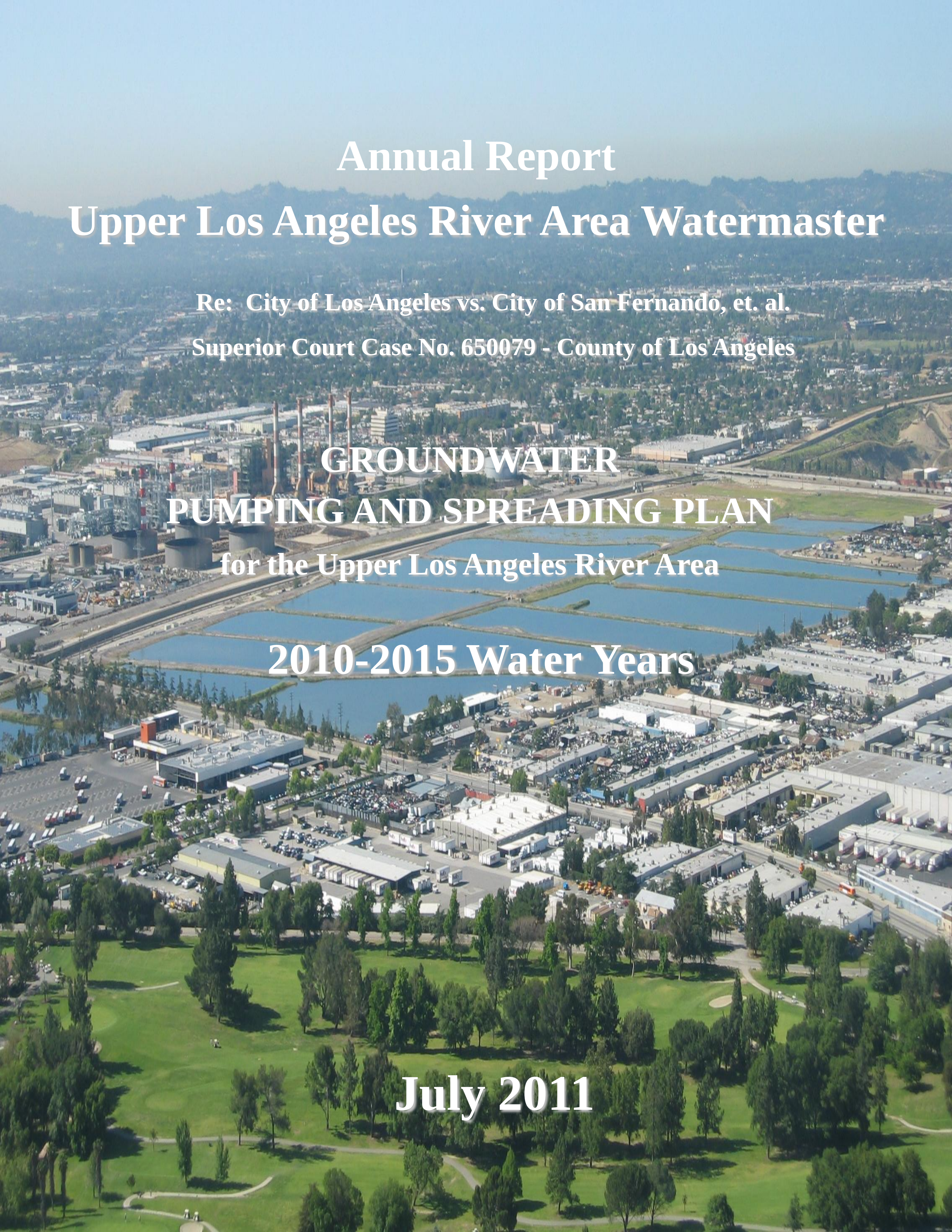

Annual Report
Upper Los Angeles River Area Watermaster

Re: City of Los Angeles vs. City of San Fernando, et. al.

Superior Court Case No. 650079 - County of Los Angeles

GROUNDWATER
PUMPING AND SPREADING PLAN
for the Upper Los Angeles River Area

2010-2015 Water Years

July 2011

ANNUAL REPORT

UPPER LOS ANGELES RIVER AREA WATERMASTER

Re: City Of Los Angeles vs. City Of San Fernando, et. al.
Superior Court Case No. 650079 - County Of Los Angeles

GROUNDWATER PUMPING AND SPREADING PLAN FOR THE UPPER LOS ANGELES RIVER AREA (ULARA) LOS ANGELES COUNTY, CALIFORNIA

2010-2015 WATER YEARS
October 2010 – September 2015

ULARA WATERMASTER
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Copies of this report may be downloaded from the
ULARA Watermaster Website (http://ularawatermaster.ladwp.com).

JULY 2011

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I. EXECUTIVE SUMMARY

As the Watermaster for the Upper Los Angeles River Area (ULARA), I am pleased to submit this Annual Report for the ULARA Groundwater Pumping and Spreading Plan for the 2010-2015 Water Years. This report is prepared in compliance with Section 5.4 of the ULARA Watermaster's Policies and Procedures that established the Watermaster's responsibility for management of the four groundwater basins in ULARA (the San Fernando, Verdugo, Sylmar and Eagle Rock basins). Included in this Groundwater Pumping and Spreading Plan, as appendices, are the individual plans submitted by the five major pumping parties (the cities of Burbank, Glendale, Los Angeles and San Fernando, and the Crescenta Valley Water District). This report also discusses the estimated changes in recharge, spreading, pumping, and pumping patterns, especially in relation to the present and future plans for groundwater cleanup in the eastern portion of the San Fernando Groundwater Basin.

In this current Water Year which ends September 30, 2011, both the cities of Los Angeles and San Fernando have encountered pumping difficulties in the Sylmar Basin and expect to pump less than their annual entitlements from this basin. Overall pumping in the San Fernando Basin (SFB) will be less than its long-term average. The cities of Burbank and Glendale are on track to produce more than their adjudicated water rights, whereas the City of Los Angeles continues to experience considerable challenges with groundwater contamination in this basin and thus will pump less groundwater than its annual entitlement. In the Verdugo Basin, both the Crescenta Valley Water District (CVWD), due to local problems with groundwater contamination, and Glendale, due to its limited local pumping capacity, expect to produce less than their adjudicated water right during the current Water Year.

Currently, there are five major groundwater cleanup facilities (each with its own water wells and treatment plant) in operation in ULARA: the North Hollywood Operable Unit (OU) and the Pollock Wells Treatment Plant in the City of Los Angeles; the Burbank OU (BOU) in Burbank; the Glendale OU (GOU) in Los Angeles; and the CVWD Glenwood Nitrate Removal Plant in La Crescenta. Glendale completed and now operates its Chromium Removal Demonstration Facilities to remove hexavalent chromium from a portion of the groundwater produced by its wells in the Glendale OU. This facility is demonstrating two promising treatment technologies, weak-base anion exchange (WBA), and reduction, coagulation and filtration (RCF). The City of Los Angeles also constructed and began operating wellhead treatment facilities on two of its twelve wells at the Tujunga Wellfield in the SFB in May 2010.

The Watermaster has continued to address the decline of groundwater stored in the SFB. This effort was initiated by the prior Watermaster (Mr. Mark Mackowski) who filed a “white paper” with the Superior Court in March 2007 entitled, “Is the San Fernando Groundwater Basin Undergoing a Long-Term Decline in Storage?” As a result of that filing, the cities of Burbank, Glendale, and Los Angeles entered into a Stipulated Agreement in 2007 to limit their pumping of Stored Water Credits in the SFB. A copy of this Stipulated Agreement is provided in the Annual Watermaster Report dated May 1, 2011.

To help address the decline in water levels and groundwater in storage in the SFB, the Administrative Committee, which is comprised by a representative from each of the five main Parties to the ULARA Judgment of January, 1979 (Superior Court Case No. 650079), retained an engineering consultant in late-2008 to perform a re-evaluation of the safe yield study of this basin; this study was never completed. Instead, the Parties have agreed with the Watermaster to re-direct efforts over the next few years toward collecting additional surface and subsurface data, more accurate data, and more data from different locations within the SFB. These new data could then be made available to another consultant in 5 or 6 years, if needed, in order to conduct a more detailed and definitive re-evaluation of the safe yield of the SFB.

The groundwater model prepared and updated each year by the Los Angeles Department of Water and Power (LADWP) simulates the combined effects of projected pumping on groundwater elevations in the SFB for the five-year period ending September 30, 2015. The most significant effects shown by the model include the substantial rebound of simulated water levels in the basin resulting from increased recharge activity in the spreading basins and the expected reductions in groundwater pumping by Los Angeles. As simulated by the model, water levels may increase by as much as 50 feet in some areas. However, Los Angeles would likely reduce its pumping in response to water quality concerns due to the existence of certain contaminants that occur in the groundwater at concentrations that exceed their regulatory limits. As a result, LADWP is taking steps to site, design and eventually construct water treatment facilities to treat the contaminated groundwater and not lose the operational capacity of its wellfields during these next several years. Also noteworthy are the simulated groundwater contours in the areas near the BOU wells which show the continued effectiveness of plume containment by those wells. In summary, the estimated cumulative amounts of recharge have been projected to exceed the cumulative amounts of extractions by approximately 310,913 AF over the next five years, as simulated by the model.

In closing, I wish to acknowledge the timely responses of each party and express appreciation to each of those parties for providing information and data that were essential to the completion of this Annual Pumping and Spreading Report. The continued efforts of the Watermaster Support Services team at the Los Angeles Department of Water and Power (including Mr. Hadi Jonny, Ms. Fatema Akhter, Ms. Araceli Carrillo and Mr. Greg Reed) have been very much appreciated during the data analyses, modeling and writing of this report.

