Case No. B177978. The appeal is still pending as of this writing.

34 No legal challenge was made to CLWA's approval of this project or to the negative declaration prepared under CEQA for this project.

when needed. Each account has a term of 10 years for the water to be withdrawn and delivered to CLWA.[35]

In addition to this short-term storage for CLWA, Semitropic has a long-term groundwater banking program with several other partners. The facilities that Semitropic may use in the return of CLWA's banked water supply are the same facilities that Semitropic may use to return banked water to its long-term banking program partners. As a result, there may be competition for use of those facilities in a particularly dry year, which could limit CLWA's ability to access the water in that year.

CLWA plans to use this supply only in dry years. For the single dry year, the *2005 UWMP* assumed that competition among Semitropic's banking partners for use of return facilities would limit CLWA's supply to about one-third of the storage available, or about 17,000 af. For the multiple dry-year period, the *2005 UWMP* assumed that the entire amount would be accessible and used sometime during the four-year period, so the average annual supply during that period would be one-fourth of the total available, or about 12,700 af. Since the stored water must be withdrawn within 10 years of when it was stored, the *2005 UWMP* assumed that this supply is available only through 2013.

(b) Rosedale-Rio Bravo Water Storage District Water Banking

Also located in Kern County, immediately adjacent to the Kern Water Bank, Rosedale-Rio Bravo Water Storage District has completed environmental documentation for a Water Banking and Exchange Program. The initial offering from the program is storage and pumpback capacity of 20,000 afy, with up to 100,000 af of storage capacity. This banking program would meet the total pumpback and exceed the total storage capacity in 2010 recommended in the implementation schedule provided in the 2003 *Draft Water Supply Reliability Plan* (see, **Appendix 3.0-17**). This program is available for subscription and, in 2004, CLWA signed an MOU with Rosedale-Rio Bravo to begin preliminary non-binding negotiations on the possible terms for participation in the program. Such terms would define a project that would then be subject to subsequent environmental analysis. In April 2005, CLWA and Rosedale-Rio Bravo executed a deposit agreement for the exclusive right to negotiate, and CLWA certified an EIR in October 2005.

This project is a water management program to improve the reliability of CLWA's existing dry-year supplies; it is not, and should not be considered, an annual supply that could support growth. Under this program, CLWA stored 20,000 af in calendar year 2005 and plans to store an additional 20,000 af in the program in early 2006.

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35 Thereafter, the remaining amount of project water is forfeited from the account.

For the single dry year, the *2005 UWMP* assumed the program's maximum withdrawal capacity of 20,000 af. For the multiple dry-year period, the *2005 UWMP* assumed that, in the first five-year increment the program is available, supplies would be limited to an average of 5,000 afy, and that 20,000 af of water would be stored in one wet year prior to the dry period. In later years, the *2005 UWMP* assumed that supplies would average at least 15,000 afy over the dry period and that additional supplies would be banked during wetter years to allow withdrawal of at least this amount.

Groundwater banking and conjunctive-use programs enhance the reliability of both CLWA's existing and future supplies. **Table 3.0-13**, below, summarizes CLWA's existing and planned reliability enhancement programs.

Table 3.0-13
Existing and Planned Reliability Enhancement Programs

Project Name	Year Available	Quantities (af)		
		Average/ Normal Year	Single Dry Year	Multiple Dry Years[(1)]
Existing Programs				
- Semitropic Water Bank	2004	0	17,000	12,700
- Rosedale-Rio Bravo Water Banking Program	2005	0	20,000	20,000
Total		*0*	*37,000*	*32,700*
Additional Planned Banking Programs	2014	0	20,000	20,000
Grand Total		*0*	*57,000*	*52,700*

Notes:
[(1)] Supplies shown are maximum withdrawal capacity for each of four consecutive dry years.
Source: 2005 UWMP

(c) Other Opportunities

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

6. PROPOSED PROJECT IMPROVEMENTS

The site is currently undeveloped and has no water supply infrastructure in place. The project area is currently served by an existing 12-inch water main in the San Fernando Road right-of-way, north of and adjacent to the site. The area is served by two water tanks with a pad elevation of approximately 1,457

feet mean sea level (msl), west of the site. These tanks have a total storage capacity of approximately 3.75 million gallons. Water is distributed within the area from wells 12 and 13, with flows of 2,600 and 2,500 gpm, respectively, and one booster fed from the Castaic Lake Water Agency, with flows of 2,600 gpm. An existing water tank is located on Lot 43, in the central eastern portion of the site, near the Eternal Valley Cemetery. In addition, a water tank is located at an elevation of 1,905 feet msl on Lot 42, in the southeastern portion of the site. A Metropolitan Water District (MWD) easement that contains the MWD is Foothill Feeder Newhall Tunnel, a 20-foot, 8-inch water pipeline, traverses the site in a northeast/southwest direction through the central portion of the site.

