Section 5.17
WATER SUPPLY

5.17 WATER SUPPLY

This section describes the existing water purveyors in the Santa Clarita Valley and their service areas, and summarizes important characteristics applicable to the water service area in the Santa Clarita Valley, which includes the project site. The data found in the section provides an important backdrop to understanding water supplies and demand in the Santa Clarita Valley generally, as well as understanding the Henry Mayo Newhall Memorial Hospital (HMNMH) Master Plan project's water demand and supplies. This section is based upon the *Water Service Study* prepared by Impact Sciences (April 2008); refer to Appendix D.

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 local conditions are evaluated 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);

(b) Water Management Program, Valencia Water Company, 2001;

(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;

(d) 2002 Recycled Water Master Plan prepared by Kennedy/Jenks Consultants for CLWA;

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

(f) California's Groundwater Bulletin 118, Santa Clara River Groundwater Basin, Santa Clara River Valley East Subbasin (2003 Update);

(g) CLWA Capital Improvement Program, prepared by Kennedy/Jenks Consultants, 2005;

(h) Newhall Ranch Revised Additional Analysis, Volume VIII (Final Revised Text, Figures and Tables), dated May 2003;

(i) Groundwater Management Plan, Santa Clara River Valley Groundwater Basin, East Subbasin, prepared by Luhdorff & Scalmanini Consulting Engineers, December 2003;

(j) 2006 Santa Clarita Valley Water Report, May 2007 (2006 Water Report);

(k) Regional Groundwater Flow Model for the Santa Clarita Valley: Model Development and Calibration, prepared by CH2MHill, April 2004;

(l) 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, June 2004;

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

(n) 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;

(o) 2005 Urban Water Management Plan (2005 UWMP);

(p) Impact and Response to Perchlorate Contamination, Valencia Water Company Well Q2, prepared by Luhdorff & Scalmanini Consulting Engineers, April 2005 (Q2 Report);

(q) Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California, August 2005 (2005 Basin Yield Report);

(r) The State Water Project Delivery Reliability Report, prepared by the California Department of Water Resources, November 2005;

(s) Interim Remedial Action Plan, prepared by Kennedy/Jenks Consultants, December 2005 (IRAP); and

(t) Potential Capture of Perchlorate Contamination Valencia Water Company's Wells E14-E17, prepared by Luhdorff and Scalmanini, Consulting Engineers, April 2006 ("L&S 2006").

Because local existing conditions affect water supply and demand in the Santa Clarita Valley, including the project site and surrounding areas, please refer to the above-referenced documents for pertinent water supply assessment information. The above-referenced documents are provided in Appendix D.

5.17.1 ENVIRONMENTAL SETTING

WATER AGENCIES OF THE SANTA CLARITA VALLEY

The following discussion describes the imported water supplies from Castaic Lake Water Agency.

Castaic Lake Water Agency

Castaic Lake Water Agency (CLWA), a wholesale public water agency, was formed in 1962 through passage of the "Castaic Lake Water Agency Law."[1] At that time, CLWA's purpose was contracting with State of California, through DWR, to acquire and distribute SWP water to its retail water purveyors. The retail purveyors are Valencia Water Company, Santa Clarita Water District (SCWD), Newhall County Water District (NCWD), and Los Angeles County Waterworks District No. 36.

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

Since 1962, subsequent legislation broadened CLWA's purpose, which now includes, but is not limited to, the following: (a) acquire water from the state; (b) distribute such water wholesale through a transmission system to be acquired or constructed by CLWA; (c) reclaim (recycle) water; (d) sell water at retail within certain boundaries; and (e) exercise other related powers.

The CLWA service area comprises approximately 195 square miles (124,800 acres) in Los Angeles and Ventura counties. CLWA serves the incorporated and unincorporated areas in, or adjacent to, the Santa Clarita Valley. Most of this area, including the incorporated cities, is within the geographic boundaries of Los Angeles County, but it also extends into a small portion of eastern Ventura County. The service area includes largely urban areas, such as the City of Santa Clarita, other smaller communities, and rural areas. The West Branch of the California Aqueduct terminates at Castaic Lake, in the northern portion of the service area. Figure 1 in Appendix D depicts the CLWA service area.

Adequate planning for, and the procurement of, a reliable water supply is a fundamental function of the CLWA and the local retail purveyors. CLWA obtains its water supply for wholesale purposes principally from the SWP and has a water supply contract with DWR for 95,200 acre-feet (af) of SWP Table A Amount. "Table A" is a term used in SWP water supply contracts. The "Table A Amount" is the annual maximum amount of water to which a SWP Contractor has a contract right to request delivery, and is specified in Table A of each SWP Contractor's water supply contract. The amount of water actually available for delivery in any year may be an amount less than the SWP Contractor's Table A Amount, depending upon hydrologic conditions, the amount of water in storage, the operational constraints and requirements imposed by regulatory agencies to meet environmental water needs, the amount of water requested by other SWP Contractors, climatic conditions, and other factors.

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 an additional 12,700 af of annual Table A Amount from a Kern County water district. In March 1999, CLWA purchased another 41,000 af of annual Table A Amount from the Wheeler Ridge-Maricopa Water Storage District by way of an amendment to its water supply contract. The amended water supply contract between CLWA and DWR is found in Appendix D.[2]

[2] CLWA prepared an EIR to address the environmental consequences of the 41,000-afy transfer agreement. The EIR for the 41,000-afy transfer agreement was the subject of litigation in Los Angeles County Superior Court (*Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles County Superior Court, Case No. BS056954). CLWA prevailed in the litigation at the trial court; however, the project opponent (Friends of the Santa Clara River) filed an appeal. In January 2002, the Court of Appeal issued a decision ordering the trial court to decertify the EIR for the 41,000 afy transfer agreement on the grounds that it had tiered from another EIR that had been subsequently decertified in other litigation. In doing so, however, the Court of Appeal also examined all of the petitioner's other arguments, found them to be without merit, and held that, if the tiering problem had not arisen, it would have affirmed the earlier trial court judgment upholding the EIR.
As discussed in further detail in a later section of this EIR, the Court of Appeal did not invalidate any portion of the completed 41,000 afy transfer agreement. Instead, the Court directed the trial court to vacate certification of the EIR, and to retain jurisdiction until CLWA corrected the tiering technicality by preparing a new EIR. In September 2002, the Los Angeles Superior Court refused to prohibit CLWA from using the 41,000 afy of Table A water while a new EIR was being prepared. The trial court decision on remand was appealed by Friends of the Santa Clara River to the appellate court in January 2003. In December 2003, the appellate court denied any relief to Friends and affirmed the trial court's ruling.
CLWA's revised EIR was subsequently certified by the CLWA Board of Directors on December 23, 2004. On January 24, 2005, separate lawsuits challenging the EIR for this same project were filed by California Water Impact Network and Planning and Conservation League in the Ventura County Superior Court. These cases were consolidated and transferred to Los Angeles County Superior Court. On May 22, 2007, after a hearing, the trial court issued a final Statement of Decision, which included a determination that the 41,000 afy transfer is valid and cannot be terminated or unwound. The trial court, however, also found

CLWA and the local retail purveyors have evaluated the long-term water needs (water demand) within its service area based on applicable county and city plans and has compared these needs against existing and potential water supplies. CLWA also prepared its Capital Improvements Program in 1988, and the 2005 UWMP was recently completed to address water supply and demand forecasts for the CLWA service area.[3]

Although information in the 2005 UWMP was considered, this EIR does not rely on that information, and an independent analysis and determination of water-related impacts was carried out in this EIR for the proposed project.

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 Valencia Water Company service area includes a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Castaic, Stevenson Ranch, and Valencia. Valencia Water Company supplies water from local groundwater, CLWA imported water, and recycled water. Valencia is an investor-owned water utility regulated by the California Public Utilities Commission (CPUC), and its service area currently includes the project site. As a result, Valencia is the retail water purveyor for this project. Figure 2 in Appendix D illustrates the CLWA and Valencia Water Company service area, which includes the project site.

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.

The Newhall County Water District (NCWD) service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Newhall, Canyon

one defect in the 2004 EIR and ordered CLWA to correct the defect and report back to the court. The defect did not relate to the environmental conclusions reached in the 2004 EIR; rather, CLWA is required to better establish the basis for selecting three alternative scenarios covered in the 2004 EIR. As a result, the trial court entered Judgment against CLWA and another writ of mandate issued directing CLWA set aside its certification of the 2004 EIR. The writ, however, specifically stated that it did not call for CLWA to set aside the 41,000 afy transfer. In July 2007, the petitioners appealed the trial court's Judgment, and cross-appeals have since been filled by CLWA and other parties.

3 On February 25, 2006, a lawsuit challenging the *2005 UWMP* was filed by California Water Impact Network and Friends of the Santa Clara River alleging that the plan violated the UWMP Act because it overstated availability of local groundwater and SWP supplies and it allegedly facilitated unsustainable urban development resulting in harm to the Santa Clara River and its habitat (*California Water Impact Network, et al. v. Castaic Lake Water Agency, et al.,* Los Angeles County Superior Court No. BS103295). CLWA and other named parties opposed the litigation challenge. On August 3, 2007, after a hearing, the trial court rejected the litigation challenge to the 2005 UWMP. In that decision, the trial court concluded that substantial evidence supported the determination that the 41,000 afy transfer "remains a valid and reliable water source." Relying upon the evidence presented in the 2005 UWMP and record, the trial court identified the following evidence supporting the validity of the transfer: (a) it was completed in 1999 and DWR has allocated and annually delivered the water in accordance with the completed transfer; (b) the Court of Appeal held that the only defect in the 1999 CLWA EIR was that it tiered from the Monterey Agreement EIR, which was later decertified, and that defect was remedied by CLWA's preparation of the 2004 EIR that did not tier from the Monterey Agreement EIR; (c) the Monterey Settlement Agreement expressly authorizes operation of the SWP in accordance with the Monterey Amendments, which facilitated the 41,000 afy transfer; (d) Courts of Appeal have refused to enjoin the 41,000 afy transfer; and (e) the DWR/CLWA contract encompassing the 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 SWP Table A supplies.

Country, Saugus, and Castaic. The District supplies water from local groundwater and CLWA imported water.

The Los Angeles County Waterworks District No. 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.

As of 2006, the retail water purveyors served approximately 67,450 connections in the Santa Clarita Valley. The specific breakdown by purveyor is provided in *Table 5.17-1*, *Retail Water Service Connections*.

Table 5.17-1
Retail Water Service Connections

Retail Water Purveyor	Connections
CLWA Santa Clarita Water Division (SCWD)	27,600
Los Angeles County Waterworks District #36	1,400
Newhall County Water District (NCWD)	9,350
Valencia Water Company (VWC)	29,100
Total	67,450
Source: 2006 Santa Clarita Valley Water Report, May 2007 (see Appendix D).	

SANTA CLARITA VALLEY WATER SUPPLIES – HISTORIC AND EXISTING USES

The 2006 Water Report and 2005 UWMP contain useful local and regional water demand, and supply and reliability planning information, particularly in the context of the perchlorate contamination detected in municipal-supply wells in the local groundwater basin (see Appendix D). 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 (see Appendix D). Valencia Water Company's Water Supply Assessment (WSA) for the proposed project 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 proposed project, in addition to existing and planned future uses in the Santa Clarita Valley (see Appendix D). Valencia Water Company prepared the revised WSA for the proposed HMNMH Master Plan, because it is the purveyor that will provide water service to the proposed project.

Groundwater Supplies

This section focuses on the available local groundwater supplies in the Santa Clarita Valley, including the data presented in the adopted CLWA Groundwater Management Plan, the 2005 UWMP, and the 2005 Basin Yield Report for the local basin.

Santa Clara River Valley Groundwater Basin - East Subbasin

The project area lies within the groundwater basin identified in DWR Bulletin 118 (2003 Update) as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin) (see Appendix D). The Basin is comprised of two aquifer systems, the alluvium (also referred to as the Alluvial Aquifer), 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. Some scattered outcrops of terrace deposits in the Basin are also likely to contain limited amounts of groundwater. Since these deposits are located in limited areas situated at elevations above the regional water table and are of limited thickness, they are of no practical significance as aquifers and, consequently, have not been developed for any significant water supply. Figure 3 in Appendix D 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 (WRPs) in the Valley are also shown on Figure 3 in Appendix D.

Adopted Groundwater Management Plan

In 2001, as part of legislation authorizing CLWA to provide retail water service to individual municipal customers, Assembly Bill (AB) 134 included a requirement that CLWA prepare a groundwater management plan in accordance with the provisions of Water Code Section 10753.

CLWA adopted the Groundwater Management Plan (GWMP) on December 10, 2003.[4] 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 (see Appendix D). The MOU is a collaborative and integrated approach to several of the aspects of water resource management included in the GWMP. The UWCD manages surface water and groundwater resources in seven groundwater basins, all located in Ventura County, downstream of the Basin. 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.

[4] CLWA's Groundwater Management Plan, adopted December 10, 2003, is found in the Henry Mayo Newhall Memorial Hospital Master Plan Draft EIR, Appendix D.

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

- monitoring of groundwater levels, quality, production and subsidence
- monitoring and management of surface water flows and quality
- determination of Basin yield and avoidance of overdraft
- development of regular and dry-year emergency water supply
- continuation of conjunctive use operations
- long-term salinity management
- integration of recycled water
- identification and mitigation of soil and groundwater contamination, including involvement with other local agencies in investigation, cleanup, and closure
- development and continuation of local, state and federal agency relationships
- groundwater management reports
- continuation of public education and water conservation programs
- identification and management of recharge areas and wellhead protection areas
- identification of well construction, abandonment, and destruction policies
- provisions to update the groundwater management plan

Work on a number of the GWMP elements had been ongoing for some time prior to adoption of the GWMP. This work continues on an on-going basis. An important aspect of this work was completion of the 2005 Basin Yield Report (see Appendix D). The primary determinations made in the 2005 Basin Yield 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 2005 Basin Yield Report concluded that neither the Alluvial Aquifer nor the Saugus Formation is in an overdraft condition, or projected to become overdrafted.

Available Groundwater Supplies

Groundwater Operating Plan

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

The on-going 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.[5] 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.[6] The analysis of sustainability for groundwater and interrelated surface water is described further in Appendix C to the 2005 UWMP.

The groundwater operating plan, summarized in *Table 5.17-2*, *Groundwater Operating Plan for the Santa Clarita Valley*, is further described below. The operating plan addresses both the alluvium and Saugus Formation.

Table 5.17-2
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: 2006 Santa Clarita Valley Water Report (May 2007) and 2005 UWMP.				

Alluvium – As applied to the proposed HMNMH Master Plan, the proposed project's water demands would, in part, be met by using groundwater produced from the Alluvial Aquifer and supplied by Valencia. As stated in the 2006 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 acre-feet per year (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 – The Saugus Formation is identified as a source of supply for the proposed project. The operating plan for Saugus pumping is summarized below.

As stated in the 2006 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

5 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. This report was updated by CH2MHill in a report entitled, *Calibration Update of the Regional Groundwater Flow Model for the Santa Clarita Valley, Santa Clarita, California*, August 2005.

6 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.

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.

For reference to the groundwater operating plan historical and projected groundwater pumping by retail water purveyor, please refer to *Table 5.17-3*, *Historical Groundwater Production by the Retail Water Purveyors*, and *Table 5.17-4*, *Projected Groundwater Production (Normal Year)*.