RICHARD C. SLADE
ULARA Watermaster

II. INTRODUCTION

As a result of the groundwater contamination that was detected in certain water wells in the eastern portion of the San Fernando Basin in the late-1970s, the original ULARA Watermaster and the Administrative Committee, together with the Los Angeles Regional Water Quality Control Board (LARWQCB), revised the ULARA Watermaster's Policies and Procedures (in July 1993) to help prevent further degradation of groundwater quality and limit the spread of contamination in the four ULARA groundwater basins. The Policies and Procedures were revised again in February 1998 to organize the material into a more comprehensive document.

Section 5.4 of the Policies and Procedures assigns the responsibility to each of the five municipal-supply purveyors (Parties) in ULARA to prepare its own annual Groundwater Pumping and Spreading Plan for each successive five-year period. These five Parties include the cities of Burbank, Glendale, Los Angeles, and San Fernando, and the Crescenta Valley Water District (CVWD). Thus, each of these municipal-supply pumpers is required to annually submit (on or before May 1 of each Water Year) its own Groundwater Pumping and Spreading Plan to the ULARA Watermaster. This plan is to include their five-year projected groundwater pumping and spreading volumes, recent water quality data for each well, and any modifications planned for key facilities (e.g., constructing or destroying wells, building or modifying treatment plants, etc).

The ULARA Watermaster is required to: evaluate the five individual plans in regard to the potential impacts of the combined pumping and spreading activities by all Parties regarding the implementation of the San Fernando Judgment of January 26, 1979; and provide, if needed, recommendations for improving groundwater management and/or for protecting groundwater quality in the ULARA groundwater basins. The Watermaster’s evaluation and recommendations are to be included in each Annual Groundwater Pumping and Spreading Plan, and the Administrative Committee is to review and approve the plan so that it is provided to the Court in July of each Water Year.

This Annual Report represents the July 2011 Groundwater Pumping and Spreading Plan for the five-year period of 2010-2015 for ULARA, and it has been prepared pursuant to the Policies and Procedures. This report provides guidance to the Administrative Committee for use in improving basin management, providing protection of the water rights of each Party, and protecting water quality within ULARA.

III. PLANS FOR THE 2010-2015 WATER YEARS

A. Projected Groundwater Pumping for 2010-11 Water Year

The estimated pumping capacities of the various municipal-supply water wells owned by each of the five Parties within the San Fernando, Sylmar and Verdugo basins are listed on Table 3-1. Also shown thereon are the number of active wells owned by each Party in each basin, the total number of municipal-supply wells owned by all Parties in each basin, and the estimated pumping capacity of each well (as reported by each Party). Clearly, the SFB has the largest number of Parties (3) and the total largest number of active municipal-supply water wells (74); the Sylmar Basin has the fewest number of active wells (4). The number of active wells in each basin is subject to change each year due to potential problems (e.g., water level declines, mechanical problems, and groundwater contamination).

Table 3-1A has been prepared to show the actual and projected volumes of groundwater pumped by the five Parties for Water Year 2010-11 in the San Fernando, Sylmar and Verdugo groundwater basins (there are no municipal-supply wells in the Eagle Rock Basin). Actual values listed on Table 3-1A represent the specific volumes of groundwater pumped by each Party for the period October 2010 through March 2011, as reported to the Watermaster by the respective Party. Projected values shown on Table 3-1A are the groundwater extractions estimated (or projected) by each Party for the period April through September 2011 for each of the three groundwater basins mentioned above. As seen on Table 3-1A, the 5 Parties expect to pump a total of approximately 70,959 acre feet (AF) of groundwater during Water Year 2010-11 from the three groundwater basins. These total groundwater extractions for Water Year 2010-11 by the five Parties are expected to include 62,161 AF from San Fernando Basin, 3,968 AF from Sylmar Basin and 4,830 AF from Verdugo Basin.

The total volume of groundwater pumped by all Parties (70,959 AF) during the current Water Year is 22,224 AF less than the 31-year (1979-2010) historical average extractions from the three basins. The estimated volume of pumping for next Water Year (2011-12) is 72,443 AF, which is also less than the historical long-term (1979-2010) average of 95,183 AF.

As shown in Table 3-1B, the City of Burbank plans to pump 10,397 AF of groundwater from the SFB; this volume exceeds its annual pumping entitlement from this basin. Excluding 300 AF of pumping by Valhalla Mortuary, extractions by Burbank will be 1,053 AF more than its five-year average of 9,344 AF, and 4,696 AF higher than its long-term average of 5,101 AF for the period of 1979-2010. Burbank's annual entitlement for the 2010-11 Water Year is 4,103 AF, based on its 20 percent import return credit. Existing and planned extractions by Burbank are required for the groundwater clean-up operations by its Burbank Operable Unit (BOU) facilities, which have a total pumping capacity of 9,000 gallons per minute (gpm) or about 14,000 acre-feet per year (AF/Y). Burbank can account for its pumping in excess of its annual import return credit by electing to purchase as much as 4,200 AF of Physical Solution water from Los Angeles. Also, since the completion of the Foothill Feeder connection, Burbank can spread MWD water in the Pacoima spreading grounds, and accumulate credit for the spread water. Burbank can also use a portion of its *available* groundwater storage credits, which were 3,662 AF as of October 1, 2010 (Burbank also has an additional 9,546 AF of stored water credits *on reserve*). Burbank may also purchase and import water from the Metropolitan Water District of Southern California (MWD) and store it in the SFB, or obtain stored water credits from the cities of Los Angeles and/or Glendale.

CVWD plans to pump 2,825 AF in 2010-11, which is less than its full right of 3,294 AF/Y from Verdugo Basin. This planned pumping by CVWD from the Verdugo Basin is 18 AF less than its long-term average pumping of 2,843 AF for the period 1979-2010, and 279 AF less than its five-year average (2005-2010) of 3,104 AF.

The City of Glendale resumed significant pumping from the SFB when its Glendale Operable Unit (GOU) began operating in September 2000. In the 2010-11 Water Year, Glendale plans to pump 7,945 AF from the SFB; this volume is 446 AF more than its five-year (2005-2010) average of 7,499 AF. In the SFB, Glendale's annual water right is 4,871 AF, based on its 20 percent import return credit for water delivered to its service area within the SFB during the 2009-10 Water Year. Glendale has the right to purchase up to 5,500 AF/Y of Physical Solution water from Los Angeles to cover the excess pumping. Glendale can also use a portion of its *available* stored water credits, which totaled 14,923 AF as of October 1, 2010 (Glendale also has an additional 38,900 AF of stored water credits *on reserve*). In the Verdugo Basin, Glendale plans to pump 2,005 AF in 2010-11; this volume is 279 AF less than its 31-year (1979-2010) historical average of 2,284 AF, and represents a decrease of 368 AF relative to its average pumping during the recent five year period of 2005-2010 (see Table 3-1B). Glendale has recently been taking steps to increase its pumping capacity from the Verdugo Basin. In 2010 and 2011, Glendale rehabilitated an old, unused well on Foothill Boulevard and this effort is pending approval from the California Department of Public Health. Additionally, a new well at the Rockhaven Sanitarium is being constructed in 2011 and is expected to be in service by early-2012.

The City of Los Angeles expects to pump 62,161 AF this year from the SFB, a volume that is 21,968 AF less than its long-term (1979-2010) annual average of 84,128 AF, and 6,730 AF less than its average pumping over the past five years (2005-2010). Los Angeles expects to pump 1,092 AF of groundwater from the Sylmar Basin; this volume is 1,734 AF less than its 1979-2010 average of 2,826 AF. As of October 1, 2010, Los Angeles' available stored water credits were 126,469 AF in the SFB (Los Angeles also has an additional 329,677 AF of stored water credits *on reserve* in the SFB) and 12,821 AF in the Sylmar Basin.

For 2010-11, the City of San Fernando plans to pump 2,876 AF from the Sylmar Basin. This volume is 331 AF less than its average pumping for the past five years and also 225 AF less than its 31-year long-term average (for 1979 to 2010). San Fernando has a stored water credit of 1,177 AF as of October 1, 2010 in Sylmar Basin.

Estimated pumping capacities of the ULARA wellfields are provided in Table 3-1A. Actual and projected amounts of pumping and spreading by the major parties during 2010-11 are shown in Tables 3-1A, 3-1B, and 5-1A.

B. Constraints on Pumping as of 2010-11

CONSTRAINTS ON PUMPING IN THE SAN FERNANDO BASIN

In September 2008, the cities of Burbank, Glendale, and Los Angeles signed a Stipulated Agreement entitled, "Interim Agreement for the Preservation of the San Fernando Basin Water Supply." The Stipulated Agreement became effective in the 2007-08 Water Year and included a provision that limits the pumping of the Stored Water Credits owned by these three cities in the SFB to amounts that would not cause the volume of groundwater in storage to fall below its 1968 volume; this 1968 date is when the Superior Court placed the SFB on safe yield operation (Judgment Section 4.2.6.1). A copy of the Stipulated Agreement is in Appendix G of the Annual Watermaster Report dated May 2010 or it can be obtained upon request from the Watermaster Office.

City of Burbank – The United States Environmental Protection Agency (USEPA) Consent Decree project implemented the Burbank Operable Unit (BOU) treatment facility which became fully operational on January 3, 1996. In late-June 2000, the treatment plant was taken out of service due to breakthrough of 1,2,3-trichloropropane (TCP) in the plant effluent. The plant returned to service after the California Department of Public Health (CDPH) approved an operation and sampling plan and the carbon was changed out in the liquid phase contactors. BOU Well No. 6 was removed from service at that time due to the high concentrations of 1,2,3-TCP. The overall pumping capacity of the BOU wells of 9,000 gpm was also constrained during this period due to general mechanical problems in the BOU facilities. Problems have been encountered in the vapor-phase granulated activated carbon (GAC) screens, whereas other mechanical issues have included the wearing of well pumps/motors and the failure of well level sensors. Replacement of distribution headers and under-drains in the liquid phase carbon contactors was completed in December 2003.