The proposed project would generate demand for an estimated 386 af of water per year. Water would be delivered to the project through an existing water main within the San Fernando Road right-of-way, north of and adjacent to the site. Smaller water lines would then branch off this main line to the proposed development areas. The proposed project would include construction of water tanks on Lots 42 and 44, in the central eastern portion of the site, adjacent to an existing water tank. These tanks would be expected to provide adequate storage capacity to serve the proposed development.

According to the NCWD, adequate water supply is available to serve the water demand generated by the proposed project (*see*, WSA prepared by the NCWD, March 2006 presented in **Appendix 3.0-24**). Therefore, impacts to water resources are not considered significant.

7. PROJECT IMPACTS

A. Significance Threshold Criteria

The criteria listed below are based on Appendix G of the *CEQA Guidelines* (2005). The proposed Gate-King project would normally have a significant impact on water resources if it would:

(a) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted); or

(b) Have insufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements are needed.

The City also requires an analysis of adverse impacts on water availability when a project cannot be served by the existing area water system facilities due to inadequate water supplies to meet the domestic demands and/or fire flows for fire protection.

B. Environmental Impacts Associated With The Gate-King Water Supplies

As indicated in the *SB 610 Water Supply Assessment for the Gate-King Project* (**Appendix 3.0-24**), an adequate supply of water is available to meet the demands of the Gate-King project in addition to existing and planned future uses in the Santa Clarita Valley. The supply available to meet the project's demand is the NCWD's supplies from local groundwater and the State Water Project. Projected demand from the proposed project was accounted for within both the 2000 UWMP and the 2005 UWMP.

Supplying water to the Gate-King project also would not substantially deplete groundwater supplies, because the previous discussion in this Additional Analysis of available local groundwater supplies confirms that there are sufficient local groundwater supplies to support the planned land uses of the Gate-King project site, in addition to existing and future cumulative development in the valley. As stated above, the use of local groundwater supplies to serve the Gate-King project, in conjunction with other existing and future cumulative development, would not cause any adverse effects to the Basin. The supplying of water to the Gate-King project also would not interfere substantially with groundwater recharge, because the best available evidence shows that no adverse impacts to the recharge of the Basin have occurred due to the existing or projected use of local groundwater supplies, consistent with the CLWA/purveyor groundwater operating plan for the Basin.[36]

The detection of perchlorate in local groundwater supplies has raised concerns over the reliability of those supplies, in particular the Saugus Formation, where four wells have been removed from active service as a result of perchlorate. As discussed in both this Additional Analysis and the *2005 UWMP*, Chapter 5 and Appendix D, planning for remediation of the perchlorate and restoration of the impacted well capacity is substantially underway. While that work is being completed, non-impacted production facilities can be relied upon for the quantities of water projected to be available from the Alluvial aquifer and Saugus Formation during the time necessary to restore perchlorate-impacted wells. CLWA, the local retail water purveyors, the DTSC, and the ACOE continue to work closely on the perchlorate contamination issue.

The following is a summary of the status of perchlorate remediation and restoration of perchlorate-impacted groundwater supply. A more detailed discussion of pertinent events related to perchlorate contamination, containment, remediation, and water supply restoration is included in the *2005 UWMP*, Appendix D. This discussion is provided to illustrate that work toward the ultimate remediation of the

36 Based on the memorandum prepared by CH2MHill (*Effect of Urbanization on Aquifer Recharge in the Santa Clarita Valley*, February 22, 2004; **Appendix 3.0-28**), no significant project-specific or cumulative impacts would occur to the groundwater basin with respect to aquifer recharge. This is because urbanization in the Santa Clarita Valley has been accompanied by long-term stability in pumping and groundwater levels, and the addition of imported SWP water to the valley, which together have not reduced recharge to groundwater, nor depleted the amount of groundwater in storage within the local groundwater basin.

perchlorate contamination, including the reactivation of impacted groundwater supply wells, has progressed on several integrated fronts over the last five years and is not expected to impede ongoing reliance on the Saugus aquifer as a source of water for the valley.

(1) Perchlorate Impacted Water Purveyor Wells

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

Since the detection of perchlorate and resultant inactivation of impacted wells, the purveyors have been conducting regular monitoring of active wells near the Whittaker-Bermite site. In April 2005, that monitoring detected the presence of perchlorate in VWC's Well Q2, an Alluvial well located immediately northwest of the confluence of Bouquet Creek and the Santa Clara River. The location of this well is also shown in **Figures 3.0-6** and **3.0-7**. As a result of the detection and confirmation of perchlorate in its Well Q2, VWC removed the well from active service and pursued rapid permitting and installation of wellhead treatment in order to return the well to water supply service. In October 2005, VWC also restored the pumping capacity of Well Q2 with the start-up of wellhead treatment designed to effectively remove perchlorate.