Table 5.17-3
Historical Groundwater Production by the Retail Water Purveyors

Santa Clara River Valley East Subbasin	Groundwater Pumped (af)1						
	2000	2001	2002	2003	2004	2005	2006
CLWA Santa Clarita Water Division							
- Alluvium	11,529	9,896	9,513	6,424	7,146	12,408	13,156
- Saugus Formation	0	0	0	0	0	0	0
LA County Waterworks District No. 36							
- Alluvium	0	0	0	0	380	343	0
- Saugus Formation	0	0	0	0	0	0	0
Newhall County Water District							
- Alluvium	1,508	1,641	981	1,266	1,582	1,389	2,149
- Saugus Formation	2,186	2,432	3,395	2,513	3,739	3,435	3,423
Valencia Water Company							
- Alluvium	12,179	10,518	11,603	11,707	9,862	12,228	11,884
- Saugus Formation	1,007	835	965	1,068	1,962	2,513	2,449
Total	28,409	25,322	26,457	22,978	24,671	32,316	33,061
- Alluvium	25,216	22,055	22,097	19,397	18,970	26,368	27,189
- Saugus Formation	3,193	3,267	4,360	3,581	5,701	5,948	5,872
Percent of Total Municipal Water Supply	47%	42%	39%	34%	34%	46%	45%

Notes:
1. Pumping for municipal and industrial uses only. Does not include pumping for agricultural and miscellaneous uses.
Source: 2006 Santa Clarita Valley Water Report (May 2007).

Table 5.17-4
Projected Groundwater Production (Normal Year) [1,2,3]

Santa Clara River Valley East Subbasin	Range of Groundwater Pumping (af)1,2,3				
	2010	2015	2020	2025	2030
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 No. 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.

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 Appendices C and D to the 2005 UWMP.

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 (VWC, NCWD, and SCWD) 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. Alluvial pumping capacity from all the active municipal supply wells is summarized in *Table 5.17-5*, *Active Municipal Groundwater Source Capacity – Alluvial Aquifer Wells*. The locations of the various municipal alluvial wells throughout the Basin are illustrated on Figure 4 in Appendix D. These capacities do not include one Alluvial Aquifer well that has been inactivated due to perchlorate contamination, the SCWD Stadium well, which represents another 800 gpm of pumping capacity, or full-time source capacity of about 1,290 afy.

Table 5.17-5
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	1,660	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

Table 5.17-5 (Continued)
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)
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	361,201	581,002	232,252	190,952

Notes:
1 Based on recent annual pumping.
2 Currently active wells only; capacity will slightly increase by restoration of perchlorate-contaminated wells.
Source: 2005 UWMP.

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

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.

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 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 5.17-5*.

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, Valencia Water Company'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 summary, the short-term response plan for the protection of other alluvial wells, down gradient 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.[7]

[7] For further information regarding CLWA's groundwater containment, treatment and restoration project, please refer to Appendix E of the *2005 UWMP*.

Saugus Formation

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

Adequacy of Supply

For municipal water supply with existing wells, the three retail water purveyors with Saugus wells (VWC, NCWD, and SCWD) 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 5.17-6*, *Active Municipal Groundwater Source Capacity—Saugus Formation Wells*, and the locations of the various active municipal Saugus wells are illustrated on Figure 5 in Appendix D. These capacities do not include the four Saugus wells contaminated by perchlorate, although they indirectly reflect the capacity of one of the contaminated wells, VWC's Well 157, which has been sealed and abandoned, and replaced by VWC's Well 206 in a non-impacted part of the Basin. The four contaminated wells, one owned by NCWD and two owned by SCWD, in addition to the VWC well, represent a total of 7,900 gpm of pumping capacity (or full-time source capacity of about 12,700 afy) inactivated due to perchlorate contamination.

Table 5.17-6
Active Municipal Groundwater Source Capacity – Saugus Formation Wells

Wells	Pump Capacity (gpm)	Max Annual Capacity (af)	Normal Year Production1 (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	24,0002	5,9552	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, 2007.

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 time frame for restoration of impacted Saugus capacity (as discussed in Chapter 5 of the 2005 UWMP), this currently active capacity is more than sufficient to meet water demands, in combination with other sources, if both of the next two years are dry. At that time, the combination of currently active capacity and restored impacted capacity, through a combination of treatment at two of the impacted wells and replacement well construction, will provide sufficient total Saugus capacity to meet the planned use of Saugus groundwater during multiple dry-years of 35,000 af, if that third year is also a dry year.

Sustainability

Until recently, the long-term sustainability of Saugus groundwater was empirically determined from limited historical experience. The historical record shows fairly low annual pumping in most years, with one four-year period of increased pumping up to about 15,000 afy that produced no long-term depletion of the substantial groundwater storage in the Saugus. Those empirical observations have now been complemented by the numerical groundwater flow model, which has been used to examine aquifer response to the operating plan and to examine the effectiveness of pumping for both contaminant control within the Saugus Formation. The latter aspects of Saugus pumping are discussed in detail in Chapter 5 of the 2005 UWMP.

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. 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. 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.

Impact 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 gallons per minute (gpm) remain out of service, as discussed further in Chapter 5 of the 2005 UWMP (see Appendix D). However, CLWA and the local retail 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 impacted wells are operational 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. Information concerning water quality issues and replacement capacity is also provided in Chapter 5 of the 2005 UWMP.

CLWA, in conjunction with the local retail water purveyors, is proceeding with a two-prong perchlorate contamination program. The first prong is to protect non-impacted wells by pumping contaminated groundwater near the former Whittaker-Bermite site, thus preventing further migration within the aquifer and recovering costs incurred in responding to the perchlorate contamination. The second prong of the program is to restore the production capacity and water supply from wells that have been temporarily closed due to the detection of perchlorate. As outlined below, CLWA's containment and water supply restoration program is well underway.

CLWA developed an Interim Remedial Action Plan (IRAP) to address the groundwater perchlorate contamination, and that action plan was approved by DTSC in January 2006. A groundbreaking ceremony for construction of the perchlorate treatment system and associated pipelines took place in August 2006. Monitoring wells required for the project have been constructed. The final design for treatment facilities and pipelines was completed in May 2007. Bidding has been completed, the contract has been awarded, and construction has commenced for the major construction work.

Significantly, CLWA and the retail water purveyors entered into a settlement agreement in connection with the 2000 lawsuit brought against Whittaker-Bermite whereby CLWA and the purveyors estimate they will receive up to $100 million to construct the necessary perchlorate treatment facilities and pipelines; establish replacement wells as necessary; and, fund the operation and maintenance of these facilities for a period up to 30 years.

Under the terms of the settlement agreement, the current and former owners of the Whittaker-Bermite site and their insurers will provide funding to construct replacement wells for the Stadium well and the NC-11 well, and a treatment plant to remove perchlorate from Saugus wells 1 and 2. Funding also will be provided to pay for the replacement of well V-157 (already undertaken), and

the installation of wellhead treatment at well Q2, also already undertaken. The settlement agreement provides funds to operate and maintain the treatment system for up to 30 years, an amount the water agencies estimate could be as much as $50 million.

As noted above, the treatment facilities already have been designed and the settlement agreement provides almost $12 million to reimburse the agencies for past expenditures. In addition, a $10 million "rapid response fund" will be established to allow the water agencies to immediately treat specified wells that could become impacted by perchlorate contamination in the future. Costs not covered in the settlement agreement, such as the federal government's fair share of monitoring and treatment will be sought via grant funding, including money made available by the Department of Defense.

Because certain defendants had previously filed for bankruptcy protection, the settlement agreement required approval by the U.S. Bankruptcy Court. On June 14, 2007, the Bankruptcy Court granted that approval. Final approval of the settlement agreement also required good-faith settlement determination by the U.S. District Court; that approval was granted on July 13, 2007. The District Court's action constitutes the final required court approval; accordingly, all payments under the settlement agreement were due by approximately August 13, 2007.[8] Payment under the settlement was received in August 2007.

Water Quality in the Alluvial Aquifer and Saugus Formation

Given that one of the sources of potable water for the proposed HMNMH Master Plan project is from the local basin local groundwater quality is an important consideration.

Overview

The groundwater quality of the Alluvial Aquifer and the Saugus Formation is generally acceptable quality for domestic use without treatment, although these waters produced for domestic use are disinfected by the retail water purveyors prior to delivery. Groundwater produced by the water purveyors in the CLWA service area consistently meets drinking water standards set by the USEPA and the DPH. Within the CLWA service area, perchlorate has been a concern with respect to groundwater quality since it was detected in four production wells in the eastern part of the Saugus Formation in 1997. A total of six perchlorate-impacted wells have been removed from active water supply service. The development and implementation of a cleanup plan for the impacted groundwater is being coordinated among CLWA, the retail purveyors, the City of Santa Clarita, DTSC, and the Corps.

The groundwater quality of both the Alluvial Aquifer and the Saugus Formation are assessed in further detail below.

[8] The "Castaic Lake Water Agency Litigation Settlement Agreement," and the "Order Granting Joint Motion for Court Approval, Good Faith Settlement Determination and Entry of Consent Order," filed July 13, 2007, which are incorporated by reference, are available for public inspection and review at Impact Sciences, Inc., 803 Camarillo Springs Road, Suite A-1, Camarillo, California 93012.

Groundwater Quality – Alluvium

In accordance with the Porter-Cologne Act and the Clean Water Act, the Los Angeles RWQCB developed the Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan), as amended (RWQCB 1994). The Basin Plan addresses five constituents of concern that are relevant for inland surface water and groundwater (total dissolved solids, sulfate, chloride, boron, and nitrogen) and considers local hydrology, land use, population, sensitive environmental resources, and established water quality objectives for each of the watersheds, including the Santa Clara River. New and proposed water quality objectives for the Santa Clara River watershed have either been established or are currently undergoing discussion for future approval and/or consideration. Within the Santa Clara River watershed, chlorides have been prioritized for further study, with higher priority given to nutrients.

Raw water from Castaic Lake delivered to the ESFP and RVWTP is generally of high quality. CLWA treats this water so that it meets drinking water standards set by the U.S. EPA and DPH.

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 (umhos/cm). The presence of long-term consistent water quality patterns, although intermittently affected by wet and dry cycles, supports the conclusion that the Alluvial Aquifer is a viable on-going 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.[9] In early 2005, perchlorate was detected in a second alluvial well, Valencia Water Company's Well Q2. Valencia Water Company'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, Valencia Water Company analyzed the impact of the temporary inactivation of the well on its water supply capability; and the analysis determined that Valencia Water Company's other sources are sufficient to meet demand.[10] Valencia Water Company proceeded 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.

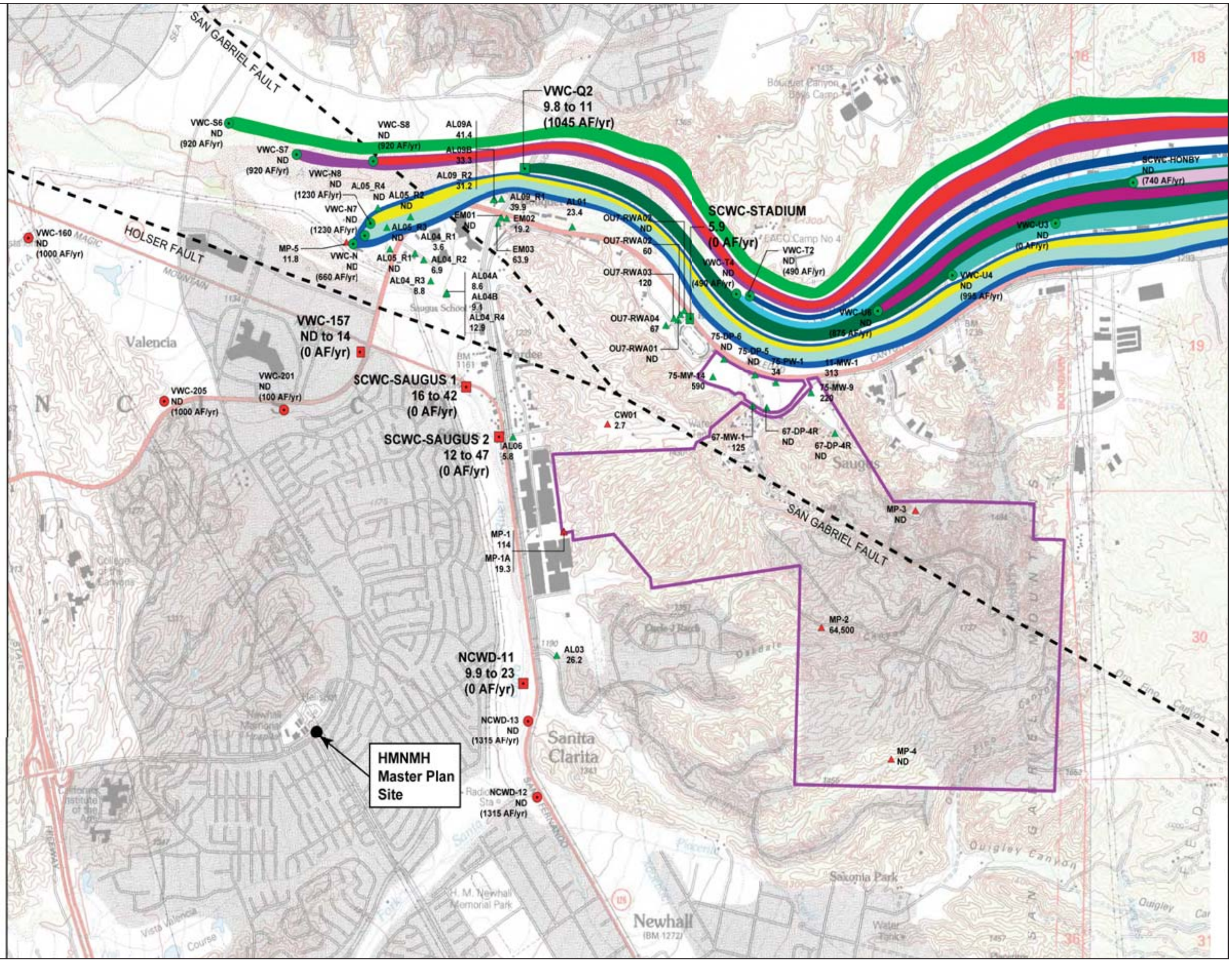
On-going monitoring of all active municipal wells near the Whittaker-Bermite site has shown no detections of perchlorate in any active alluvial wells. However, based on a combination of proximity to the Whittaker-Bermite site and prevailing groundwater flow directions, complemented by findings in the on-going 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, down-gradient alluvial wells (see 2005 UWMP, Appendix D). 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.[11] The capture zone analysis of alluvial wells generally near the Whittaker-Bermite site, shown on *Figure 5.17-1, Forecasted Two-Year Groundwater Capture Zones for Active Alluvial Production Wells Located Closest to the Whittaker-Bermite Property*, 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 Valencia Water Company'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 Valencia Water Company'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

9 "Notification level" means the concentration level of a contaminant in drinking water delivered for human consumption that the state DPH 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 DPH 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.

10 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 the Henry Mayo Newhall Memorial Hospital Expansion Draft EIR, Appendix D.

11 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 the Henry Mayo Newhall Memorial Hospital Master Plan Draft EIR, Appendix D.