On February 23, 2008, a fire occurred in the dehumidifier housing of BOU treatment "A" Train. USEPA directed the shutdown of the "B" Train until the cause of the fire could be determined. Safety enhancements were completed on the "B" Train, allowing its return to service on April 11, 2008. Repairs to the fire-damaged "A" Train were completed in June 2008. Modifications to the vapor-phase carbon contactors were completed on both trains by September 2008 and operation has generally been highly reliable since then.

Burbank's consultant, Montgomery Watson Harza conducted a "Well Field Performance Attainment Study" to evaluate the BOU wellfield and appurtenant facilities in an effort to increase groundwater extractions up to its design capacity of 9,000 gpm. The Well Field Performance Attainment Study was completed and reviewed by the USEPA and Lockheed-Martin. As a part of this work, a 60-day "stress test" was requested by the EPA. A total discharge rate of 9,000 gpm was pumped from six BOU wells for a continuous period of 60 days. Declining water levels in the BOU wells during the test forced the reduction of the pumping rate to 8,700 gpm for a portion of the test. Based on the results of this pumping test, the possibility of deflating the existing packers in the BOU wells is now under discussion by the site consultant and the USEPA.

Groundwater extracted by the City of Burbank also contains chromium, which cannot be removed by the BOU or by Burbank's other groundwater treatment facility (the Lake Street GAC Treatment Plant). In January 2002, USEPA approved an operational mode for the BOU that allows the BOU wells to be pumped and then permits the blending of this pumped groundwater with imported MWD water to keep total chromium at concentrations at or below 5 micrograms per liter (µg/L); 1 µg/L is equivalent to one part per billion (ppb). This 5 µg/L concentration limit is the goal established by the Burbank City Council for delivered water within the City.

Currently, the BOU operations are limited by fluctuations in City-wide water demands and blending requirements to manage chromium concentrations. However, Burbank plans to continue the voluntary shut down of the Lake Street GAC Treatment Plant and nearby wells due to the inability to blend the extracted groundwater to lower chromium concentrations to 5 µg/L or less. Pumping of the GAC Treatment Plant and Lake Street wells during Water Year 2009-10 occurred only for water quality sampling purposes, and the treated extractions were delivered to Burbank's power plant for use as cooling tower water. Lockheed-Martin had arranged to utilize the capacity of the GAC Treatment Plant, when available, to augment the production of the BOU to reach the 9,000 gpm capacity of the BOU plant.

City of Glendale – The Glendale Operable Unit (GOU) began operating in September 2000 but hexavalent chromium was encountered shortly thereafter in the pumped groundwater. However, because the Glendale OU was not designed to treat for chromium, Glendale has had to blend the treated water with imported supplies from MWD to achieve the target concentration of 5 µg/L (the goal set by the Glendale City Council) for this contaminant.

Glendale has continued to pursue an aggressive research program to identify viable treatment technologies for the removal of hexavalent chromium from its pumped groundwater. Glendale has received several grants from federal and state appropriations and the American Water Works Association Research Foundation (AWWARF) to investigate technology capable of large-scale treatment of hexavalent chromium. As a result, Glendale constructed the Weak Base Anion - Chromium Removal Demonstration (WBA-CRD) facility to remove hexavalent chromium from groundwater produced by GOU Well GS-3 using WBA exchange technology. They also constructed a 100-gpm demonstration scale facility next to the Glendale Water Treatment Plant; this plant uses reduction, coagulation and filtration (RCF) technology. The treatment facilities using the two technologies identified in a study by Malcolm Prinie, were constructed and placed into service in March and April 2010; these facilities have been effective in removing chromium in the groundwater to concentrations below 5 µg/L.

City of Los Angeles - All wellfields operated by Los Angeles within the SFB have been impacted by groundwater contamination, primarily from volatile organic compounds (VOCs), such as trichloroethylene (TCE) and perchloroethylene (PCE). This contamination has greatly impacted the ability of Los Angeles to pump groundwater from the SFB. Whereas Los Angeles' five-year pumping plans reflect continued reductions in its groundwater pumping, this City is responding to the challenges of groundwater contamination by pursuing plans to build new facilities for contaminant removal; when completed, these facilities will restore Los Angeles' ability to pump and serve potable groundwater to its customers.

Hexavalent chromium contamination also resulted in the discontinued operation of one of Los Angeles' extraction wells, Aeration Well No. 2, at the North Hollywood Operable Unit (NHOU) facility. Under a March 2007 Amendment to an existing Clean-up and Abatement Order (CAO) issued by the LARWQCB, Honeywell International Inc. (Honeywell) was ordered to, among other things, provide or pay LADWP for uninterrupted replacement water; the required work may include well treatment for this extraction well. Honeywell continues to discharge groundwater from Aeration Well No. 2 to the sanitary sewer for plume containment, while also continuing to develop the treatment process that will allow the groundwater from this well to be delivered to Los Angeles' distribution system.

CONSTRAINTS ON PUMPING IN THE SYLMAR BASIN

City of San Fernando - All of the groundwater pumped by the City of San Fernando is extracted from the Sylmar Basin. To date, VOC contamination has not been detected in any of its municipal-supply wells in this basin. However, two of its wells have pumped groundwater with nitrate concentrations that have exceeded the Primary MCL for nitrate (as NO_3) of 45 mg/L. One of these wells (Well 7A) was placed on inactive status whereas the other well (Well 3) is on stand-by status while awaiting implementation of a nitrate mitigation plan. Old septic systems and past agricultural practices in the region are the likely causes of these elevated nitrate concentrations. The City of San Fernando recently issued an RFP to help select a consultant to design a nitrate removal system and a transmission line. Current projections include placing the treatment system on-line by the end of 2011.

City of Los Angeles - Los Angeles has been unable to pump its full adjudicated water right from the Sylmar Basin due to physical deterioration of the wells in its local Mission wellfield and elevated levels of VOCs detected in one of the wells in this wellfield. A facility rehabilitation project is underway to replace the groundwater storage tank, upgrade the pump station, and construct three new water-supply wells in this wellfield. Two existing wells have been temporarily placed on inactive status to allow for start-up and testing of the new tank. Once the project is complete, Los Angeles will be able to pump both its annual water right and utilize its stored water credits from this basin.

CONSTRAINTS ON PUMPING IN THE VERDUGO BASIN

Crescenta Valley Water District - All of the groundwater rights of CVWD occur in the Verdugo Basin. Groundwater contamination from VOCs has been negligible to date; however, nitrate contamination is widespread and methyl tertiary butyl ether (MTBE), a component of gasoline, has also been detected in a few CVWD-owned wells. Elevated nitrate concentrations are mitigated in the water supply by treating a portion of the pumped groundwater using anion exchange at the existing Glenwood Nitrate Removal Plant, and by blending untreated groundwater with treated groundwater and/or with imported MWD supplies in order to meet drinking water standards.

In past years, CVWD has been given permission on an annual basis by the Watermaster to pump in excess of its right until the City of Glendale is able to pump its entire right from Verdugo Basin. During Water Years 2004-05, 2005-06, and 2006-07, CVWD pumped in excess of its adjudication without obtaining permission from the Watermaster. The Watermaster did not grant CVWD permission to over-pump because Glendale had expressed its intention to increase its production from the Verdugo Basin in the near future; CVWD and Glendale settled past over-pumping for Water Years 2004-05 and 2005-06. For the 2006-07 over-pumping, Glendale and CVWD have agreed to the terms of a settlement as of April 2011, and the matter is expected to be resolved in 2011.

From its initial detection in 2005, groundwater pumped by the 12 wells in CVWD's service area has encountered MTBE concentrations ranging approximately between 0.22 µg/L and 50 µg/L. In August 2006, concentrations of MTBE increased to values above its Primary MCL of 13 µg/L in Well 7 whereupon this well was immediately taken out of service. The prior Watermaster responded by establishing the Verdugo Basin MTBE Task Force in November 2006; task force members included the CDPH, the LARWQCB, the ULARA Watermaster, Glendale Water and Power, CVWD, and various oil companies and independent gas station owners in Verdugo Basin. The Task Force has been meeting on a bi-monthly basis to coordinate site-remediation activities among the various responsible parties.

In April 2008, MTBE concentrations in CVWD Well 7 decreased to less than 0.5 µg/L, thereby allowing this well to be put back into service. Since then, CVWD has continued to monitor MTBE concentrations on a frequent basis in its water wells. From initial deletions in July 2008, MTBE concentrations in Well 5 increased to values as high as 14 µg/L in September 2008. As a result, Well 5 was taken out of service and data from ongoing monitoring have shown concentrations for this contaminant had increased over time to 67 µg/L by October 2009. Subsequent concentrations have steadily decreased since then to a low of 0.25 µg/L in July 2010. CVWD is planning to perform another pumping test on Well 5 to determine if MTBE concentrations might increase with resumed periods of continuous pumping.

In the Water Year 2009/10, CVWD received a grant from CDPH under the Drinking Water Treatment and Research Fund for funding the installation of a granulated activated carbon (GAC) water treatment system for removal of MTBE at the Well 5 site. CVWD has proceeded with the design of the facility with the goal for Well 5 to be back in service by the end of 2011.

City of Glendale - The City of Glendale has made only limited use of its maximum adjudicated rights of 3,856 AF/Y from the Verdugo Basin, due to water quality problems, groundwater level declines, and limited extraction capacity in this basin.

In order to increase the use of its water rights, the City completed construction of the Verdugo Park Water Treatment Plant ("VPWTP") in 1996. This facility treats water from the two low-capacity wells, and from a subsurface horizontal infiltration system.

In 2011, the City completed the rehabilitation of its Foothill Well and is drilling a new production well in the Montrose area of the basin (the Rockhaven Well) in a further attempt to increase its extraction capacity from the Verdugo Basin.