In January 2005, VWC permanently closed well V-157 and, in September 2005, completed the construction of new Saugus well V-206 located in an area of the Saugus Formation not impacted by perchlorate. VWC's V-206 is operational and replaces the pumping capacity temporarily impacted by the detection of perchlorate at former well V-157. In summary, three Saugus wells (Saugus 1 and 2 and NC-11) and one Alluvial well (SCWD Stadium well) remain off-line due to perchlorate contamination.

Locations of the impacted wells and other nearby non-impacted wells, relative to the Whittaker-Bermite site, are shown in **Figures 3.0-6** and **3.0-7**.

(2) Restoration of Perchlorate-Impacted Water Supply

Since the detection of perchlorate in the four Saugus wells in 1997, CLWA and the retail water purveyors have recognized that one element of an overall remediation program would most likely include pumping from impacted wells, or from other wells in the immediate area, to establish hydraulic conditions that would control the migration of contamination from further impacting the aquifer in a downgradient (westerly) direction. Thus, CLWA and the retail water purveyors expect that the overall perchlorate

remediation program could include dedicated pumping from some or all of the impacted wells, with appropriate treatment, such that two objectives could be achieved. The first objective is control of subsurface flow and protection of downgradient wells, and the second is restoration of some or all of the contaminated water supply. Not all impacted capacity is required for control of groundwater flow. The remaining capacity would be replaced by construction of replacement wells at non-impacted locations.

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

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

The current schedule for implementation of the plan to restore contaminated water supply (wells) is illustrated in **Figure 3.0-8**. Included in the schedule is a planned extended test of the wells that will be returned to service as part of restoring contaminated water supply and that will also be operated to extract contaminated water and control the migration of contamination in the aquifer.

Concurrent with the testing of the wells, several specific ion exchange resins also will be tested to evaluate their performance and longevity. The two key activities that comprise the majority of effort required for implementation of the plan are general facilities-related work (design and construction of well facilities, treatment equipment, pipelines, etc.) and permitting work. Both activities are planned and scheduled concurrently, resulting in planned completion (i.e., restoration of all impacted capacity) in 2006. Notable recent accomplishments toward implementation include completion of the Final Interim Remedial Action Plan (RAP) in December 2005 and completion of environmental review with the adoption of a Mitigated Negative Declaration in September 2005.

In light of the preceding, with regard to the adequacy of groundwater as the local component of water supply for the Santa Clarita Valley, the impacted capacity will remain unavailable through 2006, during which time the non-impacted groundwater supply will be sufficient to meet near-term water

requirements as described in Chapter 3 of the *2005 UWMP*. Thereafter, the total groundwater capacity will be sufficient to meet the full range of normal and dry-year conditions as provided in the CLWA/retail water purveyor groundwater operating plan for the Basin.

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

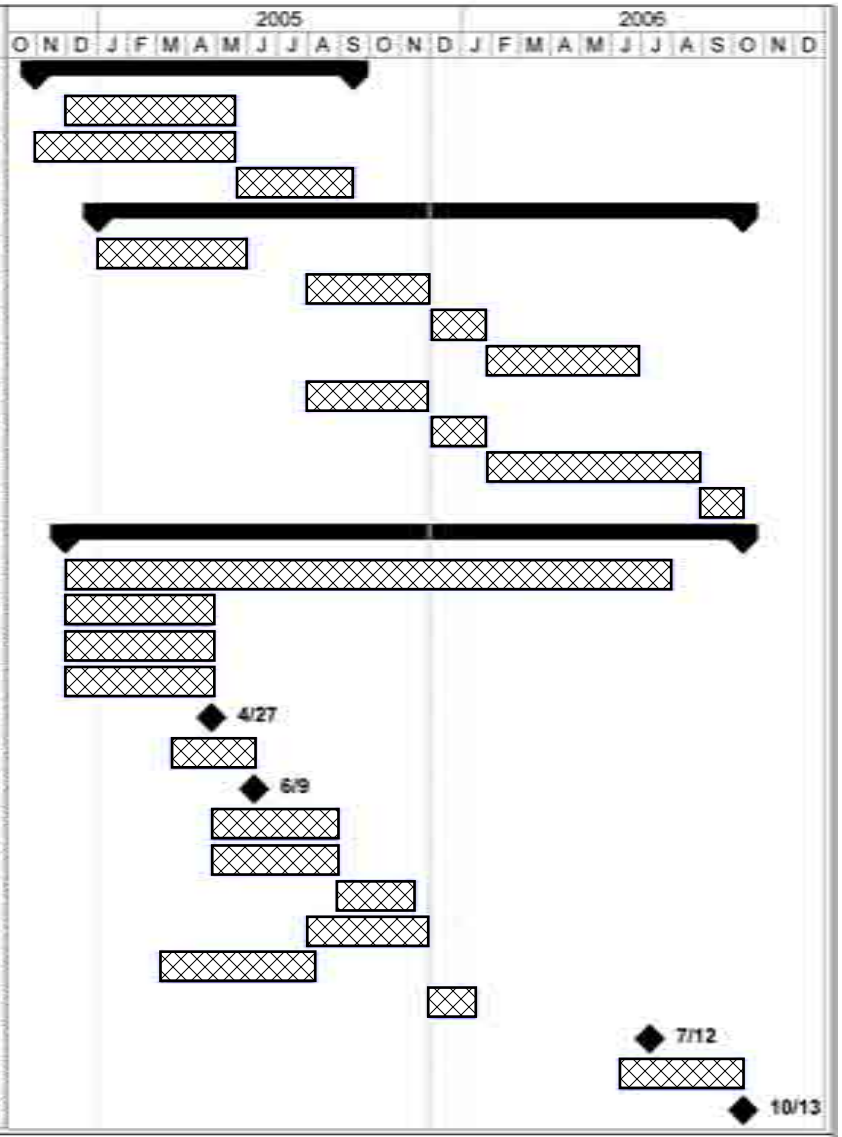
Before issuing a permit to a water utility for use of an impaired source as part of the utility's overall water supply permit, DHS requires that studies and engineering work be performed to demonstrate that pumping the wells and treating the water will be protective of public health for users of the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