LEGEND

CONTAMINATED PRODUCTION WELL

- ALLUVIUM
- SAUGUS

UNCONTAMINATED PRODUCTION WELL

- ALLUVIUM
- SAUGUS

MONITORING WELL

- ALLUVIUM
- SAUGUS

TWO-YEAR GROUNDWATER CAPTURE ZONE

- SCWC-HONBY
- VWC-N
- VWC-N7
- VWC-N8
- VWC-Q2
- VWC-S6
- VWC-S7
- VWC-S8
- VWC-T2
- VWC-T4
- VWC-U4
- VWC-U6
- WHITTAKER-BERMITE PROPERTY BOUNDARY

NOTES:

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

Source: Luhdorff & Scalmanini Consulting Engineers, January 2006.

NOT TO SCALE

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

RBF CONSULTING

06/08 • JN 10-103970

Exhibit 5.17-1

could be readily replaced, on a short-term interim basis, by utilizing an equivalent amount of imported water from CLWA or by utilizing existing capacity from other alluvial wells (refer to *Table 5.17-5*). Furthermore, if the Pardee wells were to become contaminated by perchlorate contamination, Valencia Water Company has made site provisions at its Pardee wellfield for installation of wellhead treatment. Such treatment would be the same methodology as installed at Valencia's Well Q2, and would result in the impacted Pardee wells being promptly returned to active service.

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 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.

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 Valencia Water Company 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.

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 prevent the purveyors from meeting 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 the interim, the question of whether existing active Saugus wells are likely

to be contaminated by perchlorate migration prior to the installation of treatment and pumping for perchlorate contamination control has been evaluated by using the groundwater flow model to analyze capture zones of existing active wells through 2006, the scheduled period for permitting, installation of treatment, and restoration of impacted capacity. For that analysis, recognizing current hydrologic conditions and available supplemental SWP supplies, the rate of Saugus pumping was conservatively projected to be in the normal range (7,500 to 15,000 afy) for the near-term. The results of the capture zone analysis, illustrated on *Figure 5.17-2*, *Forecasted Two-Year Groundwater Capture Zones for Active Saugus Production Wells Located Closest to the Whittaker-Bermite Property*, were that the two nearest downgradient Saugus wells, Valencia Water Company's Wells 201 and 205, will draw water from very localized areas around the wells and will not draw water from locations where perchlorate has been detected in the Saugus Formation. As shown on the figure, the capture zone analysis projected Well 201 would potentially draw Saugus groundwater from areas located up to 450 feet east of the well, but was unlikely to draw water from areas farther to the east through that 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.

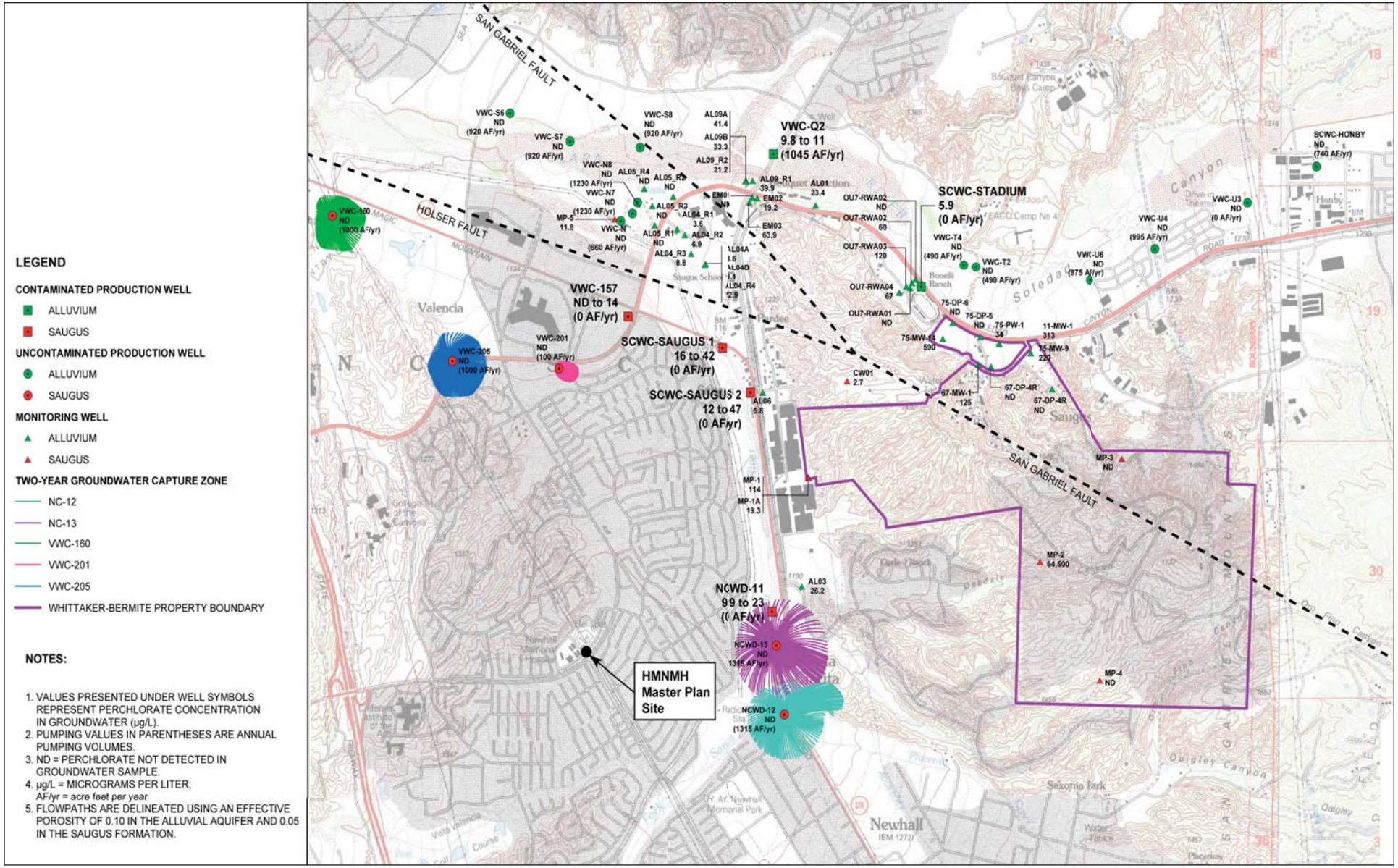
As a result, the currently active downgradient Saugus wells are expected to remain active as sources of water supply in accordance with the overall operating plan for the Saugus Formation, given the generally low planned pumping from the nearest downgradient Saugus wells in the operating plan through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

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,[12] 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 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.

[12] See, U.S. EPA Internet website, *Perchlorate*, and *Region 9 Perchlorate Update*, found at http://www.epa.gov/ogwdw/ccl/perchlor/perchlo.html, and included in the Henry Mayo Newhall Memorial Hospital Master Plan Draft EIR, Appendix D.



Source: Luhdorff & Scalmanini Consulting Engineers, January 2006.

REVISED ENVIRONMENTAL IMPACT REPORT
HENRY MAYO NEWHALL MEMORIAL HOSPITAL MASTER PLAN

NOT TO SCALE

RBF CONSULTING

06/08 • JN 10-103970

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

Exhibit 5.17-2

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.[13] 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.

DPH has approved operation of perchlorate treatment plants, and those plants currently in operation are listed in *Table 5.17-7*, *Perchlorate Treatment Summary*.

Table 5.17-7
Perchlorate Treatment Summary

Location	Treatment Plant Capacity (gallons per minute)	Concentration of Perchlorate in Groundwater (parts per billion)	Concentration of Perchlorate after Treatment (parts per billion)
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

ND = non-detect. The non-detect level represents concentrations less than 4 parts per billion.
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.

[13] 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 the Henry Mayo Newhall Memorial Hospital Master Plan Draft EIR, Appendix D.

Based on: (1) the results of CLWA's investigation of perchlorate removal technologies; (2) the technical group's evaluation; and (3) DPH's 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 (see Appendix D). The wellhead treatment installed at Valencia Water Company's Well Q2 in October 2005 is the same single-pass ion exchange as is planned for restoration of impacted Saugus well capacity.

Groundwater Quality Near the Project Site

The quality of the groundwater available from the Alluvial Aquifer near the project site has been tested. Results from laboratory testing conducted for VWC wells expected to serve the project site are provided in Appendix D. The wells expected to be used are approved by DPH and are located just northeast of the Newhall Ranch Specific Plan site in the Valencia Commerce Center. Laboratory testing indicates that all constituents tested were at acceptable levels for drinking water under Title 22. Tests conducted for perchlorate indicated non-detect.

Valencia Water Company also investigated the future risk of perchlorate contamination on its new wells. In summary, the approach used to investigate the potential capture of perchlorate-impacted groundwater by the new wells involved three sequential steps: (1) identification of local and regional groundwater flow patterns in the alluvium, the aquifer in which all four wells are located; (2) application of a single layer groundwater flow model to examine the capture zone of the four-well "well field" under planned operating conditions; and (3) interpretation of potential capture of perchlorate via examination of the wells' theoretical independent capture zone relative to the known occurrence of perchlorate in the alluvium. The latter step was subsequently augmented by considering other factors, such as the locations and magnitude of pumping between the new wells and the known occurrence of perchlorate, which affect the potential capture of perchlorate by the new wells.

Given that the groundwater resources from the Alluvial Aquifer for the project site would be produced from wells located along Castaic Creek, and over 1.2 miles southwest of the area known to be contaminated with perchlorate (i.e., the former Whittaker-Bermite facility), such supplies are not to be considered to be at risk as a result of perchlorate contamination released from the former Whittaker-Bermite facility.[14]

Groundwater Pollutants of Concern

The proposed project would allow for incidental infiltration of urban runoff to groundwater after receiving treatment in project design features (PDFs), as well as infiltration of irrigation water. Research conducted on the effects of groundwater from stormwater infiltration by Pitt et al. (1994) indicate that the potential for contamination is dependent on a number of factors, including the local hydrogeology and the chemical characteristics of the pollutants of concern.

[14] See, *Potential Capture of Perchlorate Contamination*, Valencia Water Company's Wells E14 – E17, Prepared by Luhdorff and Scalmanini for the Valencia Water Company, dated April 26, 2006. This report is found in the Henry Mayo Newhall Memorial Hospital Master Plan Draft EIR, Appendix D.

Chemical characteristics that influence the potential for groundwater impacts include high mobility (low absorption potential), high solubility fractions, and abundance in runoff and dry weather flow. As a class of constituents, trace metals tend to adsorb onto soil particles and are filtered out by the soils. This has been confirmed by extensive data collected beneath stormwater detention/retention ponds in Fresno (conducted as part of the Nationwide Urban Runoff Program) that showed trace metals tended to be adsorbed in the upper few feet in the bottom sediments. Bacteria also are filtered out by soils. More mobile constituents, such as chloride and nitrate, would have a greater potential for infiltration.

The Los Angeles Basin Plan contains numerical objectives for bacteria, mineral quality, nitrogen, and various toxic chemical compounds, and contains qualitative objectives for taste and odor. The pollutants of concern for the groundwater quality analysis are those that are anticipated or that have the potential to be generated by the proposed HMNMH Master Plan. Pollutants generated by the proposed Master Plan have the potential to impact groundwater via infiltration of runoff in PDF, direct infiltration of irrigation water and stormwater, exfiltration or seepage from sewers or stormwater drains, and direct discharges of treated wastewater to the Santa Clara River.

Nitrate. Nitrate+nitrite-N is a pollutant of concern for purposes of evaluating groundwater quality impacts based upon the potential use of nitrogen fertilizers and nitrates high mobility in groundwater.

Bacteria. The Basin Plan contains numeric criteria for bacteria in drinking water sources. Bacteria are not highly mobile in groundwater and are easily removed through filtration in soils (for example, as with septic tank discharges). Bacteria in stormwater originating from pets and wildlife is not expected to exceed the numeric criteria and, therefore, is not a pollutant of concern.

Taste and Odor. The Basin Plan contains a narrative objective for taste and odors that cause a nuisance or adversely affect beneficial uses. Undesirable tastes and odors in groundwater may be a nuisance and may indicate the presence of a pollutant(s). Odor associated with water can result from natural processes, such as the decomposition of organic matter or the reduction of inorganic compounds, such as sulfate. Other potential sources of odor causing substances, such as industrial processes, would not occur as part of the proposed HMNMH Master Plan. Therefore, taste and odor-producing substances are not pollutants of concern for the proposed expansion of the hospital's facilities.

Mineral Quality: TDS, Sulfate, Chloride, and Boron. Mineral quality in groundwater is largely influenced by the mineral assemblage of soils and rocks that it comes into contact with. Elevated mineral concentrations could impact beneficial uses; however, the minerals listed in the Basin Plan are not believed to be pollutants of concern due to the anticipated runoff concentrations and the typical mineral concentrations in irrigation water (Castaic Lake Water Agency), which are below the Basin Plan objectives shown in *Table 5.17-8*, *Comparison of Basin Plan Mineral Groundwater Objectives with Mean Measured Values in Los Angeles County and SWP Water Quality at Castaic Lake*. Therefore, these constituents are not considered pollutants of concern for the proposed project.

Table 5.17-8
Comparison of Basin Plan Mineral Groundwater Objectives with Mean Measured Values in Los Angeles County and SWP Water Quality at Castaic Lake

Mineral	Los Angeles Basin Plan Groundwater Quality Objective1 (mg/L)	Range of Mean Concentrations in Urban Runoff2 (mg/L)	Typical Concentration in CLWA Water3 (mg/L)
Total Dissolved Solids	700	53–237	314
Sulfate	250	7–35	52
Chloride	100	4–50	81
Boron	1.0	0.2–0.3	0.2

1 Santa Clara-Bouquet and San Francisquito Canyons subbasin
2 Source: Los Angeles County, 2000. Includes all monitored land uses.
3 Source: The Santa Clarita Valley Annual Water Quality Report (SCVWP 2003)

Methyl-Tertiary Butyl Ether (MTBE). MTBE has been a concern for the past several years, and on May 17, 2000, DPH adopted a primary 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.

Total Trihalomethanes (TTHMs). In 2002, the USEPA implemented the new Disinfectants and Disinfection Byproducts Rule, which establishes a new MCL for TTHMs, a byproduct created when free chlorine is used as a means of disinfection. The purveyors and the CLWA are investigating alternative methods of disinfection to be able to comply with the new rule.

Arsenic. The EPA revised the federal MCL for arsenic from 50 μg/l to 10 μg/l. Historically, however, naturally occurring arsenic has been detected at concentrations of less that 5 μg/l in local groundwater supplies and at concentrations of less than 3 μg/l in SWP water supplies. The analytical results for arsenic for most groundwater wells in the Valley have been non-detect where the detection limit was 2 μg/l (Luhdorff and Scalmanini, 2004).

Imported Water Supplies

State Water Project and Associated Facilities

The State Water Project

The State Water Project (SWP) is a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants that extends for more than 600 miles. Its main purpose is to divert and store surplus water during wet periods and distribute it to service areas in Northern California, the San Francisco Bay area, the San Joaquin Valley, the Central Coast, and Southern California. Other Project purposes include flood control, power generation, recreation, fish and wildlife protection, and water quality management in the Sacramento-San Joaquin Delta.[15]

15 See, DWR's *State Water Project Delivery Reliability Report* (Henry Mayo Newhall Memorial Hospital Master Plan Draft EIR, Appendix D).