TABLE 3-1: ESTIMATED CAPACITY OF EXISTING WELLFIELDS

Party/Well Field	Number of Active Wells	Number of Standby Wells	Estimated Capacity (All Wells) (cfs)	(gpm)
SAN FERNANDO BASIN				
City of Los Angeles				
Aeration (NHOU)	7	---	2.4	1,077
Erwin	2	---	6.1	2,738
North Hollywood	14	3	69.6	31,239
Pollock	2	---	5.9	2,648
Rinaldi-Toluca	15	---	113.0	50,718
Tujunga	12	---	98.2	44,075
Verdugo	2	---	7.4	3,321
Whitnall	4	---	14.8	6,643
City of Burbank	8	4	24.5	11,000
City of Glendale	8	---	11.6	5,200
TOTAL	74	7	353.5	158,659
SYLMAR BASIN				
City of Los Angeles	2	---	5.0	2,244
City of San Fernando	2	1	8.0	3,600
TOTAL	4	1	13.0	5,844
VERDUGO BASIN				
CVWD	12	---	5.1	2,300
City of Glendale	5	---	2.6	1,150
TOTAL	17	---	7.7	3,450

Note:
A. There are no municipal-supply water wells in the Eagle Rock Basin.

TABLE 3-1A: HISTORIC AND PROJECTED GROUNDWATER EXTRACTIONS 2010-11

(Acre-feet)

Party/Well Field	2010			2011									Total
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
							SAN FERNANDO BASIN						
City of Los Angeles													
Aeration (NHOU)	94	80	71	27	46.00	0	104	108	104	126	126	122	1,008
Erwin	122	1	0.00	0	75.00	62.00	0	0	0	375	375	363	1,373
North Hollywood	725	449	814	1	0	0	417	0	0	1,273	1,273	893	5,845
Pollock	186	344	393	337	299	0	357	369	357	185	369	357	3,553
Rinaldi-Toluca	714	709	899	0	0	0	417	0	0	1,722	1,538	893	6,892
Tujunga	2,119	2,100	1,389	1,159	2,393	1,882	1,905	923	952	1,968	1,968	1,905	20,663
Verdugo	312	1	0	0	92	5	0	0	0	455	455	440	1,760
Whitnall	141	1	1	1	40	37	0	0	0	910	910	684	2,725
SUB TOTAL City of Los Angeles:	4,413	3,685	3,567	1,525	2,945	1,986	3,200	1,400	1,413	7,014	7,014	5,657	43,819
City of Burbank[A]	892	848	733	646	703	761	869	989	989	989	989	989	10,397
City of Glendale	704	690	650	712	620	645	600	665	665	665	665	665	7,945
TOTAL San Fernando Basin:	**6,009**	**5,223**	**4,950**	**2,883**	**4,267**	**3,391**	**4,669**	**3,054**	**3,067**	**8,668**	**8,668**	**7,311**	**62,161**
							SYLMAR BASIN						
City of Los Angeles	0.09	0.32	0	0	0	0	179	185	179	185	185	179	1,092
City of San Fernando	252	229	211	219	198	215	245	268	260	260	260	260	2,876
TOTAL Sylmar Basin:	**252**	**230**	**211**	**219**	**198**	**215**	**424**	**453**	**439**	**445**	**445**	**439**	**3,968**
							VERDUGO BASIN						
Crescenta Valley Water Dist.	207	238	238	238	238	238	238	238	238	238	238	238	2,825
City of Glendale	155	119	116	131	122	125	94	229	229	229	229	229	2,005
TOTAL Verdugo Basin:	**362**	**357**	**354**	**369**	**360**	**363**	**331**	**467**	**467**	**467**	**467**	**467**	**4,830**
ULARA TOTAL:	**6,624**	**5,809**	**5,515**	**3,471**	**4,825**	**3,969**	**5,424**	**3,974**	**3,973**	**9,580**	**9,580**	**8,217**	**70,959**

Notes:

A. Includes BOU and Valhalla.

B. Shaded Cells denote projected values

C. There are no municipal-supply water wells in the Eagle Rock Basin.

TABLE 3-1B: HISTORIC AVERAGE AND PROJECTED GROUNDWATER EXTRACTIONS

(Acre-feet)

Party/Wellfield	Historic Average Pumping (AF)		Projected Groundwater Pumping (AF)				
SAN FERNANDO BASIN							
City of Los Angeles	1979-2010[A]	2005-2010[B]	2010-2011	2011-2012	2012-2013	2012-2013	2014-2015
Aeration (NHOU)	-	1,190	1,008	1,937	1,937	1,937	1,937
Erwin	-	1,570	1,373	0	0	0	0
North Hollywood	-	14,764	5,845	4,367	2,967	1,567	1,211
Pollock	-	2,413	3,553	2,178	2,178	2,178	2,178
Rinaldi-Toluca	-	18,963	6,892	6,550	4,451	2,350	0
Tujunga	-	11,535	20,663	15,674	15,674	15,674	15,674
Verdugo	-	1,475	1,760	2,687	2,687	2,553	0
Whitnall	-	3,521	2,725	8,607	5,106	1,741	0
SUBTOTAL City of Los Angeles	75,684	55,431	43,819	42,000	35,000	28,000	21,000
City of Burbank[C]	5,101	9,344	10,397	11,326	11,026	11,026	11,026
City of Glendale[D]	3,344	7,499	7,945	7,720	7,720	7,720	7,720
TOTAL San Fernando Basin:	**84,129**	**72,274**	**62,161**	**61,046**	**53,746**	**46,746**	**39,746**
SYLMAR BASIN							
City of Los Angeles	2,826	2,501	1,092	1,500	1,400	1,300	4,500
City of San Fernando	3,101	3,207	2,876	2,876	2,876	2,876	2,876
TOTAL Sylmar Basin:	**5,927**	**5,708**	**3,968**	**4,376**	**4,276**	**4,176**	**7,376**
VERDUGO BASIN							
Crescenta Valley Water District	2,843	3,104	2,825	3,190	3,294	3,294	3,294
City of Glendale	2,284	2,373	2,005	3,831	3,856	3,856	3,856
TOTAL Verdugo Basin:	**5,127**	**5,477**	**4,830**	**7,021**	**7,150**	**7,150**	**7,150**
TOTAL ULARA:	95,183	83,459	70,959	72,443	65,172	58,072	54,272

Notes:

A. Prior to 2010, 31-year average of muncipal well field pumping (Appendix F) and did not include physical solution pumping. Historic pumping averages include wells that are no longer in service.

B. 5-year average, not including physical solution pumping

C. Includes BOU. Valhalla pumping included in the 2010-11 projected numbers only. Vallhalla is expected to be using recycled water in lieu of puming beginning in 2011-12

D. Includes Forest Lawn, GOU, and Grayson Power Plant pumping.

E. There are no municipal-supply water wells in the Eagle Rock Basin.

IV. GROUNDWATER PUMPING AND TREATMENT FACILITIES

A. Wellfields

As shown on Table 3-1, there are ten municipal-supply wellfields located in the San Fernando Basin (SFB), two in the Sylmar Basin, and two in the Verdugo Basin; there are no municipal-supply wellfields in the Eagle Rock Basin. Table 3-1, as mentioned previously, also lists the current number of active wells in each basin and the estimated pumping capacity of each wellfield (as reported by each Party). The general locations of wellfields within the SFB are shown on Plate 3.

Table 4-1 has been prepared to summarize the volumes (in AF) of groundwater that have reportedly been pumped and treated in the San Fernando, Sylmar and Verdugo basins by each of the various treatment facilities owned and/or operated by the five Parties. The volumes of treated groundwater are listed for the years 1985-86 through 2009-10. As seen on Table 4-1, an approximate total of 310,497 AF of groundwater has been treated during that time period within the eight listed treatment facilities. Table 4-2 lists the volumes (in AF) of groundwater that are projected to be treated at the seven listed treatment facilities for the period 2010-11 through 2014-15; this table excludes data from the Lockheed Aqua Detox facility that ceased operation at the end of 1993-94 (refer to Table 4-1). As shown on Table 4-2, the Parties report that an approximate total of 197,772 AF are projected to be treated at their existing treatment facilities.

TABLE 4-1 HISTORIC AND CURRENT GROUNDWATER TREATMENT

(Acre-feet)

Water Year	Burbank GAC	Lockheed Aqua Detox	Burbank OU	Glendale North/South OU	CVWD Glenwood Nitrate Removal Plant	Los Angeles North Hollywood OU	Los Angeles Pollock Wells Treatment Plant	Los Angeles Tujunga Wells Treatment Plant	Annual Total
1985-86		1							1
1986-87		1							1
1987-88		1							1
1988-89		924							924
1989-90		1,108				1,148			2,256
1990-91		747				1,438			2,185
1991-92		917			847	786			2,550
1992-93	1,205	692			337	1,279			3,513
1993-94	2,395	425	378		1,550	726			5,474
1994-95	2,590		462		1,626	1,626			6,304
1995-96	2,295		5,772		1,419	1,182			10,668
1996-97	1,620		9,280		1,562	1,448			13,910
1997-98	1,384		2,580		1,391	2,166			7,521
1998-99	1,555		9,184		1,281	1,515	1,513		15,048
1999-00	1,096		11,451	979	1,137	1,213	1,851		17,727
2000-01	995		9,133	6,345	989	1,092	1,256		19,810
2001-02	0		10,540	6,567	515	998	1,643		20,263
2002-03	0		9,170	7,508	216	1,838	1,720		20,452
2003-04	0		9,660	6,941	164	1,150	1,137		19,052
2004-05	0		6,399	7,541	782	1,042	1,752		17,517
2005-06	0		10,108	6,777	997	1,766	2,442		22,090
2006-07	0		9,780	7,562	644	1,307	2,231		21,524
2007-08	0		6,817	7,347	660	1,038	2,573		18,435
2008-09	148		9,818	7,148	459	662	1,698		19,932
2009-10	0		10,097	7,543	475	1,008	3,553	20,663	43,339
Total AF	**15,283**	**4,815**	**130,630**	**72,258**	**17,051**	**26,429**	**23,369**	**20,663**	**310,497**