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

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

CLWA is currently working directly with the retail water purveyors and its consultants on development of the DHS 97-005 Policy Memo permit application. Two coordination workshops have already been held with DHS. Drafts of all six elements of the 97-005 Policy Memo have been submitted to DHS and the retail purveyors for review, including the Source Water Assessment, Raw Water Quality Characterization, Source Protection Plan, Effective Monitoring and Treatment Evaluation, Human Health Risk Assessment, and the Alternatives Sources Evaluation. The Engineer's Report, which summarizes these six elements for the 97-005 process, is anticipated to be complete by the end of March 2006.

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



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

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

SOURCE: Luhdorff & Scalmanini Consulting Engineers – January 2006

FIGURE **3.0-8**

Preliminary Implementation Schedule

The CEQA process for the "CLWA Groundwater Containment, Treatment, and Restoration Project," for which the 97-005 process is being conducted, was completed in August 2005.[37]

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

The groundwater model was initially intended for use in analyzing the operating yield and sustainability of groundwater in the Basin. However, the model was adaptable to analyze both the sustainability of groundwater under an operational scenario that includes full restoration of perchlorate-contaminated supply and the containment of perchlorate near the Whittaker-Bermite property (i.e., by pumping some of the contaminated wells). In 2004, DTSC reviewed and approved the development and calibration of the regional model. After DTSC approval, the model was used to simulate the capture and control of perchlorate by restoring impacted wells, with treatment. The results of that work are summarized in a report entitled, *Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California* (CH2MHill, December 2004). The modeling analysis indicates that the pumping of impacted wells SCWD-Saugus 1 and SCWD-Saugus 2 on a nearly continual basis will effectively contain perchlorate migrating westward in the Saugus Formation from the Whittaker-Bermite property. The modeling analysis also indicates that (1) no new production wells are needed in the Saugus Formation to meet the perchlorate containment objective; (2) impacted well NCWD-11 is not a required component of the containment program; and (3) pumping at SCWD-Saugus 1 and SCWD-Saugus 2 is necessary to prevent migration of perchlorate to other portions of the Saugus Formation. This report, and the accompanying modeling analysis, was approved by DTSC in November 2004. With that approval, the model is now being used to support the source water assessment and the balance of the permitting process required by DHS.

C. Gate-King Water Demand

The project water demand is summarized in **Table 3.0-14, Summary of Gate-King Water Demand**.

[37] For further information regarding this project, please refer to Appendix E of the *2005 UWMP* (**Appendix 3.0-14**).

Table 3.0-14
Summary of Gate-King Water Demand (af) [1]

Land Use Categories	Water Use Factor		Proposed Project	Estimated Water Use (afy)
	afy	per		
Industrial/Commercial	2.27	Acre	170.1	386.1
			Total (Rounded)	386

[1] *Industrial Water Use Factor as defined in Gate-King EIR. Also includes commercial uses and a fire station.*

The remaining portion of this section identifies the water sources that will be available to meet the water demand generated by buildout of the Gate-King project.