The keystone of the SWP is Lake Oroville, which conserves water from the Feather River watershed. Lake Oroville is the SWP's largest storage facility with a capacity of about 3.5 million acre-feet. Releases from Lake Oroville flow down the Feather River into the Sacramento River, which drains the northern portion of California's Central Valley. The Sacramento River flows into the Sacramento-San Joaquin Delta, comprised of 738,000 acres of land interlaced with channels that receive runoff from about 40 percent of the State's land area. The SWP and the CVP rely upon Delta channels as a conduit to move water from the Sacramento River inflow to the points of diversion in the south Delta. Thus, the Delta is actually part of the SWP conveyance system, making the Delta a key component in SWP deliveries. The significance of the Delta to SWP deliveries is described in more detail below.

From the northern Delta, Barker Slough Pumping Plant diverts water for delivery to Napa and Solano Counties through the North Bay Aqueduct. In the southern Delta, the SWP diverts water into Clifton Court Forebay for delivery south of the Delta. Banks pumping plant lifts water from Clifton Court Forebay into the California Aqueduct, which channels the water to Bethany Reservoir. The water delivered to Bethany Reservoir from Banks Pumping Plant is either delivered into the South Bay Aqueduct for use in the San Francisco Bay area or continues down the California Aqueduct, which transports water to O'Neil Forebay, Gianelli Pumping-Generating Plant, and San Luis Reservoir.

San Luis Reservoir is jointly operated by DWR and the Bureau of Reclamation (Reclamation) and has a storage capacity of more than 2 million acre-feet (maf). DWR's share of gross storage in the reservoir is about 1.062 maf. Generally, water is pumped into San Luis Reservoir during late fall through early spring, and is temporarily stored for release back to the California Aqueduct to meet summertime peaking demands for SWP and CVP contractors.

SWP water not stored in San Luis Reservoir and water eventually released from San Luis continues to flow south through the San Luis Canal, a portion of the California Aqueduct jointly owned by DWR and Reclamation. As water flows through the San Joaquin Valley, deliveries of CVP supply are made through numerous turnouts to farmlands within the service areas of the CVP. Near Kettleman City, the Coastal Branch Aqueduct splits off from the California Aqueduct for water delivery to agricultural areas to the west and municipal and industrial water users in San Luis Obispo and Santa Barbara Counties. The remaining water conveyed by the California Aqueduct travels further in the San Joaquin Valley to agriculture users such as Kern County Water Agency before reaching Edmonston Pumping Plant, which raises the water up high enough to travel across the Tehachapi Mountains and into Antelope Valley. In Antelope Valley, the Aqueduct divides into the East and West Branches. The East Branch carries water into Silverwood Lake and Lake Perris. Water in the West Branch flows to Quail Lake, Pyramid Lake, and Castaic Lake.

Twenty-nine SWP Contractors have signed long-term water supply contracts with DWR for a total of 4,173 thousand acre-feet (taf) per year. Signed in the 1960s, all contracts are in effect to at least 2035 and are essentially uniform. Each contract contains a schedule of the maximum amount of water the contractor may receive annually. This schedule is contained in a table referred to as Table A. The annual amount was designed to increase each year, with most SWP Contractors reaching their ultimate maximum amount in 1990. In most cases, SWP water is an important component of local water supplies. Five SWP Contractors use SWP water primarily for agricultural purposes and

the remaining 24 SWP Contractors use SWP water primarily for municipal purposes. All available water is allocated annually in proportion to each contractor's annual Table A amount.

The Sacramento-San Joaquin Delta. The Sacramento-San Joaquin Delta is a network of natural and artificial channels and reclaimed islands at the confluence of the Sacramento and San Joaquin Rivers. The Delta forms the eastern portion of the San Francisco estuary, receiving runoff from over 40 percent of the state's land area. It is a region where sediment from the Sacramento, San Joaquin, Mokelumne, Cosumnes, and Calaveras Rivers commingled with organic matter deposited by marsh plants. Covering 738,000 acres interlaced with hundreds of miles of waterways, much of the land is below sea level and relies on more than 1,100 miles of rather fragile levees for protection against flooding.

Because the SWP and the CVP use Delta channels to convey water to the southern Delta for diversion, the Delta is the focal point for water distribution throughout the state. In fact, the Delta is one of the few estuaries in the world that is used as a major source of drinking water supply: about one-quarter of California's drinking water comes from the Delta; two-thirds of Californians get some portion of their drinking water from the Delta. The Delta also provides a unique estuarine habitat for many resident and migratory fish and birds, some of which are listed as threatened or endangered. Most of the native fish either migrate through the Delta or move into it for spawning. Resident native fish are mainly present in areas strongly influenced by the Sacramento River inflows. The CVP pumps at Jones Pumping Plant have a capacity of 4,600 cubic feet per second (cfs) and divert water directly from Old River. The CVP has contracts to divert 3.3 million acre-feet (maf) annually from the Delta for primarily agricultural use south of the Delta. The SWP pumps at Banks Pumping Plant have a combined pumping capacity of 10,300 cfs; however, diversions into the buffering Clifton Court Forebay are restricted to 13,870 acre-feet (af) daily and 13,250 af per day over a 3-day average. A rate of 13,250 af per day equates to an average pumping of 6,680 cfs.

CVP and SWP reservoir releases and Delta exports are coordinated according to the Coordinated Operating Agreement (COA), which sets guidelines for the sharing of supply and responsibility for meeting water quality standards in the Delta. The majority of the water exported by the SWP is dependent upon water rights derived from Lake Oroville storage; however, the SWP can also divert water considered in excess in the Delta. These excess conditions in the Delta usually result when there is sufficient inflow to meet all beneficial needs and the SWP is not required to make supporting releases from Lake Oroville. Diversions during excess Delta conditions are still governed by various determinations and rules.

In addition to the state and federal projects' diversions, irrigation water for use in the Delta is taken from channels and sloughs through approximately 1,800 diversions, which can total over 5,000 cfs in July and August.

Delta water quality is primarily governed by the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (1995 Bay-Delta Plan). This plan established beneficial uses, associated water quality objectives, and an implementation program. The State Water Resources Control Board (SWRCB) in Water Rights Decision 1641 assigned primary responsibility for meeting many of the Delta water quality objectives to the SWP and CVP. Key factors in determining water quality in the western Delta are the quality of important Delta inflows and the intrusion of ocean-derived salts associated with daily tides. The extent of this intrusion is

primarily determined by the magnitude of Delta inflows, export pumping rates, and operation of the Delta Cross Channel. Delta inflows are normally at least partially regulated by upstream reservoir operations.

The water flowing in Delta channels is constrained by an extensive levee system that protects Delta islands from flooding. This protection is critical because land subsidence in the Delta, primarily due to the consuming oxidation of aerated peat soils, has placed most of the land in the Delta below sea level. In fact, the elevation of Delta islands can be more than 20 feet below sea level. The resulting difference between the elevations of Delta lands and the water surface in adjacent channels makes Delta levees vulnerable to failure. Land subsidence in the Delta is expected to continue in the future, which will increase the vulnerability of levees to failure and subsequent island flooding.

SWP Water Delivery Reliability

In the Draft State Water Project Delivery Reliability Report 2007, DWR presents its method for calculating SWP delivery reliability, the factors affecting SWP delivery reliability, and the limitations to estimating future water delivery reliability. In the report, "water delivery reliability" is defined as the annual amount of water that can be expected to be delivered with a certain numeric frequency. SWP delivery reliability is calculated using CALSIM II, a computer model jointly developed by DWR and Reclamation, which simulates operation of the CVP/SWP system based upon 82 years of historic data. The annual amounts of SWP water deliveries are ranked from smallest to largest and a probability is calculated for each amount. These results are then displayed graphically as an exceedances plot, and presented in tabular format.

The amount of SWP water supply delivered to the SWP Contractors in a given year depends on the demand for the supply, the amount of rainfall, snowpack, runoff, water in storage, pumping capacity from the Delta, and legal constraints on SWP operation. According to DWR, more generally, water delivery reliability depends on three general factors: (1) the availability of water at the source; (2) the ability to convey water from the source to the desired point of delivery; and (3) the magnitude of demand for the water.

Availability of Source Water

As to availability of source water, the factors of uncertainty include the inherent annual variable location, timing, amount, and form of precipitation in California. The second source of uncertainty is due to global climate change. Current literature suggests that global warming is likely to significant impact the hydrological cycle, changing California's precipitation pattern and amount from that shown by the historical record. According to DWR, there is evidence that some changes have already occurred, such as an earlier beginning of snowmelt in the Sierras, an increase in water runoff as a fraction of the total runoff, and an increase in winter flooding frequency. More variability in rainfall, wetter at times and drier at times, would place more stress on the reliability of existing flood management and water supply systems, such as the SWP.

Ability to Convey Source Water

As to ability to convey source water to the desired point of availability, DWR reports that an uncertainty factor exists with respect to SWP operations, because they are closely regulated by Delta water quality standards established by the State Water Resources Control Board and set forth in Water Rights Decision 1641. DWR also reports other factors of uncertainty due to the continuing unexplained decline in many pelagic (open water) fish species, including the Delta smelt since the early 2000's, and the legal challenges to SWP operation and on-going planning activities related to the Delta. Other uncertainties include future sea level rise associated with global climate change, which could increase salinity in the Delta and the risk of interruptions in SWP diversions from the Delta due to levee failures. The referenced litigation challenges are described in more detail below.

Demand for System Water

As to estimating future demand for SWP water, DWR has identified uncertainty factors, including population growth, water conservation, recycling efforts, other supply sources, and global climate change. In addition to the above-identified factors affecting water delivery reliability, DWR has reported other limitations and assumptions, all of which are explained in the Draft State Water Project Delivery Reliability Report 2007. This report has also identified the status of four major concurrent Delta planning efforts that are underway with objectives related to providing a sustainable Delta over the long-term. These planning efforts may propose changes to SWP operations, which in turn could affect SWP delivery reliability. The planning efforts are the Delta Vision, the Delta Risk Management Strategy, the CALFED Ecosystem Restoration Program Conservation Strategy, and the Bay-Delta Conservation Plan. According to DWR, each planning effort could affect SWP and CVP operations in the Delta, and each are explained in detail in the Draft State Water Project Delivery Reliability Report 2007.

Litigation Challenges to SWP Operations

Recent litigation has had an effect upon the availability and reliability of imported SWP supplies. For example, in October 2006, plaintiff, Watershed Enforcers, a project of the California Sportfishing Protection Alliance, filed a lawsuit in Alameda County Superior Court alleging that DWR was not in compliance with the CESA and did not have the required state incidental take permit to protect the Delta smelt as part of DWR's pumping operations at the Harvey O. Banks Pumping Plant located near the town of Tracy (Watershed Enforcers, et al. v. California Department of Water Resources, et al. Alameda County Superior Court No. RG06292124 [Watershed decision]). In April 2007, the court agreed with the plaintiff and ordered a shutdown of pumping from the Delta if appropriate permits could not be obtained in 60 days. In May 2007, DWR filed an appeal of the trial court's decision, which automatically stayed the decision pending the outcome of the appeal. At the same time, DWR entered into a Memorandum of Understanding with the California Department of Fish and Game (CDFG) to jointly work with the appropriate federal agencies to develop a federal Biological Opinion that complies with the California Endangered Species Act (CESA). During preparation of the new Biological Opinion, DWR committed itself to actions related to protecting the Delta smelt and other species through adaptive management provisions. Upon completion of this effort, DWR plans to submit a request to CDFG for a consistency determination under CESA that would allow for incidental take based on the new federal Biological Opinion.

In addition, on May 25, 2007, the U.S. District Court for the Eastern District, the Honorable Oliver W. Wanger, presiding, found that the 2005 United States Fish and Wildlife Service (USFWS) Biological Opinion for Delta smelt was not consistent with the requirements of the federal Endangered Species Act and must be rewritten. On August 31, 2007, Judge Wanger established interim operating rules to protect Delta smelt until the USFWS rewrites the Biological Opinion. The interim operating rules set in-Delta flow targets in Old and Middle Rivers from late December through June that will restrict CVP and SWP pumping in 2008 and until the Biological Opinion is rewritten. Judge Wanger's restrictions on CVP/SWP operations will last until September 15, 2008, while the new Biological Opinion for Delta smelt is completed. The new Biological Opinion is expected to impose restrictions that may continue reduced pumping operations in the SWP/CVP until broader solutions are implemented for the Bay-Delta. Other implications are described below based on the best available current information.

In terms of short-term water supply availability, there have been short-term effects related to issues presented in the Watershed and Wanger decisions. For example, pumping operations were shut down for approximately nine days in June 2007 due to concerns over the declining number of Delta smelt. DWR then operated the pumps at limited levels for several weeks while waiting for the smelt to migrate to cooler waters. DWR then resumed normal operations in July 2007. There is also concern that the remedy adopted by the District Court could ultimately become part of the conditions in the new Biological Opinion and incidental take permit expected to be issued in the fall of 2008. These concerns, if they materialize, could limit the percentage of SWP water that can be delivered to SWP Contractors, including CLWA.

However, precisely because of these concerns, Governor Schwarzenegger directed DWR to take immediate action to improve conditions in the Delta.[16] According to the Office of the Governor, the Governor is building on his Strategic Growth Plan from last year, which consists of approximately $6 billion to upgrade California's water systems. The Governor's plan invests $4.5 billion to develop additional surface and groundwater storage. The plan also includes $1 billion toward restoration of the Delta, including development of a new conveyance system, $250 million to support restoration projects on the Kalamath, San Joaquin, and Sacramento rivers, and the Salton Sea project, and $200 million for grants to California communities to help conserve water. Using existing resources, DWR will implement numerous actions, including screening Delta agriculture intake pumps to protect smelt, restoring the North Delta's natural habitat, improving the Central Delta water flow patterns, and improving DWR's ability to respond to Delta emergencies, such as levee failures.

The Governor has also directed the Delta Vision Blue Ribbon Task Force to develop a delta management plan. The Task Force has presented its findings and recommendations, and its strategic plan is due by October 31, 2008. The Bay-Delta Conservation Plan is also underway. This plan is intended to ensure compliance with federal and state Endangered Species Act requirements in the Delta. The $1 billion proposed in the Governor's comprehensive plan will be used to fund recommendations from both the Delta Vision Task Force and the Conservation Plan.

Over the long-term, water supply availability and reliability will continue to be assessed by DWR in DWR's biennial SWP delivery reliability reports. These reports necessarily take into account a

[16] For the Governor's release issued July 17, 2007, please refer to http://gov.ca.gov/ index.php?/print-version/press-release/6972/, which is included in Appendix D.

myriad of factors in evaluating long-term water supply availability and reliability. These factors include multiple sources of water, a range of water demands, timing of water uses, hydrology, available facilities, regulatory restraints, including pumping constraints due to impacts on listed fish species, water conservation strategies, and future weather patterns. The Watershed and Wanger decisions highlight the regulatory restraints applicable to SWP supplies, which have impacted DWR deliveries of SWP supplies in the past, and could curtail such deliveries in the future.

Following the final court order issued in the Wanger decision, representatives of CLWA and the four local retail water purveyors met with Los Angeles County and City of Santa Clarita planning staff to coordinate water supply and land use planning activities for the Santa Clarita Valley. In addition, DWR has issued its Draft State Water Project Delivery Reliability Report, 2007. Based on this information, CLWA has determined that there are sufficient water supplies available for pending and future development within the CLWA service area for the foreseeable future through 2030 as set forth in the 2005 UWMP.