TABLE 4-2 PROJECTED GROUNDWATER TREATMENT

(Acre-feet)

	Burbank GAC	Burbank OU	Glendale North/South OUs [1]	CVWD Glenwood Nitrate Removal Plant	Los Angeles North Hollywood OU	Los Angeles Pollock Wells Treatment Plant	Los Angeles Tujunga Wells Treatment Plant [2]	Annual Total
2010-11	0	10,097	7,543	475	1,008	3,553	20,663	43,339
2011-12	0	11,026	7,300	500	1,937	2,178	15,647	38,588
2012-13	0	11,026	7,300	500	1,937	2,178	15,674	38,615
2013-14	0	11,026	7,300	500	1,937	2,178	15,674	38,615
2014-15	0	11,026	7,300	500	1,937	2,178	15,674	38,615
TOTAL	**0**	**54,201**	**36,743**	**2,475**	**8,756**	**12,265**	**83,332**	**197,772**

1. Groundwater treatment includes chromium removal demonstration technologies (weak-base anion exchange and reduction-coagulation-filtration), which are treating a portion of the groundwater produced by the GOU treatment plant.
2. Treatment plant utilizing GAC wellhead treatment only on Wells #6 and #7 of the twelve extraction wells at Tujunga Wellfield

B. Active Groundwater Pumping and Treatment Facilities

Glendale OU (GOU) – City of Glendale

The GOU has been producing and treating groundwater for VOCs since September 2000 from the SFB. On April 23, 2001, the City of Glendale assumed operation of the GOU. Prior to that time, the Glendale Respondents Group had operated the treatment plant through a contract with Camp Dresser & McKee, a consulting engineering firm.

The GOU is comprised of a treatment plant, eight groundwater extraction wells, a pumping plant, a disinfection facility, and associated piping. The facility is designed to treat groundwater contaminated by TCE and PCE at a combined rate of 5,000 gpm using aeration and granulated activated carbon (GAC). The treated water is then blended with imported supplies to control nitrate concentrations. Currently, the wells are being pumped and blended in a manner to limit hexavalent chromium concentrations to achieve the City's target of 5 μg/L. Glendale has continued to pursue an aggressive research program to identify large-scale treatment technologies for the removal of hexavalent chromium. A study by Malcolm Pirnie was presented to an expert panel in October 2006 that identified two promising technologies: weak-base anion (WBA) exchange; and reduction-coagulation-filtration. The City of Glendale completed construction and began operating the WBA Chromium Removal Demonstration (WBA-CRD) Facility and the Reduction-Coagulaton-Filtration (RCF) CRD Facility in March and April 2010, respectively, to demonstrate and further study these two treatment technologies.

Burbank OU (BOU) – City of Burbank

The remediation of groundwater contamination in the SFB was significantly enhanced by the startup of the BOU on January 3, 1996. The BOU, which consists of eight water wells and air-stripping towers followed by liquid- and vapor-phase GAC, has a total design capacity of 9,000 gpm (14,000 AF/yr). Under the terms of the Second Consent Decree, Burbank assumed operation of the BOU on March 12, 2001 and will be the long-term primary operator of this facility for the next 18 years. The City of Burbank, in cooperation with the United States Environmental Protection Agency (USEPA) and Lockheed-Martin, continued with design improvements and operational changes to make the facility mechanically more reliable. During the 2009-10 Water Year, a total of 10,043 AF of groundwater was treated at the BOU, an increase of nearly 300 AF from the volume of the prior water year. As a requirement of the Consent Decree, Burbank also reduces the concentrations of nitrate in the groundwater by blending the treated effluent with imported supplies from MWD at its blending facility before delivery to customers in the City of Burbank.

GAC Treatment Plant - City of Burbank

This facility, which includes the two Lake Street wells, was operated by the City of Burbank from 1992-2001. These two wells can deliver water at a combined rate of 2,000 gpm to the liquid-phase GAC plant for removal of volatile organic compounds (VOC). When the plant is in use, the treated water supplements production from the BOU and can be delivered to the Burbank distribution system. The GAC Treatment Plant would normally operate during the summer season. However, current plans are to keep the plant shut down, except for emergencies or to permit the groundwater to be sampled and tested for its water quality, because of the prior detections of hexavalent chromium (Chromium VI) in the groundwater. In the 2009-10 Water Year, only 5 AF of water were treated. The existing GAC treatment process does not remove chromium, and blending facilities are not available. Total chromium in the plant effluent would exceed the limit of 5 µg/L set by the Burbank City Council as a policy for water delivered to its distribution system.

North Hollywood OU (Aeration Facility) - City of Los Angeles

Under a March 2007 Amendment to an existing Clean-up and Abatement Order (CAO) issued by the LARWQCB, Honeywell International Inc. (Honeywell) was ordered to, among other things, provide or pay LADWP for uninterrupted replacement water, which may include well treatment, for the Well No. 2z extraction well. Honeywell continues to discharge groundwater from Well No. 2 to the sanitary sewer for plume containment, while also continuing to develop the treatment process that will allow the groundwater from this well to be delivered to Los Angeles' distribution system.

Pollock Wells Treatment Plant - City of Los Angeles

Pollock Wells Treatment Plant, with a design capacity of 3,000 gpm, began operating in March 1999. This project is funded, owned, and operated by the City of Los Angeles. Wells that pump to the Pollock Wells Treatment Plant help reduce rising groundwater in the area that otherwise would flow out of ULARA. These wells also serve to enhance overall groundwater cleanup in the Los Angeles River Narrows area near the downgradient end of the SFB. The groundwater is treated by liquid-phase GAC vessels for VOC removal, followed by chlorination and then blending to further reduce nitrate concentrations. The treated water is then delivered to LADWP's distribution system.

Tujunga Wellfield Treatment Study Project – City of Los Angeles

This recently constructed project restores the use of two of Los Angeles' 12 wells in this wellfield, and provides an additional 12,000 AF/Y of pumping capacity that was previously unavailable due to water quality contamination. The project utilizes liquid-phase GAC adsorption vessels on Well Nos. 6 and 7 to treat the groundwater and remove certain VOCs like TCE, PCE, carbon tetrachloride, and 1,1 dichloroethene (DCE). As of May 2010, CDPH permitted the operation of these wellhead treatment facilities for discharge of the treated water to the water distribution system of the City of Los Angeles.

Glenwood Nitrate Removal Plant – Crescenta Valley Water District

Groundwater pumped from wells operated by CVWD in the Verdugo Basin is often high in nitrate. A portion of the pumped groundwater is treated by ion exchange and then blended with untreated water from MWD and/or imported water to reduce nitrate concentrations to values that are below the MCL for nitrate (as NO_3) of 45 mg/L. In the past few years, the ion-exchange plant has been in operation for the majority of each year to help maximize the use of local groundwater.

C. Other Issues

1. Future Groundwater Pumping and Treatment Facilities

Verdugo Basin Wells – City of Glendale

Glendale has completed the rehabilitation of the Foothill Well in early 2001 and is planning for the construction of a new water-supply well in the Montrose area of the Verdugo Basin to increase its extraction capacity and obtain its full adjudicated water right from this basin. The Foothill Well began operation on May 18, 2001 and the new Rockhaven Well is currently under design and is expected to be in service in early-2012.

GAC Treatment Facility – Crescenta Valley Water District

In April 2008, CVWD re-applied to the CDPH for grant funding under the Drinking Water Treatment and Research Fund for installation of a new granulated activated carbon (GAC) water treatment system for removal of MTBE at the Mills Plant. The application was revised in August 2008 to move the location of the GAC treatment plant to the Well 5 site since MTBE concentrations in that well had increased to concentrations that were above its MCL at that time. In 2009-10, CVWD received a grant from CDPH under the Drinking Water Treatment and Research Fund for funding the installation of a granulated activated carbon (GAC) water treatment system for removal of MTBE at the Well 5 site. CVWD has proceeded with the design of the facility with the goal for Well 5 to be back in service by the end of 2011.

Mission Wells Wellfield Rehabilitation – City of Los Angeles

LADWP is in the project planning stage to construct three new water wells at its Mission Wellfield in the Sylmar Basin. Phase 1 of this project (to construct a water storage tank) is complete and the tank may be in service as early as mid-2011. Phase 2 includes construction of the water-supply wells, upgrades to the booster pump station, and the construction of other appurtenant facilities.

Groundwater Treatment Studies – City of Los Angeles

Los Angeles is developing various groundwater treatment projects that may help to recover its pumping capacity lost to contamination in the San Fernando Basin. Technologies to be demonstrated on a pilot scale include, but are not limited to, bio-remediation, advanced oxidation, high-efficiency granular activated carbon, and other systems to permit the removal of nitrate, perchlorate, and other constituents that adversely impact the groundwater pumped by its wellfields. It is expected that such pilot scale treatment facilities will be implemented in or by 2012.

2. Other Groundwater Remediation Projects

Many privately-owned industrial-type properties in the ULARA groundwater basins have been found to have contaminated the soils and/or the groundwater beneath their facilities. Many of these facilities are under Cleanup and Abatement Orders from the LARWQCB; some sites are under the regulatory authority of the State Department of Toxic Substance Control (DTSC). Each contaminated site typically has groundwater monitoring wells and some have extraction wells and treatment facilities.

The USEPA has been including hexavalent chromium in the quarterly sampling from its monitoring wells in SFB as a step in the eventual containment and cleanup of this contaminant.

3. Dewatering Operations

Temporary Construction Dewatering

Temporary construction excavations, such as for subterranean parking structures and pipelines, sometimes require dewatering in areas that have a high (shallow) water table. All groundwater that is discharged from such temporary dewatering operations is required to be accounted for by the Watermaster, and the annual groundwater withdrawals by these dewatering activities are deducted from the local water right holder.