D. Gate-King Water Supplies

As discussed above, the projected total water demand for the Gate-King project is 386 afy in a normal/average year. Project water demand increases by approximately 10 percent in a dry year to a total of 425 afy. To meet this demand, NCWD, as the local retail purveyor, would provide water to the Gate-King project upon annexation of the remainder of the project site into its service boundaries. Water sources expected to serve the Gate-King project are the NCWD's access to local groundwater and SWP water.

E. Existing Conditions Plus Project Water Demand and Supply

This section describes the existing development demand in the Santa Clarita Valley, plus the project water demand, measured against existing supplies. **Table 3.0-15, Existing Plus Project Demand and Supply for the Santa Clarita Valley**, illustrates that existing supplies exceed project demand, in conjunction with existing demand in the Santa Clarita Valley.

The Los Angeles County Fire Department requires sufficient capacity for fire flows of 5,000 gpm at 20 pounds per square inch (psi) for a five-hour duration for multi-family and commercial uses with a first-floor area of 35,000 square feet or greater (actual fire flow requirements would be confirmed for each use by the Los Angeles County Fire Department prior to final tract map approval). According to the project engineer, the proposed water system would be able to meet both domestic and fire flow requirements of the project.

Table 3.0-15
Existing Plus Project Demand and Supply for the Santa Clarita Valley
(afy)

	2005
Existing Demand	70,755
Other Demand (agricultural and misc. uses)[1]	12,786
Gate-King Demand	386
Total Demand	**83,927**
Existing Water Supply Programs:	
Local Supplies	
Alluvial Aquifer	38,648
Saugus Formation	6,454
Recycled Water	438
Imported Supplies	
SWP Table A Amount[2]	38,001
Rosedale-Rio Bravo Water Bank[3]	20,000
Semitropic Bank Account	17,000
Flexible Storage Account[4]	6,060
Total Existing Supplies[5]	**126,601**
Surplus	**42,674**

Notes:
[1] In the Santa Clarita Valley, a total of 12,786 afy is used for agricultural irrigation and other miscellaneous uses such as the Wayside Honor Rancho. These amounts are pumped from private wells.
[2] Reflects only the amount of Table A water actually delivered to the Santa Clarita Valley. Additional SWP water was available to CLWA in 2005 that is not reflected in this table.
[3] In addition to the SWP amount delivered to the Santa Clarita Valley in 2005, CLWA also stored an additional 20,000 acre-feet in the Rosedale-Rio Bravo Water Bank.
[4] This account includes both CLWA and Ventura County flexible storage supplies available to CLWA.
[5] The supply amounts shown are not projections but are the amounts actually delivered to customers in the Santa Clarita Valley or available to customers in 2005.

F. Cumulative Water Demand and Supply Analysis

The following discussion focuses on the cumulative impacts to water availability for the Santa Clarita Valley. The analysis evaluates cumulative impacts under the following three future water demand and supply scenarios:

Scenario 1. Existing development within the CLWA service area, plus near-term projections, plus the project (referred to as the SB 610 Water Demand and Supply Scenario).

Scenario 2. Existing development within the CLWA service area, plus County General Plan Development Monitoring System (DMS) projections, plus the project (referred to as the DMS Build-Out Scenario).

Scenario 3. Buildout within the CLWA service area by 2025, plus active pending General Plan Amendment requests, plus the project (referred to as the Santa Clarita Valley 2025 Build-Out Scenario).

(1) SB 610 Water Demand and Supply Scenario

As indicated previously, the NCWD prepared a SB 610 WSA for the Gate-King project. A copy of the WSA is found in **Appendix 3.0-24** of this EIR. In the WSA, NCWD concludes there will be a sufficient water supply available at the time the Gate-King project is ready for occupancy to meet the needs of the project in addition to existing and other planned future uses.

NCWD's current service area-wide demand is approximately 10,756 afy.[38] As mentioned previously, the Gate-King project will require approximately 386 afy at buildout. The average-year, dry-year, and multiple dry-year water assessments are presented below. These assessments are based on the *2005 UWMP*.

Average Year Water Assessment. The *2005 UWMP* indicates that no shortages are anticipated within the CLWA service area in an average water year through 2030 if planned water supply programs are developed as estimated. Total projected water demands for the CLWA through the year 2030 are compared with the supplies projected to be available to meet demands in this analysis. The following table, **Table 3.0-16**, summarizes the data from the *2005 UWMP*.