Santa Clarita Valley Water Supply CLWA Imported Water Supplies and Facilities

CLWA receives SWP water through the terminus of the West Branch of the California Aqueduct at Castaic Lake. Water supplies (whether derived from local or imported water supplies) require treatment (filtration and disinfection) prior to distribution. SWP water from Castaic Lake is treated at the Earl Schmidt Filtration Plant (ESFP) and Rio Vista Water Treatment Plant (RVWTP) (both owned and operated by CLWA), and is distributed to the four retail water purveyors through a system of pipelines.

The RVWTP is planned for future expansion from its current 30 million gallons per day (mgd) treatment capacity to 60 mgd, and eventually to 90 mgd as demands increase for treated water. ESFP operates at a treatment capacity of 56 mgd. The current combined capacity of the two treatment plants is approximately 86 mgd.

The current water supply for the Santa Clarita Valley is derived from both local and imported sources. The principal components of this supply are imported water from the SWP and local groundwater from both the Alluvial Aquifer and the Saugus Formation. Since 2003, these water supplies have been augmented by the initiation of deliveries from CLWA's recycled water program.

In addition to these supplies, which are available and used to meet service area demands every year, CLWA also has several storage programs that are planned for use under temporary shortage situations (e.g., during drier years when imported supplies are limited). These storage programs improve the reliability of CLWA's overall supplies by enabling existing supplies that are unneeded in wetter years to be stored for use in drier years, but they do not increase the supplies available to meet service area demand every year. *Tables 5.17-9* through *5.17-11* summarize the water supplies from existing water sources that are available to meet demands in the CLWA service area during normal, single-dry and multiple dry years, respectively. Demands are shown with and without the effects of an assumed 10 percent urban demand reduction resulting from conservation.

Imported SWP Water

Under existing supplies in *Tables 5.17-9* through *5.17-11*, SWP supply estimates are based on the data presented in DWR's Draft State Water Project Delivery Reliability Report, 2007, with SWP water supplies allocated among SWP Contractors in accordance with their water supply contract provisions currently in effect (see Appendix D).[17] *Table 5.3-12*, *SWP Table A Supply (in Percent of Maximum CLWA Table A Amount) for Single-Dry and Multiple-Dry Years*, shows SWP supplies projected to be available in a single dry year (based on a repeat of the worst-case hydrologic conditions of 1977) and over a multiple-dry-year period (based on a repeat of the worst-case four-year drought 1931–1934).

Table 5.17-9
Projected Average/Normal Year Supplies

Water Supply Sources	Supply (AF)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	73-,007	73,707	74,4070	75,107	75,4070
SWP Table A Supply[1]	60,400	61,100	61,800	62,500	62,800
Buena Vista-Rosedale[4]	11,000	11,000	11,000	11,000	11,000
Nickel Water – Newhall Ranch	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)[2]	0	0	0	0	0
Flexible Storage Account (Ventura County)[2]	0	0	0	0	0
Local Supplies					
Groundwater	46,000	46,000	46,000	46,000	46,000
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000
Saugus Formation	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	120,707	121,407	122,107	122,807	123,107
Existing Banking Programs[3]					
Semitropic Water Bank[2]	0	0	0	0	0
Rosedale-Rio Bravo[2]	0	0	0	0	0
Semitropic Water Bank – Newhall Ranch	0	0	0	0	0
Total Existing Banking Programs	0	0	0	0	0
Planned Supplies					
Local Supplies					
Groundwater	0	0	0	0	0
Restored wells (Saugus Formation)[2]	0	0	0	0	0
New wells (Saugus Formation)[2]	0	0	0	0	0

[17] The water supply contracts between DWR and the SWP Contractors include provisions regarding how total available SWP water supplies are allocated among SWP Contractors. The allocation provisions currently in effect are as they were amended by the Monterey Amendments. The Monterey Amendments have been in effect for more than ten years, but pursuant to litigation, is undergoing a second environmental review by DWR. In October 2007, DWR released the new Draft EIR analyzing the Monterey Amendments to the SWP contracts, including Kern water bank transfers and associated actions as part of the Monterey Settlement Agreement (SCH No. 2003011118). This Draft EIR is also known as the Monterey Plus Draft EIR. The Draft EIR addresses the significant environmental impacts of changes to the SWP operations that are a consequence of the Monterey Amendments and the Monterey Settlement Agreement. It also discusses the project alternatives, growth inducement, water supply reliability, as well as potential areas of controversy and concern. The Draft EIR is available for public inspection and review from DWR's website, http://www.des.water.ca.gov/mitigation_restoration_branch/rpmi_section/projects/EIR_index.cfm. The Draft EIR is also incorporated by reference in this EIR.

Table 5.17-9 (Continued)
Projected Average/Normal Year Supplies

Water Supply Sources	Supply (AF)				
	2010	2015	2020	2025	2030
Recycled Water – CLWA[3]	0	1,600	6,300	11,000	15,700
Recycled Water – Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	0	3,100	8,800	14,500	21,100
Planned Banking Programs					
Additional Planned Banking[2]	0	0	0	0	0
Total Planned Banking Program	0	0	0	0	0
Total Existing and Planned Supplies and Banking	120,707	124,507	130,907	137,307	144,207

Notes:
1 SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available (63.45 percent in 2010, 64.20 percent in 2015, 64.95 percent in 2020, 65.70 percent in 2025 and 66 percent in 2030), derived from DWR's "Draft State Water Project Delivery Reliability Report, 2007" (December 2007).
2 Not needed during average/normal years.
3 Recycled water supplies based on projections provided in Chapter 4, Recycled Water.
4 CLWA acquired this supply in 2007, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently, CLWA is prudently deferring consideration of any proposed annexations to the CLWA service area until the situation that has arisen as a result of the recent court rulings is resolved. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.
Source: Valencia Water Company and CLWA, 2008.

Table 5.17-10
Projected Single-Dry Year Supplies

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	24,567	24,767	23,587	23,887	23,987
SWP Table A Supply[1]	5,900	6,100	6,300	6,600	6,700
Buena Vista-Rosedale[5]	11,000	11,000	11,000	11,000	11,000
Nickel Water – Newhall Ranch	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County)[2]	1,380	1,380	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	73,767	73,967	72,787	73,087	73,187
Existing Banking Programs					
Semitropic Water Bank[3]	17,000	0	0	0	0
Rosedale-Rio Bravo[6]	20,000	20,000	20,000	20,000	20,000
Semitropic Water Bank – Newhall Ranch	0	0	0	0	0
Total Existing Banking Programs	37,000	20,000	20,000	20,000	20,000
Planned Supplies					
Local Supplies					
Groundwater	10,000	10,000	20,000	20,000	20,000

Table 5.17-10 (Continued)
Projected Single-Dry Year Supplies

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Restored wells (Saugus Formation)	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	10,000	10,000	10,000
Recycled Water –CLWA[4]	0	1,600	6,300	11,000	15,700
Recycled Water – Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	10,000	13,100	28,800	34,500	41,100
Planned Banking Programs					
Additional Planned Banking[7]	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	0	20,000	20,000	20,000	20,000
Total Existing and Planned Supplies and Banking	120,767	127,067	141,587	147,587	154,287

Notes:
1 SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of single dry deliveries projected to be available for the worst case single dry year of 1977 (6.15 percent in 2010, 6.40 percent in 2015, 6.65 percent in 2020, 6.90 percent in 2025 and 7.0 percent in 2030), derived from DWR's "Draft State Water Project Delivery Reliability Report, 2007" (December 2007).
2 Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).
3 The total amount of water currently in storage is 50,870 af, available through 2013. Withdrawals of up to this amount are potentially available in a dry year, but given possible competition for withdrawal capacity with other Semitropic banking partners in extremely dry years, it is assumed here that about one third of the total amount stored could be withdrawn.
4 Recycled water supplies based on projections provided in Chapter 4, Recycled Water.
5 CLWA acquired this supply in 2007, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently, CLWA is prudently deferring consideration of any proposed annexations to the CLWA service area until the situation that has arisen as a result of the recent court rulings is resolved. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.
6 CLWA has banked 70,200 af in the Rosedale-Rio Bravo Water Banking and Recovery Program.
7 Assumes additional planned banking supplies available by 2014.
Source: 2005 UWMP, Draft 2007 SWP Reliability Report

Table 5.17-11
Projected Multiple-Dry Years Supplies[1]

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	43,017	46,317	45,277	44,477	44,277
SWP Table A Supply[2]	32,900	32,200	31,500	30,700	30,500
Buena Vista-Rosedale[6]	11,000	11,000	11,000	11,000	11,000
Nickel Water – Newhall Ranch	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)[3]	1,170	1,170	1,170	1,170	1,170
Flexible Storage Account (Ventura County)[3]	340	340	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation[4]	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	96,217	95,517	94,477	93,677	93,477

Table 5.17-11 (Continued)
Projected Multiple-Dry Years Supplies[1]

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Banking Programs					
Semitropic Water Bank[3]	12,700	0	0	0	0
Rosedale-Rio Bravo7, [8]	5,000	15,000	15,000	15,000	15,000
Semitropic Water Bank – Newhall Ranch	0	0	0	0	0
Total Existing Banking Programs	17,700	15,000	15,000	15,000	15,000
Planned Supplies					
Local Supplies					
Groundwater	6,500	6,500	6,500	6,500	6,500
Restored wells (Saugus Formation)[4]	6,500	6,500	5,000	5,000	5,000
New Wells (Saugus Formation)[4]	0	0	1,500	1,500	1,500
Recycled Water[5]	0	1,600	6,300	11,000	15,700
Recycled Water – Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	6,500	9,600	15,300	21,000	27,600
Planned Banking Programs					
Additional Planned Banking[8, 9]	0	5,000	15,000	15,000	15,000
Total Planned Banking Programs	0	5,000	15,000	15,000	15,000
Total Existing and Planned Supplies and Banking	120,417	125,117	139,777	144,677	151,077

Notes:

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

2 SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of deliveries projected to be available for the worst case four-year drought of 1931-1934 (34.55 percent in 2010, 33.80 percent in 2015, 33.05 percent in 2020, 32.30 percent in 2025 and 32.00 percent in 2030), derived from DWR's "Draft State Water Project Delivery Reliability Report, 2007" (December 2007).

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

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

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

6 CLWA acquired this supply in 2007, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently, CLWA is prudently deferring consideration of any proposed annexations to the CLWA service area until the situation that has arisen as a result of the recent court rulings is resolved. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

7 CLWA has banked 70,200 af in the Rosedale-Rio Bravo Water Banking and Recovery Program.

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

9 Assumes additional planned banking supplies available by 2014.

Source: 2005 UWMP, Draft 2007 SWP Reliability Report

Table 5.17-12
SWP Table A Supply (in Percent of CLWA Table A Amount) for Single-Dry and Multiple-Dry Years

Supply Source	Single Dry Year[2]	Multiple Dry Years[3]
SWP Table A Supply/Delivery		
2010		
Table A Supply (af)	5,700	33,320
Percent of Table A Amount	6%	35%
2030		
Table A Supply (af)	6,700	30,500
Percent of Table A Amount	7%	32%

Notes:
1 The percentages of Table A Amount projected to be available are derived from DWR's Draft State Water Project Delivery Reliability Report, 2007 (December 2007). 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: Draft SWP Delivery Reliability Report 2007, (December 2007).

Local Groundwater Supplies

As shown on *Tables 5.17-9* through *5.17-11*, above, the primary local water supply in the CLWA service area is groundwater extracted from the Alluvial Aquifer and from the underlying Saugus Formation. Most water wells within the CLWA service area are drilled into the Alluvial Aquifer. In his recent updated report on the Alluvial Aquifer, Slade (2002) identified the operational yield of the Alluvial Aquifer to be about 30,000 to 40,000 af in normal weather years, and 30,000 to 35,000 af in dry years.

The Saugus Formation contains much greater quantities of groundwater than the Alluvial Aquifer. Storage capacity within the Saugus Formation is estimated to be 1.65 million af (Slade 2002). Based on the amount of water in storage and the historic aquifer performance, Slade (2002) identified that production from the Saugus Formation for dry period water supply could be increased from 15,000 to 20,000 afy, and ultimately to 35,000 afy if dry conditions continue. The increase to 35,000 afy would be temporary and would need to return to, or be reduced below, the historical range of 7,500 to 15,000 afy once rainfall patterns returned to normal in order to naturally replenish storage and avoid long-term adverse effects to the aquifer.

Recycled Water Supplies

As shown on *Tables 5.17-9* through *5.17-11*, above, since 2003, local water supplies have been augmented by the initiation of deliveries from CLWA's recycled water program. CLWA currently has rights to use 1,700 afy of recycled water. This supply is assumed to be available in an average/normal year, a single-dry year, and in each year of a multiple dry year period.

In the 2005 UWMP, CLWA projects an increase of 15,700 afy in the supply of recycled water by 2030, for a total recycled water supply 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/normal year, single-dry year, and in each year of a multiple dry year period.

CLWA Storage Programs

As shown on *Tables 5.17-9* through *5.17-11*, above, CLWA participates in several storage programs: (a) SWP flexible storage account; (b) temporary storage under groundwater banking agreements with the Semitropic Water Storage District (SWSD); and (c) storage under the Rosedale-Rio Bravo Water Storage District (RRBWSD) Groundwater Storage, Banking, Exchange, Extraction, and Conjunctive Use Program (RRBWSD Storage Program). CLWA plans to withdraw water from these storage programs under temporary shortage situations, such as during drier years when imported supplies are limited. In its SWP flexible storage account, CLWA has access to 4,684 af of water in Castaic Lake. Under the terms of the Monterey Amendments to the SWP water supply contract, CLWA may withdraw up to this amount of water from flexible storage and use it in addition to its Table A supply, and must then replace any water withdrawn within five years of withdrawal. 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 (rounded to 1,380 af in *Table 5.17-10*). 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.

In 2002, pursuant to a groundwater banking agreement with SWSD, CLWA was able to store on a short-term basis (10 years or less) some of its allocated SWP Table A supply. CLWA withdrawals of up to 21,600 af of the amount stored must be completed within 10 years of its storage. Similarly, in 2004, CLWA was able to store on a short-term basis (10 years or less) some of its allocated 2003 SWP Table A supply pursuant to another groundwater banking agreement with SWSD. CLWA withdrawals of up to an additional 29,270 af of the amount stored must be completed within 10 years of its storage. Thus, CLWA currently has a total of 50,870 af of stored water supplies available for use in dry years from the SWSD banking program.

In addition to the banking in the SWSD, CLWA finalized an agreement with the Rosedale-Rio Bravo Water Storage District in 2005, and has now banked 20,000 afy of surplus Table A Amount in that District's Water Banking and Exchange Program in both 2005 and 2006. In accordance with the provisions of that agreement, CLWA can withdraw up to a total of 35,600 af of that water, at a rate up to 20,000 afy, to meet Valley water demands when needed. In addition, in early 2007, CLWA finalized a Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and RRBWSD. Under this program, Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within the Rosedale-Rio Bravo's service area on an ongoing basis. CLWA will receive 11,000 af of these supplies annually either through exchange of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal. Additionally, CLWA is entitled to 22,000 af of water that was stored in the Rosedale Rio-Bravo Water Banking and Exchange Program in 2005 and 2006 on CLWA's behalf as part of the Water Acquisition Agreement. With the addition of those supplies, CLWA now has a recoverable total of 57,600 af in the Rosedale Rio-Bravo Water Banking and Exchange Program.