Permanent Dewatering Operations

Some facilities along the southern and western boundaries of the SFB have deep foundations that have been excavated into areas of shallow groundwater; these facilities require permanent dewatering. The amount of groundwater pumped at each of these facilities is required to be reported to the Watermaster. These activities are subject to approval by the affected municipal-supply party, and the dewaterer is required to pay for the replacement cost of the extracted groundwater. The pumped groundwater is subtracted from the affected Party's water right by the Watermaster.

4. Unauthorized Pumping in the County

There are numerous individuals, primarily within the unincorporated hill and mountain area of ULARA, who are or may be pumping groundwater without reporting the annual volume of production to the Watermaster, as is required by the Judgment. This groundwater was adjudicated and is owned by the City of Los Angeles. Although the volume produced by each pumper is probably small, the cumulative effect may be significant. Working in cooperation with the Los Angeles County Department of Public Health and Los Angeles County Planning, the former Watermaster and LADWP have developed a process to help identify and monitor the water usage of these private pumpers through a water license agreement.

V. GROUNDWATER RECHARGE FACILITIES AND PROGRAMS

A. Agency-Owned Spreading Facilities

There are five active spreading facilities located in the SFB (Plate 1). The Los Angeles County Department of Public Works (LACDPW) operates the Branford, Hansen, Lopez, and Pacoima spreading grounds, whereas the LACDPW, in cooperation with the City of Los Angeles, operates the Tujunga Spreading Grounds. These spreading facilities are used for spreading native and imported water, when available. Projects are underway to deepen and improve the capacity of these spreading basins and the LACDPW and the LADWP are also working to identify ways to maximize spreading, including possible changes to the operations at each spreading basin. The City of Burbank recently completed construction of MWD's new Foothill Feeder connection, which is capable of delivering 50 cfs to the Pacoima Spreading Grounds, in order to enable Burbank to spread imported water when it is available. These facilities also allow Burbank to direct water to the Lopez Spreading Grounds. Burbank spread 34 AF of water in the Pacoima spreading grounds in the 2009-10 Water Year and, to date in this 2010-11 Water Year, Burbank has spread nearly 4,010 AF in these spreading grounds.

B. Proposed Spreading Facilities

Strathern Pit

Located near the Hansen Spreading Grounds, Strathern Pit is a former gravel pit that is now being used as a landfill for inert materials. The pit is being considered for conversion into a stormwater retention and recharge facility.

C. Actual and Projected Spreading Operations

Table 5-1A shows the recent and projected volumes of native and imported water spread in the San Fernando Basin for the current 2010-11 Water Year. An estimated 90,015 AF of native runoff are projected to be spread, in Water Year 2010-11; this represents a large increase when compared to both the long-term (1968-2010) average of 29,951 AF and the past five-year (2005-2010) average of 24,736 AF.

TABLE 5-1A RECENT AND PROJECTED SPREADING OPERATIONS 2010-11

(Acre-feet)

Month	Basin Operator					Total
	LACDPW				LACDPW and LADWP	
	Branford	Hansen	Lopez	Pacoima[A,B]	Tujunga[A]	
Actual						
Oct-10	92	0	0	24	551	667
Nov-10	77	135	0	3,498	1,441	5,151
Dec-10	146	4,170	45	2,622	2,671	9,654
Jan-11	37	4,710	175	3,070	6,460	14,452
Feb-11	114	3,080	58	1,372	2,638	7,262
Mar-11	145	3,190	300	3,320	7,304	14,259
Projected						
Apr-11	70	600	480	2,077	4,706	7,933
May-11	68	1,860	600	3,333	5,143	11,004
Jun-11	40	1,800	600	2,860	2,000	7,300
Jul-11	37	1,200	50	1,997	1,900	5,184
Aug-11	36	800	45	1,697	1,500	4,078
Sep-11	30	400	45	1,397	1,200	3,072
TOTAL	892	21,945	2,398	27,266	37,514	90,015
2005-2010 Average	584	10,776	382	4,782	8,212	24,736
1968-2010 Average	549	13,903	521	6,515	8,463	29,951

Headworks Spreading Grounds out of service since 1981-82. The average spreading from 1968-69 to 1981-82 was 5,283 AF.
A) Includes native and imported water.
B) Includes water spread via the new Foothill Feeder connection

Precipitation on the valley fill area in the San Fernando Basin is projected to be 23 inches for 2010-11 compared to the long-term average of 17.94 inches per year; the previous five-year average was 13.33 inches per year.

TABLE 5-1B HISTORICAL PRECIPITATION ON THE VALLEY FILL

(Inches per year)

1968-10	2005-10	2005-06	2006-07*	2007-08	2008-09	2009-10	2010-11**
17.94	13.33	16.46	4.39	15.10	11.64	19.08	23.00

* Historic Low
** Projected

The estimated capacities (in AF/yr) of the five spreading grounds in the northeastern portion of the SFB are shown on Table 5-2. Also listed for each spreading grounds are: the site operator;

the type of facility; and the approximate total wetted area. As shown, the total maximum capacity of these five spreading grounds is currently on the order of 105,100 AF/yr.

TABLE 5-2 ESTIMATED CAPACITIES OF EXISTING SPREADING GROUNDS

Spreading Ground	Type of Facility	Total Wetted Area (acres)	Capacity (AF/Y)
Operated by LACDPW			
Branford	Deep basin	7	2,100
Hansen	Med. Depth basin	105	35,000
Lopez	Shallow basin	12	2,000
Pacoima	Med. Depth basin	107	23,000
Operated by LACDPW and LADWP			
Tujunga	Shallow basin	83	43,000
	TOTAL:	314	105,100

D. Stormwater Recharge Capacity Enhancements

Background Information

During the 1997-98 Water Year, weighted-average precipitation in the valley-fill and hill-and-mountain areas in ULARA was approximately 225 percent of normal. This event provided an above-average volume of stormwater runoff that became available for capture in upstream reservoirs and diversion into existing spreading grounds. In April 1998, a former Watermaster received notice from the LACDPW that spreading at both the Hansen and Tujunga spreading grounds would be temporarily suspended. The reasons for curtailing spreading were that: the water table had risen to a level that threatened to inundate the base of the Bradley-East Landfill near the Hansen Spreading Grounds; and methane gas generated from the refuse was migrating from the Sheldon-Arleta Landfill and into the surrounding neighborhood due to the recharge operations at the nearby Tujunga Spreading Grounds. At that time, reservoirs in Los Angeles County were full, and thus thousands of acre-feet of surface water runoff would be spilled and lost to the ocean. The spreading activities were suspended for at least one month at that time.

In response to this undesirable condition, in May 1998, a former Watermaster formed the Tujunga and Hansen Spreading Grounds Task Force which later became the San Fernando Basin Recharge Task Force. The task force was comprised of representatives from the LACDPW, LADWP, Los Angeles Bureau of Sanitation and the Watermaster. After a series of meetings, the task force developed preliminary mitigation measures to help improve the utilization of both spreading grounds, particularly during years of above-normal runoff and recharge.

The task force met as the Stormwater Recharge Committee for a period of time, and has since become a collaborative effort between LACDPW and LADWP to focus on projects to enhance the recharge capacity of spreading basins. As a result, watershed management groups have been formed within both the LACDPW and LADWP to address the entire cycle of pumping and recharge as an interrelated discipline, and these groups are working in partnership to study and develop solutions to enhance groundwater supply in the San Fernando Basin.

Projects

- Hansen Spreading Grounds Plan

Capital improvements planned for the spreading basins and intake diversion structure at Hansen Spreading Grounds will increase the capacity and efficiency for flood protection and stormwater retention at this facility. LACDPW is leading the project, working in partnership with LADWP. Construction improvements completed in November 2009 included the deepening and enlargement of the basins at this facility. Other improvements to the intake diversion structure will be constructed and in operation by the 2011-12 Water Year.

- Sheldon-Arleta Project – Cesar Chavez Recreational Complex Project (Phase I)

Located adjacent to the Tujunga Spreading Grounds is the Sheldon-Arleta Landfill, which has caused an environmental concern due to the methane gas that is produced (as a byproduct of landfill operations) and released into the subsurface.

During the spreading of surface water at the adjoining Tujunga Spreading Grounds, recharge water moving downward through the underlying soil displaces the air from voids within the unsaturated soil matrix. The resulting lateral migration of the air mass has the potential to displace methane gas out of the adjacent landfill. In recent years, the methane has occasionally migrated offsite and elevated concentrations of methane have been reported at a nearby school. To avoid such occurrences, limitations have been placed on the amount of stormwater that can be spread at the Tujunga Spreading Grounds.

To mitigate the displacement of methane gas, LADWP, Los Angeles Bureau of Sanitation, and Los Angeles Bureau of Engineering collaborated to replace the existing methane gas collection system at the Sheldon-Arleta Landfill with a new gas collection system. This system will enhance the containment of the methane gas within the landfill, restore the historic spreading flow capacity of 250 cfs at the Tujunga Spreading Grounds, and restore operations at some of the spreading basins closest to the landfill. Construction was substantially completed in 2009 and an evaluation to determine the maximum recharge capacity of the improved facility is currently underway by an independent consultant. It is expected that the project could increase average annual stormwater capture by 3,000 AF, to a total of 5,000 AF, at the nearby spreading grounds.

- Big Tujunga Dam Seismic Retrofit

Big Tujunga Dam was constructed by LACDPW in the 1930s primarily as a flood control facility. In the 1970s, a seismic analysis indicated the dam was susceptible to damage from a large earthquake. Since then, the dam has been operated at a reduced capacity for safety reasons. LACDPW has begun a seismic retrofit of this facility to restore its storage capacity for flood control and water conservation.