Table 3.0-16
Long-Term Projection Average/Normal Water Year
Water Supply and Demand Assessment

	2005	2010	2020	2030
EXISTING WATER SUPPLY				
Local Supplies				
Alluvial Aquifer	35,000	35,000	35,000	35,000
Saugus Formation	5,000	11,000	11,000	11,000
Recycled Water	700	1,700	1,700	1,700
Imported Supplies				
SWP Table A Amount	58,001[(1)]	67,600	71,400	73,300
Draw From Short-Term Semitropic Bank Account	0	0	0	0
Draw from Rosedale-Rio Bravo Groundwater Bank	0	0	0	0
Draw From Flexible Storage Account (CLWA)	0	0	0	0
Draw From Flexible Storage Account (Ventura County)	0	0	0	0
Total Existing Supply	**98,701**	**115,300**	**119,100**	**121,000**

38 This represents average year demand. Dry year demand is approximately 10 percent higher.

	2005	2010	2020	2030
PLANNED WATER SUPPLY				
Local Supplies				
Recycled Water	0	0	6,300	15,700
Imported Supplies				
Buena Vista-Rosedale Transfer	0	11,000	11,000	11,000
Draw from Planned Banking Programs	0	0	0	0
Total Planned Supply	**0**	**11,000**	**17,300**	**26,700**
Total Supply (Existing plus Planned)	**98,701**	**126,300**	**136,400**	**147,700**
Estimated Demand (with conservation[2])	**81,700**	**91,450**	**106,450**	**125,400**
Surplus[3]	**17,001**	**34,850**	**29,950**	**22,300**

Notes:
[1] In addition to the SWP amount delivered to the Santa Clarita Valley in 2005 of 38,001 af, CLWA also stored an additional 20,000 af in the Rosedale-Rio Bravo Water Bank.
[2] Water demand management measures considered by CLWA as part of its water demand management planning is described in the Chapter 7 of the 2005 UWMP. CLWA expects that demand will be reduced by approximately 10 percent by virtue of its and the retail purveyor's water demand management planning efforts.
[3] Dry-year supplies above demand reflect water supplies that would be available to purveyors in dry years. Purveyors would typically secure water from these available supplies only in amounts necessary to meet demand.

Source: 2005 UWMP and Santa Clarita Valley water purveyors, 2006.

Single Dry-Year Water Assessment. The *2005 UWMP* evaluated the estimated dry-year demands and projected supplies for the year 2010 for the purpose of assessing a single dry year. This year was selected in order to show the results of local and imported water supply development over the next 10 years. For the worst-case scenario single dry year (1977, with a 1 in 73-year probability of occurrence), DWR estimated that SWP deliveries to SWP contractors would be approximately 5 percent of contract amounts. If projected imported and local supplies are developed as indicated, no shortages are anticipated within the Agency's service area for the extreme-case, single dry-year scenario analyzed. In fact, as shown in **Table 3.0-17**, water supplies exceed demand by 16,460 acre-feet in the single dry year (2010). It should be noted that dry-year supplies available above demand reflect water supplies that would be called upon by purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand.

Multiple Dry-year Water Assessment. The *2005 UWMP* estimated the minimum water supply available during each of the three water years, 2018, 2019, and 2020. The surface and groundwater supplies included in this analysis are reflective of supplies available during the 1987–1992 drought years, and in particular, 1990, 1991, and 1992. The supplies available from recycling projects are assumed to experience no reduction in a dry year but are also assumed not to be fully on-line at this stage. Demand reductions of 10 percent, based on short-term water conservation programs are assumed for these dry-year scenarios (this level of conservation was achieved during the 1987–1992 drought). If projected imported and local supplies are developed as indicated, no shortages are anticipated within the CLWA service area in the dry-year scenarios analyzed. Years 1, 2, and 3 in **Table 3.0-17** represent demand projections for 2018

through 2020. The multiple dry-year water supply and demand assessments from the *2005 UWMP* are summarized below.

Information concerning "Planned Water Supply," as listed below, from the *2005 UWMP* is included to indicate examples of how CLWA would add reliability and flexibility to its water supply portfolio. Programs such as these will be analyzed by CLWA and contracts entered into as needed and cost-effectiveness are determined through time. Future water supply assessments will reflect these contractual agreements. As shown, water supplies exceed demand by 21,690 to 33,670 acre-feet in multiple dry years. Again, it should be noted that dry-year supplies available above demand reflect water supplies that would be called upon by purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand.