CLWA Service Area Water Demand

Table 5.17-13, *CLWA's Projected Water Demands*, shows CLWA's 2005 and projected water demands based on the 2005 UWMP. CLWA's demands vary from year to year depending on local hydrologic and meteorological conditions, with demands generally increasing in years of below average local precipitation and decreasing in years of above average local precipitation. In 2001, CLWA signed the MOU Regarding Urban Water Conservation in California (MOU) on behalf of the CLWA service area. By signing the MOU, CLWA became a member of the California Urban Water Conservation Council (CUWCC) and pledged to implement all cost-effective Best Management Practices (BMPs) for water conservation. CLWA has estimated that conservation measures within the service area can reduce the urban demand water demand by about 10 percent.

Table 5.17-13
CLWA's Projected Water Demands

	Demand (af)						Annual Increase
	2005	2010	2015	2020	2025	2030	
All Purveyors	73,700	86,100	97,100	106,500	119,400	129,300	2.20%
Agricultural/Private Uses	15,600	13,950	12,300	10,650	9,000	9,000	--
Conservation1	-7,370	-8,610	-9,710	-10,650	-11,940	-12,930	--
Total (w/conservation)	81,930	91,440	99,690	106,500	116,460	125,370	1.30%

Notes:
[1] Assumes 10 percent reduction on urban portion of demand resulting from conservation BMPs.
Source: CLWA, 2005.

Litigation Effects on Availability of Imported Water

For the past few years, there have been a series of litigation challenges concerning imported water supplies in the Santa Clarita Valley. The litigation challenges have given rise to claims that there is uncertainty regarding the availability and reliability of imported SWP water supplies in the Santa Clarita Valley.

The purpose of this section is to disclose these litigation challenges and their effects on the availability and reliability of imported water supplies in the Santa Clarita Valley. In summary, it has been determined, based on substantial evidence in the record, that the litigation challenges are not likely to affect the short-term or long-term availability or reliability of imported water supplies as projected in the 2005 UWMP and other reports, studies, and documents cited in this EIR.

Litigation Concerning CEQA Review of the Monterey Agreement

In Planning and Conservation League v. Department of Water Resources (2003) 83 Cal.App. 4th 892, the Court of Appeal, Third Appellate District, decertified an EIR prepared by the Central Coast Water Agency (CCWA) to address the Monterey Agreement (Monterey EIR) (see Appendix D). The Monterey Agreement was a statement of principles to be incorporated into omnibus amendments to the long-term water supply contracts between the DWR and the SWP Contractors. The Monterey Agreement was the culmination of negotiations between DWR and most of the 29 SWP Contractors to settle disputes arising out of the allocation of water during times of shortage.

Twenty-seven of the 29 SWP Contractors executed the Monterey Amendments to their water supply contracts in 1996, which because known as the "the "Monterey Amendments." The Monterey Amendments revised the methodology of allocating water among SWP Contractors and provided a mechanism for the permanent transfer of Table A water amounts from one SWP Contractor to another. As stated above, although the court set aside the Monterey EIR prepared by CCWA, it did not set aside or otherwise vacate the Monterey Agreement or the Monterey Amendments. No court has ordered any stay or suspension of the Monterey Agreement or the Monterey Amendments pending certification of a new EIR. DWR and the SWP Contractors continue to abide by the Monterey Agreement, as implemented by the Monterey Amendments, as the operating framework for the SWP, while the new EIR is undertaken.

Following decertification of the original Monterey EIR, the PCL litigants entered into the Monterey Settlement Agreement in 2003, designating DWR as the lead agency for preparation of the new EIR to address the Monterey Agreement. In October 2007, DWR completed the Draft EIR analyzing the Monterey Amendments to the SWP contracts, including Kern water bank transfers and associated actions as part of the Monterey Settlement Agreement (Monterey Plus Draft EIR; SCH No. 2003011118). The Draft EIR addresses the significant environmental impacts of changes to the SWP operations that are a consequence of the Monterey Amendments and the Monterey Settlement Agreement. It also discusses the project alternatives, growth inducement, water supply reliability, as well as potential areas of controversy and concern.

The Monterey Settlement Agreement also facilitated certain water transfers between contracting agencies, including CLWA's 41,000 afy water transfer agreement (discussed further below). The 41,000 afy transfer has been recognized as a permanent transfer by DWR, but it was subject 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 new Draft EIR (i.e., Monterey Plus Draft EIR) analyzes the potential environmental effects relating to the Monterey transfers, including a focused analysis of the 41,000 afy transfer, which is provided as part of a broader analysis of permanent transfers of Table A Amounts.

Litigation Concerning CEQA Review of the 41,000-AFY Transfer

Over the past several years, opposition groups have claimed that a part of CLWA's SWP supplies, specifically, a 41,000 afy transfer, should not be included or relied upon because it is not final and is the subject of litigation. It was asserted that litigation challenges to the 41,000 afy transfer create uncertainty regarding the availability and reliability of such water for the Santa Clarita Valley. Other comments have claimed that DWR's preparation of a new Monterey Agreement EIR also introduced an element of potential uncertainty regarding the availability and reliability of the 41,000 afy transfer. These comments have included claims that the subsequent Monterey Settlement Agreement precluded CLWA from using or relying upon the 41,000 afy transfer until DWR has completed and certified the new Monterey Agreement EIR. As explained briefly below, a recent published appellate court decision has resolved these claims in favor of the availability, reliability, and use of CLWA's 41,000 afy transfer.

In Santa Clarita Organization for Planning the Environment v. County of Los Angeles (2007) 157 Cal.App.4th 149 (SCOPE II), the Second District Court of Appeal, Division Six, affirmed the trial court's decision upholding the validity of the EIR's water supply analysis for the West Creek

development project in the Santa Clarita Valley, including the EIR's assessment and reliance upon the permanent and final 41,000 afy water transfer. In applying the four principles for a CEQA analysis of future water supplies articulated by the California Supreme Court in Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova (2007) 40 Cal.4th 412 to the EIS's analysis of the "pros and cons" of the 41,000 afy transfer as part of the water supplies, the Court of Appeal concluded that the County's decision to rely on the 41,000 afy transfer as a permanent part of the water supplies in the Santa Clarita Valley, with or without the Monterey Amendments, and even under the Monterey Settlement Agreement, was proper.

Nonetheless, for information purposes, this EIR provides a detailed description, below, of the history and background of CLWA's SWP supplies, including, specifically, the 41,000 afy transfer. Based on the SCOPE II decision and the information provided below, it remains appropriate to rely on the 41,000 afy transfer amount as part of CLWA's 95,200 afy SWP supplies.

Of CLWA's 95,200 af annual Table A Amount, 41,000 afy was permanently transferred to CLWA in a water supply contract amendment approved by DWR in March 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). The original trial court decision was completely in favor of CLWA. On appeal, the Court of Appeal, Second Appellate District, held that since CLWA's original EIR tiered from the Monterey EIR that was later decertified (see above, Planning and Conservation League v. Dept. of Water Resources (2000) 83 Cal. App. 4th 892,), CLWA also would have to decertify its EIR and prepare a revised EIR. The court refused, however, to enjoin CLWA from using any part of the 41,000-afy pending preparation of a new EIR.

The 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, the petitioners voluntarily dismissed the Friends action in February 2005.

In January 2005, two new legal actions were brought to the same project (i.e., the 41,000 afy transfer agreement), which challenged CLWA's revised EIR under CEQA. These actions were filed in the Ventura County Superior Court by the Planning and Conservation League and California Water Impact Network. The cases were consolidated and transferred to Los Angeles County Superior Court (Planning and Conservation League, et al. v. Castaic Lake Water Agency, et al., Los Angeles County Superior Court No. BS098724). As stated above, on May 22, 2007, after a hearing, the trial court issued a final Statement of Decision, which included a determination that the 41,000 afy transfer is valid and cannot be terminated or unwound. The trial court, however, also found one defect in CLWA's 2004 EIR and ordered CLWA to correct the defect and report back to the court. The defect did not relate to the environmental conclusions reached in the 2004 EIR; rather, CLWA is required to better establish the basis for selecting three alternative scenarios covered in the 2004 EIR. As a result, the trial court entered Judgment against CLWA and another writ of mandate issued directing CLWA to set aside its certification of the 2004 EIR. The writ, however, specifically

stated that it did not call for CLWA to set aside the 41,000 afy transfer. In July 2007, the petitioners appealed the trial court's Judgment, and cross-appeals have since been filed by CLWA and other parties.

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 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, for the reasons stated below, it is still appropriate to include the transfer amount for the City to conclude that CLWA and VWC properly included the transfer amount as part of CLWA's 95,200 afy Table A Amount.

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.[18] 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 the Wheeler Ridge-Maricopa Water Storage District, 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 CLWA EIR was that it tiered from the Monterey 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 EIR. 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. The DWR is still in the process of completing the Monterey Plus Draft EIR to address the Monterey Amendments; however, the court in the PCL litigation refused to set aside the Monterey Agreement or the Monterey Amendments pending preparation of that EIR. While DWR's on-going environmental review of the Monterey Agreement/Amendments could result in modifying the transfer or a reduced SWP allocation to CLWA, neither DWR, CLWA, nor Kern County Water Agency has indicated any desire to disturb the completed transfer, and the trial courts and Courts of Appeal in both the Monterey Agreement litigation and the CLWA EIR litigation have never set aside the Monterey Agreement/Amendments or the 41,000 afy transfer, or enjoined the flow of water from that transfer.

Third, the Court of Appeal in Friends refused to enjoin the 41,000-afy transfer, and instead required CLWA to prepare a revised EIR, which EIR CLWA has now completed and certified. This EIR is subject to further litigation, which is currently at the appellate court stages. However, as stated

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

above, the trial court in that litigation determined that the 41,000 afy transfer was valid and could not be terminated or unwound. The trial court also issued a writ directing CLWA to set aside its certification of the 2004 EIR, but specifically stated that it did not require CLWA to invalidate, void, or set aside the 41,000 afy transfer. Thus, the water from the transfer remains available and continues to be used to serve water demands in the Santa Clarita Valley.

Fourth, 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.

Fifth, a recent published appellate court decision has confirmed that the 41,000 afy transfer is permanent and final, and that with or without the Monterey Agreement and Monterey Amendments; the transfer can legally occur and will continue to exist. Please refer to Santa Clarita Organization for Planning the Environment v. County of Los Angeles (2007) 157 Cal.App.4th 149 (SCOPE II). In applying the four principles for a CEQA analysis of future water supplies articulated by the California Supreme Court in Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova (2007) 40 Cal.4th 412 to the EIR's analysis of the "pros and cons" of the 41,000 afy transfer as part of the water supplies, the Court of Appeal concluded that the County's decision to rely on the 41,000 afy transfer as a permanent part of the water supplies in the Santa Clarita Valley, with or without the Monterey Amendments, and even under the Monterey Settlement Agreement, was proper.

For all the above reasons, it is reasonable to include the 41,000 afy transfer in the calculation of CLWA's available imported water supplies. Furthermore, based on the above, it is reasonable to conclude that even if a court finds CLWA's revised EIR legally deficient, that court, like all others before it, will again refuse to enjoin the 41,000 afy transfer, and instead require further revisions to that EIR. Therefore, the pending legal challenges to the 41,000 afy transfer, and DWR's on-going environmental review in the Monterey Plus Draft EIR, should have no impact on the amount of SWP water available to CLWA as a result of the completed 41,000 afy transfer.

With respect to DWR's Monterey Plus Draft 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, and may occur independently of the Monterey Agreement/Amendments. That DWR did not oppose CLWA's completion and certification of the new EIR for the water transfer, despite DWR's preparation of the Monterey Plus Draft EIR, supports this view. Thus, the pending legal challenges to CLWA's revised EIR and DWR's Monterey Plus Draft EIR are not expected to impact the amount of water available to CLWA as a result of the 41,000 afy transfer.

Nonetheless, it should be disclosed that DWR's contract amendments that effectuated the 41,000 afy transfer under the Monterey Amendments do not per se preclude DWR's analysis of alternatives or mitigation measures in the Monterey Plus EIR. In this regard, a contractual agreement to transfer SWP water from one SWP Contractor to another may still be subject to possible changes or curtailments. In addition, DWR's on-going environmental review of the Monterey Agreement/ Amendments introduces the prospect that DWR's review could result in a modification of the completed 41,000 afy transfer and a reduced allocation to CLWA; however, there are indications that DWR, CLWA, and Kern County Water Agency (the parties to the 41,000 afy transfer) do not wish to disturb the transfer. There is also the fact that the trial courts and Courts of Appeal in both

the Monterey Agreement litigation and the CLWA EIR litigation never enjoined the use of the water from the 41,000 afy transfer.

Thus, for all the reasons stated above, the City has made the factual determination that it is not precluded from relying upon the transfer in these circumstances. The City's determination is also supported by recent appellate court decisions addressing challenges to the validity of CLWA's 41,000 afy transfer. A discussion of this recent litigation is presented below.

The CLWA 41,000 afy transfer has been the subject of recent court decisions. The first court case involved a published appellate court decision in litigation entitled, California Oak Foundation v. City of Santa Clarita (2005) 133 Cal.App.4th 1219. In the California Oak Foundation decision, the Court of Appeal invalidated an EIR under CEQA for the Gate-King project located in the City of Santa Clarita, because the EIR did not explain how demand for water would be met if the 41,000 afy transfer were set aside, or why it is appropriate to rely on the 41,000 afy transfer in any event. The above analysis in this document explains in detail why it is appropriate to rely on the CLWA 41,000 afy transfer as part of CLWA's overall SWP water supplies.

The second court case involved a separate legal challenge to an EIR under CEQA for the West Creek project located in Los Angeles County. This separate legal challenge was brought in Santa Barbara County Superior Court in Santa Clarita Organization for Planning the Environment v. County of Los Angeles, Case No. 1043805 (West Creek litigation). After a hearing, the Santa Barbara Superior Court issued an Order determining that the EIR prepared for the West Creek project contained substantial evidence in the record to support the County's decision to rely on the 41,000 afy transfer for planning purposes. The Order noted that substantial evidence appeared in the record to support the County's decision to rely on the 41,000 afy transfer, while acknowledging and disclosing the potential uncertainties involving the 41,000 afy transfer created by pending litigation. The Order summarized the evidence, including the fact that: (a) DWR continues to allocate and deliver the water in accordance with the amended water supply contract authorizing the 41,000 afy transfer; (b) neither the Monterey Agreement litigation, nor the Monterey Settlement Agreement set aside any of the water transfers made under the Monterey Agreement, including the 41,000 afy transfer; (c) the courts have not enjoined CLWA's use of the 41,000 af transfer; and (d) CLWA has prepared and certified a revised EIR on the 41,000 af transfer and that EIR is presumed adequate despite pending legal challenges. The Santa Barbara Superior Court Order in the West Creek litigation was provided in Appendix D. Thereafter, the West Creek decision was appealed. As stated above, in Santa Clarita Organization for Planning the Environment v. County of Los Angeles (2007) 157 Cal.App.4th 149 (SCOPE II), the Second District Court of Appeal, Division Six, affirmed the trial court's decision upholding the validity of the EIR's water supply analysis for the West Creek development project in the Santa Clarita Valley, including the EIR's assessment and reliance upon the permanent and final 41,000 afy water transfer.