This project will entail structural improvements to Big Tujunga Dam to increase its storage capacity from 1,500 AF to 6,000 AF. This will greatly enhance LACDPW's ability to retain and manage stormwater for flood protection, water conservation, and environmental restoration. Structural improvement work began in 2007 and is expected to be completed in 2011.

- Additional Recharge Projects

LADWP is exploring partnerships, projects, and programs that promote infiltration of rainfall runoff close to its point of origin. Several partnerships that LADWP continues to develop are with LACDPW, the Los Angeles County Flood Control District (LACFCD), the MWD, Tree People, and the Los Angeles and San Gabriel Rivers Watershed Council. Some of the projects and programs being developed include facility retrofits, neighborhood retrofits, and local recharge projects such as along medians, power line easements, and parkways.

VI. GROUNDWATER INVESTIGATION PROGRAMS

Pacoima Area Groundwater Investigation

A significant volatile organic compound (VOC) contaminant plume exists in the groundwater in the Pacoima area of the San Fernando Basin (SFB) near the intersection of San Fernando Road and the Simi Valley Freeway (118 Freeway). This area is located approximately 2.5 miles north of and upgradient from the LADWP Tujunga Wellfield; groundwater pumped at this wellfield has experienced increasing concentrations of VOCs over time.

To help characterize the extent and potential migration of contamination in the Pacoima area, LADWP constructed two groundwater monitoring wells in 1997, including: PA-01, approximately 0.5 miles downgradient; and PA-02, approximately 1.25 miles downgradient from the suspected source area. This suspected source, known as the Chase Chemical (formerly Holchem) site, is under the regulatory jurisdiction of the California Department of Toxic Substances Control (DTSC). Currently a soil vapor extraction system is in operation at the site and a few groundwater monitoring wells have been constructed both onsite and offsite. The immediate remedial goal is to remove the VOCs from the soil, and eventually from the groundwater.

Another facility in the area, the Black & Decker (formerly Price-Pfister) site, is under the regulatory jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). The LARWQCB has reviewed and responded to a Work Plan submitted by Black & Decker in March 2007 for additional groundwater investigation to help delineate the extent of the chromium groundwater plume at/near the site. Due to the close proximity of the Chase Chemical and the Black & Decker sites, DTSC and LARWQCB are coordinating their oversight efforts. The LARWQCB is currently evaluating groundwater monitoring data to implement a Remedial Action Plan.

Chromium Investigations

The LARWQCB, funded in part with a grant from the USEPA, reviewed 4,040 sites for potential hexavalent chromium contamination in the SFB and published its findings in December 2002. After this review, 255 suspected hexavalent chromium sites were identified and inspected. As a result of these inspections, the LARWQCB recommended closure (i.e., no further action) for 150 of these sites and the further assessment of the remaining 105 sites. In addition, the LARWQCB has issued Cleanup and Abatement Orders to B.F. Goodrich (formerly Menasco Aerospace

Division), PRC-Desoto (formerly Courtauld), Drilube, Honeywell (formerly Allied Signal), Lockheed (2), ITT, and Excello Plating, and may eventually issue additional orders to several other sites. The Cleanup and Abatement Orders require a responsible party to assess, clean up, and remediate the effects of contamination encountered in the soil and groundwater. Increasing concentrations of hexavalent chromium in the groundwater have caused the shutdown or reduced pumping of several wells associated with groundwater treatment plants that were not designed to remove either this contaminant or any other emerging chemicals. Shutdowns of these wells allow the continued vertical and lateral migration of the VOCs and chromium to other production wells, and also continue to complicate the extraction, management, and delivery of potable water within the SFB by the Parties.

On August 20, 2009 the California Office of Environmental Health Hazard Assessment (OEHHA) announced its draft Public Health Goal (PHG) for hexavalent chromium to be 0.06 µg/L (or 0.06 ppb) and invited public comments through October 19, 2009. A final PHG for hexavalent chromium will be announced when OEHHA completes its work, perhaps in the next year or two. It is expected that the CDPH may eventually promulgate a new MCL for this constituent after the final PHG is announced.

Tujunga Discovery Project

In 2008, the LADWP, in conjunction with USEPA and DTSC, formed a task force to conduct an inter-agency investigation into contamination that is present in the Tujunga wellfield. The investigation began with LADWP's comprehensive sampling of eight monitoring wells in the vicinity of this wellfield. Two additional monitoring wells were sampled in December 2009. The lack of VOCs detected in water samples collected from monitoring well TJ-MW-01 suggests that the Sheldon-Arleta landfill, adjacent to the Tujunga wellfield, may not be the source of contamination.

USEPA's contractor performed soil vapor sampling and limited soil sampling along several miles of transects upgradient of the Tujunga wellfield. The site-specific soil vapor results indicate low levels of PCE at five of the six sites investigated. In January and March of 2010, sediment sampling was conducted in the adjacent Branford spreading grounds to determine whether sediments in this basin might be a source of VOC contamination. Nineteen borings were drilled and thirty soil samples were analyzed. However, TCE was not detected in any of these soils samples. One sample contained some chlorinated compounds. However, sample results were deemed inconclusive due to the detection of acetone and 2-butanone in certain samples.

The next stage of the investigation will involve the installation of several monitoring wells in the capture zone of the Tujunga Wellfield. The locations of these new wells will be prioritized based on data gaps in the existing wellfield, locations of potential source facilities, and proximity to the Tujunga Wellfield.

Groundwater System Improvement Study (GSIS)

In February 2009, LADWP entered into an agreement with Brown and Caldwell Consulting Engineers to provide LADWP with professional services for the GSIS to conduct an independent and comprehensive groundwater study of the SFB. The basic goals of the work are to provide recommendations and assistance in developing and implementing programs and/or projects that will maximize the use of this groundwater supply.

Progress on the GSIS has involved a technical review of the USEPA Focused Feasibility Study for the NHOU, preparation of conceptual layouts and renderings for a proposed Groundwater Treatment Facility, planning for the siting and design of several groundwater monitoring wells in the SFB, and independent study to identify, characterize and evaluate emerging water quality constituents.

VII. ULARA WATERMASTER MODELING ACTIVITIES

A. Introduction

LADWP continues to support the ULARA Watermaster by performing groundwater modeling of the San Fernando Basin. The purpose of this groundwater modeling is to evaluate the combined effects of the proposed groundwater pumping and estimated groundwater recharge in the SFB projected over a five-year period. The projected pumping volumes used in the model were obtained from the “Water Year 2010-15 Pumping and Spreading Plans" submitted by each Party pursuant to the provisions established in the revised February 1998 Policies and Procedures report. The pumping and spreading plan of each Party is included in the appendices of this report.

The groundwater flow model used is a comprehensive three-dimensional computer model that was developed originally for the USEPA during the Remedial Investigation Study of the San Fernando Valley (December 1992). The model is a tool and it has been used herein to estimate the future response to pumping and spreading in the SFB for the five-year period ending September 30, 2015.

The model code, “Modular Three-Dimensional Finite-Difference Groundwater Flow Model,” commonly called MODFLOW, was originally developed by the U.S. Geological Survey (McDonald-Harbaugh); this model is currently used to develop the San Fernando Basin Groundwater Flow Model. This model consists of 64 rows, 86 columns, and up to four layers to reflect the varying geologic and hydrogeologic characteristics of the SFB in three dimensions. In the deepest portion of the San Fernando Basin, the model is subdivided into four layers, each layer characterizing a specific depth zone. The model has a variable horizontal grid that ranges from 1,000 by 1,000 feet in size in the southeastern portion of the SFB, to 3,000 by 3,000 feet in size in the northwestern portion of this basin (Figure 7-1) or where less data are available; LADWP regularly updates this model.

B. Model Inputs

The input data for this model are illustrated in Table 7-1. Table 7-1A provides the various elements of recharge into the San Fernando Basin; recharge occurs from precipitation, delivered water, hill and mountain runoff, spreading, and subsurface inflow. Table 7-1B provides the volumes of groundwater extracted from SFB by each major producer, including the City of Los Angeles, the City of Burbank, the City of Glendale, and other individual pumpers. Both tables show projected values for the five-year study, from Fall 2010 to Fall 2015, as well as any actual values that have been reported for the first half of the 2010-11 Water Year.

In Table 7-1A, the projected values for percolation and spreading activities were estimated using the long-term average rainfall and recharge amounts, and the resulting estimates were then used as inputs to the model. The projections for 2010-11 include the actual amounts reported for the first half of this Water Year. The spreading estimates reflect temporary shutdowns during construction of the Tujunga Spreading Grounds (TSG). Construction to enhance the spreading capacity at the TSG is planned to occur from 2012 through 2014. The anticipated spreading of imported water at the Pacoima Spreading Grounds (PSG) by the City of Burbank is also included in these projections. Subsurface inflows to the SFB occur from the Sylmar Basin (through the Sylmar Notch and Pacoima Notch) and from the Verdugo Basin. The amounts of subsurface inflows from these adjacent groundwater basins were determined in the 1962 Report of Referee and these values were used as constants in the model throughout the five-year study.

The volumes for all groundwater extractions shown on Table 7-1B and used as model inputs were obtained from the "Groundwater Pumping and Spreading Plans" submitted by the five municipal–supply producers; a copy of each of these plans is included in the appendices of this report. The total extraction by each wellfield was initially allocated among the individual wells comprising each wellfield, and then a percentage of the pumping allocated to each well was assigned to each model layer based on the percentage of casing perforations considered to be contained within each layer.