Table 3.0-17
Long-Term Projection Single Dry-year and Multiple Dry-year
Water Supply and Demand Assessment

	Single Dry Year	Multiple Dry Years		
		Year 1	Year 2	Year 3
	2010	2018	2019	2020
EXISTING WATER SUPPLY				
Local Supplies				
Alluvial Aquifer	32,500	32,500	32,500	32,500
Saugus Formation	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700
Imported Supplies				
SWP Table A Amount	3,800	31,400	31,400	31,400
Draw From Short-Term Semitropic Bank Account (through 2013)	17,000	0	0	0
Draw from Rosedale-Rio Bravo Groundwater Bank	20,000	15,000	15,000	15,000
Draw From Flexible Storage Account (CLWA)	4,680	1,170	1,170	1,170
Draw from Flexible Storage Account (Ventura County)	1,380	0	0	0
Total Existing Supply	**96,060**	**96,770**	**96,770**	**96,770**
PLANNED WATER SUPPLY				
Local Supplies				
Restored Contaminated Wells	10,000	5,000	10,000	10,000
New Saugus Wells	0	1,500	10,000	10,000
Recycled Water	0	6,300	6,300	6,300
Imported Supplies				
Draw From Additional Planned Banking Programs		15,000	15,000	15,000
Buena Vista-Rosedale Transfer	11,000	11,000	11,000	11,000
Total Planned Supply	**21,000**	**38,800**	**52,300**	**52,300**
Total Supply (Existing plus Planned Future)	**117,060**	**135,570**	**149,070**	**149,070**
Estimated Demand (with conservation)	**100,600**	**113,880**	**115,400**	**117,200**
Surplus/(Deficit)[(1)]	**16,460**	**21,690**	**33,670**	**31,870**

Notes:
[(1)] Dry-year supplies above demand reflect water supplies that would be available to purveyors in dry years. Purveyors would typically secure water from these available supplies only in amounts necessary to meet demand.

Source: 2004 Water Report (May 2005).

(2) DMS Build-Out Scenario

The DMS Build-Out Scenario entails existing development, buildout of the near-term subdivision projects listed in Los Angeles County's DMS, plus the project. The analysis of this cumulative development scenario is required by the City for the cumulative analysis of water service. The County's DMS lists all pending, recorded, and approved projects for which land divisions have been filed within County unincorporated lands and within the City of Santa Clarita. The City plus County unincorporated areas together constitute the County's Santa Clarita Valley Planning Area.

Table 3.0-18, **Scenario 1: DMS Build-Out Scenario Demand and Supply for the Santa Clarita Valley**, illustrates both the cumulative water demand (existing plus DMS) and supply for the Santa Clarita Valley. This cumulative water demand is compared to the near-term projected Santa Clarita Valley water supplies and the additional Newhall Ranch Specific Plan water supplies. As shown, there is an adequate supply of water expected in both average years and dry years, and no cumulative water supply impacts would occur. In fact, **Table 3.0-18** shows that water supplies exceed demand for the DMS development scenario by 38,031 to 39,631 af in average years and by 22,024 to 22,474 af in dry years. However, it should be noted that dry-year supplies available above demand reflect water supplies that would be available to purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand.

(3) Santa Clarita Valley Build-Out Scenario

The Santa Clarita Valley 2025 Build-Out Scenario entails buildout of lands under the current land-use designations indicated in the County's Areawide Plan and the City of Santa Clarita's General Plan by the year 2025, plus the proposed Gate-King project, plus all known active pending General Plan Amendment requests for additional urban development in the County unincorporated area and the City of Santa Clarita.

Table 3.0-18
Scenario 1: DMS Build-Out Scenario Demand and Supply for the Santa Clarita Valley

	Average Years		Dry Years
Santa Clarita Valley Demand			
- Existing Plus DMS Demand[1]	99,770		109,747
- Gate-King Demand	1,038		1,142
- Less Conservation			(11,089)
Total	**100,808**		**99,800**
Santa Clarita Valley Supply[2]			
- Local Supply			
a. Groundwater			
Alluvial aquifer	35,000		32,500
Less Newhall Ranch Agricultural Water	(3,402)		(4,534)
Saugus Formation	11,000		15,000
Restored Impacted Wells			6,500 to 10,000
Saugus Formation (new)	0		0
b. Newhall Ranch Agricultural Water	3,402		4,534
c. Recycled Water	1,700	3,300	3,300
Newhall Ranch WRP Supply	2,103		2,103
- Imported Supplies			
a. SWP Table A Amount[3]	69,500		3,800 to 31,400
b. Additional Planned Banking			5,000 to 20,000
c. Flexible Storage Account			1,510 to 6,060
d. Buena Vista-Rosedale Transfer	11,000		11,000
e. Rosedale-Rio Bravo Groundwater Bank			15,000-20,000
Total Supplies	**133,705–135,305**		**123,313-123,763**
Total Supplies above Demand[4]	**32,897–34,497**		**23,513-23,963**

Notes:
[1] *Complete buildout of DMS land uses is estimated to occur in 2015.*
[2] *Source: 2005 UWMP, 2004 Water Report (May 2005).*
[3] *Dry-year supplies above demand reflect water supplies that would be available to purveyors in dry years. Purveyors would typically secure water from these available supplies only in amounts necessary to meet demand.*
[4] *The surplus shown above is the net water available for banking programs (e.g., Rosedale-Rio Bravo Groundwater Banking Project, other groundwater banking projects, etc.).*