The third court case involved a CEQA challenge to an EIR for the Riverpark project located in the City of Santa Clarita, County of Los Angeles. This legal challenge was brought in Los Angeles County Superior Court in Sierra Club, et al. v. City of Santa Clarita, Case No. BS 098722 (Riverpark litigation).

After a hearing in the Riverpark litigation, the Los Angeles County Superior Court issued a decision determining that the City had properly relied on the 41,000 afy water transfer for planning purposes,

and rejected petitioners' claims that legal uncertainties surrounding the 41,000 afy transfer due to other litigation (e.g., Planning and Conservation League v. Department of Water Resources (2000) 83 Cal.App.4th 892; Friends of Santa Clara River v. CLWA (2002) 95 Cal.App.4th 1373; and California Oak Foundation v. City of Santa Clarita (2005) 133 Cal.App.4th 1219) precluded the City from relying on water from that transfer for planning purposes. The court also determined that the 41,000 afy transfer was sufficiently certain and that the Monterey Settlement Agreement did not preclude the City from relying on the transfer in its EIR for the Riverpark project pending DWR's preparation of its Monterey Agreement EIR. Finally, the court found that substantial evidence in the EIR and record supported the City's decision that water from the 41,000 afy transfer could be relied on as part of CLWA's supplies. The Los Angeles County Superior Court decision in the Riverpark litigation was provided in Appendix D. The Riverpark decision was appealed. On January 29, 2008, the Court of Appeal issued its decision (Sierra Club, et al. v. City of Santa Clarita, et al., Case No. B194771 [Sierra Club]).

In Sierra Club, the Second Appellate District, Division Three, affirmed the trial court's judgment, and held that the Riverpark EIR's water supply analysis was adequate under CEQA. Although Sierra Club was not a published decision, it provides further reasoned analysis supporting the County's determination that the 41,000 afy transfer may be relied upon for planning purposes, while acknowledging and disclosing the potential uncertainty of that supply created by litigation, as well as DWR's on-going environmental review of the Monterey Agreement/Amendments.[19]

Litigation Concerning the Adequacy of the 2005 UWMP

In February 2006, the California Water Impact Network and Friends of the Santa Clara River (Friends) filed another lawsuit, challenging the adequacy of the 2005 UWMP on multiple grounds. The main arguments presented in this suit are that the 2005 UWMP allegedly 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.

In California Water Impact Network, et al. v. Castaic Lake Water Agency, et al., Los Angeles County Superior Court No. BS103295, the trial court rejected CWIN's and Friends' challenge to the 2005 UWMP. In its August 3, 2007, Statement of Decision, the trial court concluded that substantial evidence supported the determination that the 41,000 afy transfer remained a valid and reliable water source. The trial court identified this evidence as including: (a) the transfer was completed in 1999, and DWR has allocated and annually delivered the water in accordance with the completed transfer; (b) the Court of Appeal held that the only defect in CLWA's 1999 EIR was that it tiered from the Monterey Agreement EIR, which was later decertified (Friends I, 95 Cal.App.4th at p. 1387); (c) the defect has been remedied by CLWA's certification of the revised 2004 EIR that did not tier from the Monterey Agreement EIR; (d) the Monterey Settlement Agreement expressly authorizes operation of the SWP in accordance with the Monterey Amendments, which facilitated the 41,000 afy transfer; (e) appellate courts have refused to enjoin or invalidate the transfer; and (f) the transfer is

19 The *Sierra Club* decision is found in Appendix D of this EIR.

memorialized in the contract between DWR and CLWA, which remains in full force and effect, and no court has ever enjoined or invalidated the use of this portion of CLWA's SWP supplies.

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

This EIR acknowledges that multiple court challenges have been filed challenging the sufficiency of water supplies in the Santa Clarita Valley. Based on the status of these challenges, 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, there is substantial evidence in the record to support the conclusions that sufficient water is available to serve the proposed project.

As stated in this subsection, above, there are potential uncertainties associated with the 41,000 afy transfer. However, because the 41,000 af was a permanent water transfer, because DWR includes the 41,000 af in calculating CLWA's share of SWP Table A supplies, because the courts have not prohibited CLWA from using or relying on those additional SWP supplies, the City has determined it remains appropriate to include those water supplies in its overall water supply and demand analysis for the Santa Clarita Valley. At the same time, however, the City nonetheless acknowledges and discloses the potential uncertainty created by the litigation described above, and by DWR's on-going environmental review of the Monterey Agreement/Amendments, including the 41,000 afy transfer and the other water transfers facilitated by the Monterey Amendments.

5.17.2 SIGNIFICANCE THRESHOLD CRITERIA

The City of Santa Clarita Local CEQA Guidelines (Resolution 05-38) adopted on April 26, 2005, as well as the City's General Plan and Municipal Code serve as the basis for identifying thresholds determining the significance of the environmental effects of a projects. Where thresholds are not specifically identified, the Initial Study checklist contained in Appendix A of this EIR relating to water supply have been utilized to formulate additional significance criteria in this section. Accordingly, a project may create a significant environmental impact if one or more of the following occurs:

- Result in insufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements are needed.

- 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).

The proposed HMNMH Master Plan has been evaluated based on these standards. Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

5.17.3 IMPACTS AND MITIGATION MEASURES

WATER DEMAND AND SUPPLY, AND GROUNDWATER RECHARGE

Level of Significance Prior to Mitigation: Less Than Significant Impact.

Impact Analysis:

Water Supply

As indicated in the Updated SB 610 Water Supply Assessment for the proposed HMNMH Master Plan, an adequate supply of water is available to meet the demands of the expanded hospital facilities in addition to existing and planned future uses in the Santa Clarita Valley (see Appendix D). Valencia Water Company (VWC) would supply the proposed project's water demand by relying on VWC groundwater supplies and CLWA's SWP supplies delivered by VWC. The proposed project would not result in or contribute to any significant cumulative water supply impacts in the Santa Clarita Valley. Accordingly, as documented further below in the section assessing the proposed project water demand and supplies, sufficient water supplies are available to serve the proposed project from existing supplies without creating the need for any new or expanded water entitlements or facilities. The available water supplies also are sufficient to meet the domestic demands and fire flows for the proposed HMNMH Master Plan project.

Groundwater Supply Impacts

Supplying water to the project site would not substantially deplete groundwater supplies, because the previous discussion in this EIR of available local groundwater supplies confirms that there are sufficient local groundwater supplies to support the planned land uses of the proposed project, in addition to existing and future cumulative development in the Valley. As stated above, groundwater supplies were recently evaluated in the 2005 UWMP and the 2005 Basin Yield Report. This evaluation resulted in the following findings: (a) both the Alluvial Aquifer and the Saugus Formation are reasonable and sustainable sources of local water supplies at the yields stated in the 2005 UWMP; (b) the yields are not overstated and would not deplete or "dry-up" the groundwater basin; and (c) there is no need to reduce the yields for purposes of planning, as shown in both the 2005 UWMP and the 2005 Basin Yield Report (see Appendix D). In addition, both the 2005 UWMP and 2005 Basin Yield Report have determined that neither the Alluvial Aquifer nor the Saugus Formation is in an overdraft condition, or projected to become overdrafted.

Groundwater Recharge Impacts

Supplying water to the proposed project also would not interfere substantially with groundwater recharge, because the best available evidence shows that no adverse impacts on Basin recharge have occurred due to the existing or projected use of local groundwater supplies, consistent with the CLWA/purveyor groundwater operating plan for the Basin (see 2005 Basin Yield Report). In addition, based on the memorandum prepared by CH2MHill (Effect of Urbanization on Aquifer Recharge in the Santa Clarita Valley, February 22, 2004; Appendix D), no significant project-specific or cumulative impacts would occur on 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 Impacts on Groundwater Supply

The detection of perchlorate in local groundwater supplies has raised concerns over the reliability of local groundwater supplies, in particular the Saugus Formation, where four wells (SCWD's Wells, Saugus 1 and Saugus 2, NCWD's Well NC-11, and VWC's Well V-157) were removed from service. As discussed in both this EIR and the 2005 UWMP, Chapter 5 and Appendix D (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 monitor and work closely on the remediation of perchlorate-impacted wells.

The text provided below presents a summary of the status of perchlorate remediation and restoration of perchlorate-impacted groundwater supply. (A detailed discussion of pertinent events related to perchlorate contamination, containment, remediation, and water supply restoration is included in the 2005 UWMP, Appendix D [Appendix D].) This analysis illustrates that work toward the ultimate remediation of the perchlorate contamination, including the reactivation of impacted groundwater supply wells, has progressed on several integrated fronts over the last five years.

Perchlorate Impacted Water Purveyor Wells

As previously discussed, 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 Valencia Water Company'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 on Figures 6 and 7 in Appendix D. As a result of the detection and confirmation of perchlorate in its Well Q2, Valencia Water Company 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, Valencia Water Company also restored the pumping capacity of Well Q2 with the start-up of wellhead treatment designed to effectively remove perchlorate.

In January 2005, Valencia Water Company 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. Valencia Water Company'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 on Figures 6 and 7 in Appendix D.

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. Pumping from these wells would 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: (1) the control of subsurface flow and protection of downgradient wells, and (2) the 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. The plan 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.
- Restoring the wells' total capacity to produce water in a manner consistent with the retail water purveyors' operating plan for groundwater supply described above.

The current schedule for implementation of the plan to restore contaminated water supply (wells) is illustrated on Figure 8 in Appendix D.

An ion exchange treatment process utilizing a specialized resin has been selected for the Whittaker-Bermite project because of several factors including its performance in removing perchlorate and longevity service life. The two key activities that 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 2008. Notable recent accomplishments toward implementation include completion of the Interim Remedial Action Plan (RAP) in December 2005 and the associated environmental review in September 2005. The RAP was approved by DTSC in January 2006. Funding to cover remedial work has been secured by a settlement between Whittaker-Bermite and its insurance carriers, with several millions of dollars currently held in escrow. The escrowed funds will be used for implementation of the RAP. At this time (January 2008), the northern alluvium containment system is operating. By spring 2008, an analysis reviewing the effectiveness of this operation to contain the contaminant plume in the northern alluvium is expected. In December 2007, Geomatrix reported groundwater pumping at 40-50 gpm and concentrations of perchlorate at approximately 200 parts per billion before treatment. Following treatment, the water is discharged to the Santa Clara River at "non-detect" levels. Through December 1, 2007, just over 2.5 million gallons of impacted water has been treated and discharged from the northern alluvium.[20]

The perchlorate-impacted groundwater would remain unavailable as a local component of water supply for the Santa Clarita Valley through 2008. During this time, the non-impacted groundwater supply would be sufficient to meet near-term water requirements as described in Chapter 3 of the 2005 UWMP. Thereafter, the total groundwater capacity would 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 DPH before the water can be considered potable and safe for delivery to customers. The permit requirements are contained in DPH 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, DPH 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 DPH 97-005 Policy Memo requires that DPH 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 DPH 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.

[20] See update report from Geomatrix, dated December 17, 2007, prepared for the DTSC Site Mitigation Branch and presented in Appendix D of this EIR.

- 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 DPH 97-005 Policy Memo permit application. Two coordination workshops have already been held with DPH. Drafts of all six elements of the 97-005 Policy Memo have been submitted to DPH 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. 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.[21]

As listed above, DPH 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 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 being used to support the source water assessment and the balance of the permitting process required by DPH. For additional information regarding ongoing groundwater monitoring and other activities related to the treatment of perchlorate-impacted groundwater and the planned return of this water to active public use in the Santa Clarita Valley, please see the Summary Report for the Month of November 2007, prepared by Geomatrix for DTSC, dated January 15, 2008, and Technical Memorandum No. 6, January 2007

[21] For further information regarding this project, please refer to Appendix E of the *2005 UWMP* in Appendix D.

Groundwater Monitoring Event, Eastern Santa Clara Subbasin Groundwater Study, Santa Clarita, California, prepared by CH2MHill for the U.S. Army Corps of Engineers, dated August 2007; both documents are presented in Appendix D of this EIR.

Proposed Project Water Demand Impacts

The existing water demand for the project site is 125 afy. The estimated water demand with buildout of the proposed Master Plan is 205 afy. Proposed project water demand increases by approximately 10 percent in a dry year to a total of 226 afy.

The hospital facilities would be expanded within the existing 30.4-acre HMNMH medical campus. In 2007, the medical campus occupies 340,071 square feet of building area. On-site buildings cover approximately 26 percent of the project site, while on-site landscaping comprises 43 percent of the site. On-site parking is limited to surface parking only.

To meet the estimated water demand at project buildout, Valencia Water Company, as the local retail purveyor, would provide water to the expanded hospital facilities. Recycled water is not currently available for the project site. There are plans to install a recycled water pipeline in the future, but that planned construction is still several years away (Valencia Water Company 2008). If or when recycled water is available, the hospital may not be a candidate because their nonpotable water use is small compared to potable use. However, because recycled water is a viable water supply source in the Santa Clarita Valley, these water supplies are assessed further below.

Impacts Assessment of Existing Conditions Plus Project Water Demand and Supply

This section describes the existing development demand in the Santa Clarita Valley, plus the proposed project water demand, measured against existing supplies. *Table 5.17-14*, *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.

Table 5.17-14
Existing (2006) Plus Project Demand and Supply for the Santa Clarita Valley
(acre-feet per year)

	2006
Existing Demand	74,100
Other Demand (agricultural)[1]	17,300
HMNMH Master Plan Demand	205
Total Demand	91,605
Existing Water Supply Programs:	
Local Supplies	
Alluvial Aquifer	43,061
Saugus Formation	7,312
Recycled Water	419
Imported Supplies	
SWP Table A Deliveries[2]	40,646
Rosedale-Rio Bravo Water Bank[3]	40,000
Semitropic Bank Account	50,870
Flexible Storage Account[4]	6,060
Nickel Water	1,607
Total Existing Supplies	189,975
Surplus	98,370

Notes:
[1] In the Santa Clarita Valley, a total of 17,300 afy is used for agricultural irrigation and other miscellaneous uses.
[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 and 2006, CLWA also stored an additional 40,000 acre-feet in the Rosedale-Rio Bravo Water Bank.
[4] This account includes both CLWA and Ventura County flexible storage supplies available to CLWA.
Source: 2006 Santa Clarita Valley Water Report, 2007

Conclusion

Implementation of the proposed Master Plan would not significantly impact water resources within the Santa Clarita Valley. The water demand from the proposed project is primarily from potable water versus nonpotable water. There would be sufficient water supply to meet the proposed project's water demand under an average/normal water year, single dry year, or multiple dry years. In addition, the proposed project would include development of a distribution system that would provide sufficient capacity for domestic and fire flow requirements. Therefore, impacts would be less than significant.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: Less Than Significant Impact.

5.17.4 CUMULATIVE IMPACTS AND MITIGATION MEASURES

Level of Significance Prior to Mitigation: Less Than Significant Impact.

Impact Analysis: The analysis presented below 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. Buildout within the CLWA service area by 2030, plus active pending General Plan Amendment requests, plus the project (referred to as the Santa Clarita Valley 2030 Buildout Scenario).