Table 3.0-19, **Scenario 2: Santa Clarita Valley 2030 Build-Out Scenario Water Supplies**, and **Table 3.0-20**, **Scenario 2: Santa Clarita Valley 2030 Build-Out Scenario Water Demand and Supply**, summarize the cumulative water demand and supply for this build-out scenario. As shown, the Gate-King project is not expected to create any significant cumulative water availability impacts in either average or dry years. In addition, under the buildout scenario, there are adequate water supplies for the project, with no significant cumulative water supply impacts occurring in either average or dry years. In fact, the two tables show that water supplies exceed demand under this scenario in average and dry years in 2030.

Dry-year supplies available above demand reflect water supplies that would be called upon by purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand. For a dry year, when reliability of the SWP could be reduced, CLWA would utilize both dry-year supplies available from the Saugus aquifer, and water banking and conjunctive use projects as indicated in **Table 3.0-19**, below.

Table 3.0-19
Scenario 2: Santa Clarita Valley 2030 Build-Out Scenario Water Supplies
(afy)

	Buildout (year 2030)	
	Average Years	**Dry Years**
Santa Clarita Valley Water Supplies[1]		
Local Supply		
a. Groundwater		
Alluvial Aquifer	35,000	32,500
Saugus Formation	11,000	15,000
Restored Impacted Wells		10,000
Saugus Formation (new wells)	0	10,000
b. Recycled Water	17,770	17,770
Imported Supplies		
a. SWP Table A Amount[2]	73,300	4,800-31,400
b. Newhall Semitropic Groundwater Bank Storage		712
c. Additional Planned Banking		15,000-20,000
d. Buena Vista-Rosedale Transfer	11,000	11,000
e Flexible Storage Account		1,170-4,680
f. Rosedale-Rio Bravo Groundwater Bank		15,000 to 20,000
Total Supply	**148,000**	**145,680-158,770**

(1) *SWP maximum allocation reduced in average years to approximately 77% of maximum allocation and in dry years to approximately 4 to 33% of maximum allocation.*
(2) *In any given year, the actual amount of SWP water deliveries could be above or below these model projections.*

Source: 2005 UWMP.

As depicted in **Table 3.0-20**, purveyors have access to an amount of water supplies that exceed demand during dry conditions. Therefore, no cumulatively significant water availability impacts would occur due to buildout of the Gate-King project.

Because cumulative water supplies exceed demand, cumulative development (including the proposed Gate-King project) would not result in significant unavoidable cumulative impacts on Santa Clarita Valley water resources. Therefore, cumulative mitigation measures are not required.

Table 3.0-20
Scenario 2: Santa Clarita Valley 2030 Build-Out Scenario Water Demand and Supply
(af)

	Buildout (year 2030)	
	Average Years	**Dry Years**
Santa Clarita Valley Water Supplies[d]	**148,000**	**145,680-158,770**
Total Build-Out Demand[b]	125,370	138,300
Total Surplus	**22,630**	**7,380-20,470**

[a] *Source: 2005 UWMP and the SB 610 Water Supply Assessment for the Gate-King Project.*
[b] *Demand is increased by approximately 10% in dry years.*
[e] *Dry-year supplies available above demand reflect water supplies that would be called upon by purveyors in dry years. Purveyors would typically secure water from these supplies only in amounts necessary to meet demand.*

8. MITIGATION MEASURES

While the proposed project does not create significant water resource impacts, the following measures are proposed in order to reduce the project's demand for water:

3.0-1 Landscape concept plans shall include a palette rich in drought-tolerant and native plants.

3.0-2 Major manufactured slopes shall be landscaped with materials that will eventually naturalize, requiring minimal irrigation.

3.0-3 Water conservation measures as required by the State of California shall be incorporated into all irrigation systems.

3.0-4 Prior to commencement of use, all uses of recycled water shall be reviewed and approved by the State of California Health and Welfare Agency, Department of Health Services.

3.0-5 Prior to the issuance of building permits that allow construction, the applicant of the proposed project shall finance the expansion costs of water service extension to the subdivision through the payment of connection fees to the appropriate water agency(ies).

9. SIGNIFICANT UNAVOIDABLE IMPACTS

A. Project Impacts

With or without the implementation of the project mitigation measures provided in this Additional Analysis, the project would not result in or contribute to any significant unavoidable impacts on Santa Clarita Valley water resources.

B. Cumulative Impacts

Because cumulative water supplies exceed demand, cumulative development (including the proposed Gate-King project) does not result in or contribute to any significant unavoidable impacts on Santa Clarita Valley water resources. Therefore, as stated above, cumulative mitigation measures are not required.

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