SB 610 Water Demand and Supply Scenario

As indicated previously, the Valencia Water Company prepared an Updated SB 610 Water Supply Assessment (WSA) for the HMNMH Master Plan. A copy of the Updated WSA is found in Appendix D of this EIR. In the Updated WSA, Valencia Water Company concludes there would be a sufficient water supply available at the time the proposed HMNMH Master Plan is ready for occupancy to meet the needs of the proposed project in addition to existing and other planned future uses.

Valencia Water Company's current service area-wide demand is approximately 30,000 afy.[22] As mentioned previously, the proposed project would require approximately 205 afy at buildout. The average year, dry year and multiple dry-year water assessments are presented below. These assessments are based on the CLWA 2005 UWMP, the revised WSA, and DWR's Draft State Water Project Delivery Reliability Report 2007, December 2007.

Average Year Water Assessment

After adjusting for the 2007 SWP delivery reliability factors provided in DWR's Draft State Water Project Delivery Reliability Report 2007, no shortages are anticipated within the CLWA service area in an average water year through 2030 if planned water supply programs (e.g., potential programs with the Chino Basin Watermaster, Calleguas Municipal Water District, and San Gorgonio Pass Water Agency) 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. *Table 5.17-15*, *Projected Average/Normal Year Supplies and Demands*, summarizes the data from the 2005 UWMP, 2006 Water Report, and Draft State Water Project Delivery Reliability Report 2007 (see Appendix D).

[22] This represents year 2005 demand. Dry year demand is approximately 10 percent higher.

Table 5.17-15
Projected Average/Normal Year Supplies and Demands

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	73,007	73,707	74,407	75,107	75,407
SWP Table A Supply[1]	60,400	61,100	61,800	62,500	62,800
Buena Vista-Rosedale[4]	11,000	11,000	11,000	11,000	11,000
Nickel Water – Newhall Ranch	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)[2]	0	0	0	0	0
Flexible Storage Account (Ventura County)[2]	0	0	0	0	0
Local Supplies					
Groundwater	46,000	46,000	46,000	46,000	46,000
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000
Saugus Formation	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	120,707	121,407	122,107	122,807	123,107
Existing Banking Programs					
Semitropic Water Bank[2]	0	0	0	0	0
Rosedale-Rio Bravo[2]	0	0	0	0	0
Total Existing Banking Programs	0	0	0	0	0
Planned Supplies					
Local Supplies					
Groundwater	0	0	0	0	0
Restored wells (Saugus Formation)[2]	0	0	0	0	0
New Wells (Saugus Formation)[2]	0	0	0	0	0
Recycled Water - CLWA[3]	0	1,600	6,300	11,000	15,700
Recycled Water – Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	0	3,100	8,800	14,500	21,100
Planned Banking Programs					
Additional Planned Banking[2]	0	0	0	0	0
Total Planned Banking Programs	0	0	0	0	0
Total Existing and Planned Supplies and Banking	120,707	124,507	130,907	137,307	144,207
Total Estimated Demand (w/o conservation)	100,050	109,400	117,150	128,400	138,300
Conservation	(8,600)	(9,700)	(10,700)	(11,900)	(12,900)
Total Adjusted Demand	91,450	99,700	106,450	116,500	125,400
Total Surplus/(Deficit)	29,257	24,807	24,457	20,807	18,807

[1] SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available (63.45 percent in 2010, 64.20 percent in 2015, 64.95 percent in 2020, 65.70 percent in 2025 and 66 percent in 2030), derived from DWR's "Draft State Water Project Delivery Reliability Report, 2007" (December 2007).

[2] Not needed during average/normal years. (See CLWA 2005 UWMP, page 3-23.)

[3] Recycled water supplies based on projections provided in Chapter 4, Recycled Water.

[4] CLWA acquired this supply in 2007, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy, under which it will not approve potential annexations unless additional water supplies are acquired. Currently, CLWA is prudently deferring consideration of any proposed annexations to the CLWA service area until the situation that has arisen as a result of the recent court rulings related to SWP water is resolved. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

[5] Includes the proposed Project.

Source: Valencia Water Company and CLWA 2008.

Single Dry Year Water Assessment

Table 5.17-16, *Projected Single-Dry Year Supplies and Demands*, summarizes the existing and planned water supplies available in the Santa Clarita Valley over the 25-year planning period should a single-dry event occur, similar to the drought that occurred in California in 1977. Demand during single-dry years was assumed to increase by 10 percent. During prolonged dry periods, experience indicates that a reduction in demand of 10 percent is achievable through the implementation of conservation best management practices. After adjusting for the 2007 SWP delivery reliability factors provided in DWR's Draft State Water Project Delivery Reliability Report 2007, no shortages are anticipated within the CLWA service area in a single dry year through 2030, with planned water supply programs developed as estimated.

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 5.17-16
Projected Single-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	24,567	24,767	23,587	23,887	23,987
SWP Table A Supply[1]	5,900	6,100	6,300	6,600	6,700
Buena Vista-Rosedale[5]	11,000	11,000	11,000	11,000	11,000
Nickel Water – Newhall Ranch	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County)[2]	1,380	1,380	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	73,767	73,967	72,787	73,087	73,187
Existing Banking Programs					
Semitropic Water Bank[3]	17,000	0	0	0	0
Rosedale-Rio Bravo[6]	20,000	20,000	20,000	20,000	20,000
Total Existing Banking Programs	37,000	20,000	20,000	20,000	20,000
Planned Supplies					
Local Supplies					
Groundwater	10,000	10,000	20,000	20,000	20,000
Restored wells (Saugus Formation)	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	10,000	10,000	10,000
Recycled Water -CLWA[4]	0	1,600	6,300	11,000	15,700
Recycled Water – Newhall Ranch		1,500	2,500	3,500	5,400
Total Planned Supplies	10,000	13,100	28,800	34,500	41,100
Planned Banking Programs					
Additional Planned Banking[7]	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	0	20,000	20,000	20,000	20,000
Total Existing and Planned Supplies and Banking	120,767	127,067	141,587	147,587	154,287

Table 5.17-16 (Continued)
Projected Single-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Total Estimated Demand (w/o conservation)	110,100	120,300	128,900	141,200	152,100
Conservation	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900
Total Surplus/(Deficit)	20,167	17,467	24,387	19,487	16,387

[1] SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of single dry deliveries projected to be available for the worst case single dry year of 1977 (6.15 percent in 2010, 6.40 percent in 2015, 6.65 percent in 2020, 6.90 percent in 2025 and 7.0 percent in 2030), derived from DWR's "Draft State Water Project Delivery Reliability Report, 2007" (December 2007).
[2] Initial term of the Ventura County entities' flexible storage account is 10 years (from 2006 to 2015).
[3] The total amount of water currently in storage is 50,870 af, available through 2013. Withdrawals of up to this amount are potentially available in a dry year, but given possible competition for withdrawal capacity with other Semitropic banking partners in extremely dry years, it is assumed here that about one third of the total amount stored could be withdrawn.
[4] Recycled water supplies based on projections provided in Chapter 4, Recycled Water.
[5] CLWA acquired this supply in 2007, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy, under which it will not approve potential annexations unless additional water supplies are acquired. Currently, CLWA is prudently deferring consideration of any proposed annexations to the CLWA service area until the situation that has arisen as a result of the recent court rulings is resolved. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.
[6] CLWA has banked 70,200 af in the Rosedale-Rio Bravo Water Banking and Recovery Program.
[7] Based on additional planned banking supplies available by 2014. (See CLWA 2005 UWMP, page 3-23.)
Source: Valencia Water Company and CLWA, 2008.

Multiple Dry Year Water Assessment

Table 5.17-17, *Projected Multiple-Dry Year Supplies and Demands*, summarizes the existing and planned water supplies available in the Santa Clarita Valley over the 25-year planning period should a four-year multiple dry year event occur, similar to the drought that occurred in California during the years 1931 to 1934. Demand during dry years was assumed to increase by 10 percent. During prolonged dry periods, experience indicates that a reduction in demand of 10 percent is achievable through the implementation of conservation best management practices.

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 need and cost-effectiveness are determined through time. Future WSAs will reflect these contractual agreements. As shown, water supplies exceed demand by 13,177 to 22,577 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 5.17-17
Projected Multiple-Dry Years Supplies[1]

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	47,017	46,317	45,277	44,477	44,277
SWP Table A Supply[2]	32,900	32,200	31,500	30,700	30,500
Buena Vista-Rosedale[6]	11,000	11,000	11,000	11,000	11,000
Nickel Water – Newhall Ranch	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)[3]	1,170	1,170	1,170	1,170	1,170
Flexible Storage Account (Ventura County)[3]	340	340	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation[4]	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	96,217	95,517	94,477	93,677	93,477
Existing Banking Programs					
Semitropic Water Bank[3]	12,700	0	0	0	0
Rosedale-Rio Bravo[7, 8]	5,000	15,000	15,000	15,000	15,000
Total Existing Banking Programs	17,700	15,000	15,000	15,000	15,000
Planned Supplies					
Local Supplies					
Groundwater	6,500	6,500	6,500	6,500	6,500
Restored wells (Saugus Formation)[4]	6,500	6,500	5,000	5,000	5,000
New Wells (Saugus Formation)[4]	0	0	1,500	1,500	1,500
Recycled Water[5]	0	1,600	6,300	11,000	15,700
Recycled Water – Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	6,500	9,600	15,300	21,000	27,600
Planned Banking Programs					
Additional Planned Banking[8, 9]	0	5,000	15,000	15,000	15,000
Total Planned Banking Programs	0	5,000	15,000	15,000	15,000
Total Existing and Planned Supplies and Banking	120,417	125,117	139,777	144,677	151,077
Total Estimated Demand (w/o conservation)	110,100	120,300	128,900	141,200	152,100
Conservation	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900
Total Surplus/(Deficit)	19,817	15,517	22,577	16,577	13,177

1 Supplies shown are annual averages over four consecutive dry years (unless otherwise noted).
2 SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of deliveries projected to be available for the worst case four-year drought of 1931-1934 (34.55 percent in 2010, 33.80 percent in 2015, 33.05 percent in 2020, 32.30 percent in 2025 and 32.00 percent in 2030), derived from DWR's "Draft State Water Project Delivery Reliability Report, 2007" (December 2007).
3 Based on total amount of storage available divided by four (four-year dry period). Initial term of the Ventura County entities' flexible storage account is 10 years (from 2006 to 2015).
4 Total Saugus pumping is the average annual amount that would be pumped under the groundwater operating plan, as summarized in Table 3-6 ([11,000+15,000+25,000+35,000]/4).
5 Recycled water supplies based on projections provided in Chapter 4, Recycled Water.
6 CLWA acquired this supply in 2007, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy, under which it will not approve potential annexations unless additional water supplies are acquired. Currently, CLWA is prudently deferring consideration of any proposed annexations to the CLWA service area until the situation that has arisen as a result of the recent court rulings is resolved. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.
7 CLWA has banked 70,200 af in the Rosedale-Rio Bravo Water Banking and Recovery Program.
8 Average dry year period supplies could be up to 20,000 af for each program depending on storage amounts at the beginning of the dry period.
9 Based on additional planned banking supplies available by 2014. (See CLWA 2005 UWMP, page 3-23.)
Source: Valencia Water Company and CLWA, 2008.

Santa Clarita Valley 2030 Buildout Scenario

The Santa Clarita Valley 2030 Buildout 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 2030, plus the proposed HMNMH Master Plan 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 5.17-18, *Scenario 2: Santa Clarita Valley 2030 Buildout Scenario Water Supplies*, and *Table 5.17-19*, *Scenario 2: Santa Clarita Valley 2030 Buildout Scenario Water Demand and Supply*, summarize the cumulative water demand and supply for this buildout scenario. As shown, the water demands for the proposed HMNMH Master Plan project would be met by local water supplies that are adequate to meet project demands; thus, the proposed project does not contribute to any cumulative water impacts, and does not 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 each project alternative, with no significant cumulative water supply impacts occurring in either average or dry years. In fact, the *Table 5.17-18* and *Table 5.17-19* 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 5.17-18*.

As depicted in *Table 5.17-19*, 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 proposed HMNMH Master Plan project. Therefore, cumulative mitigation measures are not required.

Table 5.17-18
Santa Clarita Valley 2030 Buildout Scenario Water Supplies
(acre-feet)

	Average Years	Single Dry Year	Multiple Dry Years
Santa Clarita Valley Water Supplies(1)			
Local Supply			
a. Groundwater			
Alluvial Aquifer	35,000	32,500	32,500
Saugus Formation	11,000	15,000	15,000
Restored Impacted Wells		10,000	5,000
Saugus Formation (New Wells)		10,000	1,500
b. Reclaimed Water	17,400	17,400	17,400
Newhall Ranch WRP Supply	5,400	5,400	5,400
Imported Supplies			
a. SWP Table A Amount(2)	62,800	6,700	30,500
b. Newhall Nickel Water	1,607	1,607	1,607
c. Newhall Semitropic Groundwater Bank Storage		0	0
d. Additional Planned Banking		20,000	15,000
e. Buena Vista-Rosedale Transfer	11,000	11,000	11,000
f. Flexible Storage Account		4,680	1,170
g. Rosedale-Rio Bravo Groundwater Bank		20,000	15,000
Total Supply	144,207	154,287	151,077

Notes:
(1) SWP maximum allocation reduced in average years to approximately 66 percent of maximum allocation and in dry years to approximately 7 percent (single-dry years) to 32 percent (multi-dry years) of maximum allocation.
(2) In any given year, the actual amount of SWP water deliveries could be above or below these model projections.
(3) Reclaimed water not at maximum of WRP water throughput, thus reclaimed volumes not decreased during drought.
Source: 2005 UWMP (see Appendix D) and Draft State Water Project Delivery Reliability Report, 2007 (December 2007)

Table 5.17-19
Scenario 2: Santa Clarita Valley 2030 Buildout Scenario Water Demand and Supply
(acre-feet)

	Buildout (year 2030)		
	Average Years	Single Dry Years	Multi-Dry Years
Santa Clarita Valley Water Supplies[a]	144,207	154,999	151,789
Total Build-Out Demand[b]	90,275	99,273	99,273
Total Surplus	18,807	17,099	13,889

[a] Source: 2005 UWMP, the Newhall Ranch Additional Analysis, May 2003 and Draft State Water Project Delivery Reliability Report, 2007 (December 2007).
[b] Demand is increased by approximately 10 percent in dry years.
[c] 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.

Conclusion

Because cumulative water supplies exceed demand, cumulative development (including the proposed project) would not result in unavoidable significant cumulative impacts on Santa Clarita Valley water resources. This includes potential impacts to groundwater resources related to recharge potential. Development of the proposed project site and other sites proposed for development in the Santa Clarita Valley, no significant project-specific or cumulative impacts would occur to the groundwater basin with respect to aquifer recharge. This is due to the fact that urbanization in the Santa Clarita Valley has been accompanied by long-term stability in pumping and groundwater levels, plus the addition of imported SWP water to the valley, which together have not reduced recharge to groundwater, nor depleted the amount of groundwater that is in storage within the valley. Therefore, cumulative mitigation measures are not required with respect to water resources.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: Less Than Significant Impact.

5.17.5 SIGNIFICANT UNAVOIDABLE IMPACTS

Implementation of the proposed project would result in less than significant impacts for water supply and demand. All potential impacts were concluded to have no impact or be at less than significant levels, and did not require mitigation. As such, no significant unavoidable impacts would result from implementation of the Henry Mayo Newhall Memorial Hospital Master Plan.