Table 7-1
MODEL INPUT
San Fernando Basin Recharge & Extractions
2010-2015

Table 7-1A

Projected San Fernando Basin Recharge 2010-15

	RAINFALL (IN/Y)		SAN FERNANDO BASIN RECHARGE (AF/Y)																
			PERCOLATION			H&M (A)	SPREADING GROUNDS								SUBSURFACE INFLOW				TOTAL RECHARGE
										PACOIMA									
WATER YEAR	VALLEY	HILL & MTN	VALLEY FILL	RETURN WATER	SUB TOTAL	HILL & MTN	BRAN FORD	HANSEN (B) (NATIVE)	LOPEZ	PACOIMA (NATIVE)	PACOIMA (C) (MWD)	PACOIMA (TOTAL)	TUJUNGA (D)	SUB - TOTAL	PACOIMA NOTCH	SYLMAR NOTCH	VERDUGO BASIN	SUB - TOTAL	
2010-11	23.00	26.00	15,978	49,975	65,953	4,440	892	21,945	2,398	21,066	6,200	27,266	37,514	90,015	350	400	70	820	161,228
2010-12	18.07	22.47	12,553	54,347	66,900	3,838	540	11,000	540	6,564	6,200	12,764	7,534	32,378	350	400	70	820	103,936
2010-13	18.07	22.47	12,553	54,347	66,900	3,838	540	18,534	540	6,564	6,200	12,764	0	32,378	350	400	70	820	103,936
2010-14	18.07	22.47	12,553	54,347	66,900	3,838	540	18,534	540	6,564	6,200	12,764	0	32,378	350	400	70	820	103,936
2010-15	18.07	22.47	12,553	54,347	66,900	3,838	540	11,000	540	6,564	6,200	12,764	7,534	32,378	350	400	70	820	103,936

Table 7-1B

Projected San Fernando Basin Pumping

	SAN FERNANDO BASIN EXTRACTIONS (AF/Y)																			
	LADWP											BURBANK			GLENDALE			OTHERS		
WATER YEAR	AE	ER	HW	NH (WEST)	NH (EAST)	PL	RT	TJ	VD	WH	TOTAL LADWP (E)	BURBANK PSD	LOCKHEED	NON-BURBANK (VMP)	CITY OF GLENDALE	OU-NORTH	OU-SOUTH	TOTAL NON-LADWP	TOTAL NON-GLENDALE (F. LAWN)	TOTAL EXTRACTION
2010-11	-1,008	-1,373	0	-5,845	0	-3,553	-6,892	-20,663	-1,760	-2,724	-43,818		-10,097	-300	-20	-4,745	-2,555	-628	-400	-62,563
2010-12	-1,937	0	0	-4,367	0	-2,178	-6,550	-15,674	-2,687	-8,607	-42,000	0	-11,026	0	-20	-4,745	-2,555	-628	-400	-61,374
2010-13	-1,937	0	0	-2,967	0	-2,178	-4,451	-15,674	-2,687	-5,106	-35,000	0	-11,026	0	-20	-4,745	-2,555	-628	-400	-54,374
2010-14	-1,937	0	0	-1,567	0	-2,178	-2,350	-15,674	-2,553	-1,741	-28,000	0	-11,026	0	-20	-4,745	-2,555	-628	-400	-47,374
2010-15	-1,937	0	0	-1,211	0	-2,178	0	-15,674	0	0	-21,000	0	-11,026	0	-20	-4,745	-2,555	-628	-400	-40,374

NOTES:

(A) Hill & Mountain runoff

(B) Hansen Spreading Grounds activated in the water year of 2009-10 after completing the modification work

(C) Burbank projected to spread a total of 6,200 AF of imported water (MWD) at Pacoima Spreading Grounds on a yearly basis.

(D) Tujunga Spreading Grounds will be taken out of service during the water years of 2011-13 for modifications to increase storage

(E) The values shown for Los Angeles on this extraction plan are estimates only. The estimated groundwtaer pumping amounts for wellfields may be increased as treatment faculities are installed or as the blending with external source of water will continue to be allowable.

The initial head values (groundwater elevations) were derived from the actual data from Water Year of 2009-10, and these values set the initial conditions for model analysis for the next five-year period. These initial conditions reflect the increased in simulated groundwater elevations observed in most areas of the SFB resulting from decreased pumping, increased artificial recharge in the spreading grounds, and increased precipitation as compared to the 2008-09 Water Year.

At the close of every Water Year, the Watermaster staff at LADWP updates the model input files with the actual basin recharge and extraction data; this activity is performed each year by LADWP and incorporates actual data from as early as 1981.

C. <u>Simulated Groundwater Elevations and Flow Directions</u>

After running the model for five separate but successive stress periods (Water Years 2010-2015), each lasting 365 days, MODFLOW generated various numerical data, including the heads (groundwater elevations), the drawdown (change in groundwater elevations), and the cell-by-cell flow (vector or flow direction data). These numerical data were used to create the following figures and plates:

- The simulated groundwater (water table) contour results for Model Layer 1 for Fall 2015 are shown on Plate 1; the simulated contours for Model Layer 2 are shown on Plate 2 for the same period.

- The changes in the simulated groundwater elevation contours were generated from the drawdown data from the Fall 2010 to Fall 2015 stress period and the results are shown on Plate 3 for Layer 1 and on Plate 4 for Layer 2.

- The simulated horizontal groundwater flow directions for Fall 2015 are shown on Plate 5 for Model Layer 1 and on Plate 6 for Layer 2 for the same period.

- Plates 7 through 10 depict the most recently generated contaminant plumes for TCE, PCE, NO_3, and total dissolved chromium (as adapted from 2009-dated work published by the USEPA), superimposed onto the Layer 1 simulated horizontal groundwater flow direction for the year 2015.

D. Evaluation of Model Results

Plate 1: Simulated Groundwater Contour Model Layer 1 – Fall 2015

- The most noticeable feature of the simulated groundwater contours shown on Plate 1 is the cone of depression (pumping cone) that has developed around the Burbank OU. The extractions by this facility occur primarily from Layer 1, although Layer 2 does provide some recharge to Layer 1. Burbank has projected pumping of about 11,026 AF/Y from its BOU for the period from Fall 2010 to Fall 2015. The radius of influence extends as far as 2,500 feet in the downgradient (southeasterly) direction. The upgradient radius of influence is usually larger than the down-gradient radius of influence.

- In a more subtle manner, Plate 1 illustrates the pumping influence of the Glendale OU wells, and the Pollock Treatment Plant Wells.

Plate 2: Simulated Groundwater Contour Model Layer 2 – Fall 2015

- The most significant features of the simulated groundwater contours shown on Plate 2 are the simulated cones of depression near the Tujunga wellfield and the Burbank OU. Over 75 percent of the groundwater pumped from the Tujunga wellfield is from model Layers 2, 3 and 4.

Plate 3: Change in Groundwater Elevation Model Layer 1 – Fall 2010 to Fall 2015

In general, the model simulation showed a definitive increase in groundwater elevations in most areas of the basin, particularly in areas near the wellfields and the spreading grounds. This rebound in simulated water levels would result from the substantial reductions in groundwater pumping expected by the City of Los Angeles; their five-year plan indicates pumping would be reduced each year down to as low as 21,000 AF during Water Year 2014-15 (See Table 7-1G). While Los Angeles' pumping would likely be reduced in response to water quality concerns such as detection of elevated contaminant concentrations in its groundwater, steps are being taken by Los Angeles to construct treatment systems to treat and serve the groundwater, and therefore not lose the operation of its wellfields over these next several years.

In summary, the estimated total recharge volumes expected over the next five years substantially exceeds total groundwater extractions over the same period by about 310,913 AF, cumulatively. The items below provide a more detailed review of Plate 3.

- The area in the vicinity of Tujunga Spreading Grounds (TSG) shows an increase in simulated water elevations of about 65 feet, as a result of spreading a large volume of water (37,514 AF) during Water Year 2010-2011, resumed spreading activities in 2014, and reduced pumping at the nearby Tujunga wellfield.

- The area in the vicinity of Hansen Spreading Grounds (HSG) shows an increase in simulated water elevation of about 80 feet in response to the reactivation of spreading operations in November 2009, following the completion of renovations at HSG that increased its spreading capacity .

- The increase in simulated water levels from 2010 to 2015 in the vicinity of Pacoima Spreading Grounds (PSG) is due to the proposed spreading of imported water by Burbank (6,200 AF/Y), in addition to the normal recharge of native surface water by the LACDPW.

- The simulated water table within the cone of depressions created by the Rinaldi-Toluca and North Hollywood West wellfields was shown by the model to rebound with increases in the simulated groundwater elevations by about 70 and 65 ft, respectively. This simulated rebound in water levels in areas near these wellfields would result from the reduced pumping anticipated by Los Angeles as well as the increased recharge activity at the spreading basins upgradient these wells.

- Groundwater elevations near the Erwin, Whitnall and Verdugo wellfields were simulated to increase by 30 to 50 feet, due to the reduction in projected pumping from these wellfields between 2010 and 2015.

- The simulated groundwater elevation near the Burbank OU showed an expected increase by about 35 feet, whereas the groundwater elevation near the Glendale North OU was projected to increase by 5 feet from 2010 to 2015.

Plate 4: Change in Groundwater Elevation Model Layer 2 – Fall 2010 to Fall 2015

- Similar to Model Layer 1, Plate 4 illustrates much of the same substantial increases in simulated groundwater elevations in Model Layer 2 which would also result from the reduced pumping anticipated by Los Angeles as well as by the increased recharge activity at the nearby spreading basins.

- The model simulated an increase in the groundwater table by 70 to 65 feet in the area near the Rinaldi-Toluca and North Hollywood-West wellfields. Simulated groundwater elevations in the area near the Erwin, Whitnall and Verdugo wellfields were projected by the model to increase by 30 to 55 feet. The model also simulated a rebound in the groundwater elevations by about 65 feet in the area upgradient of the Tujunga wellfield.

Plate 5: Simulated Groundwater Flow Direction Model Layer 1 – Fall 2015

- Plate 5 consists of groundwater flow direction arrows superimposed on the simulated groundwater elevation contours to illustrate the general (or regional) direction of groundwater flow within Layer 1 of the model.

- Water pumped at the Rinaldi-Toluca, Tujunga, North Hollywood, GOU, and BOU wellfields and water spread at the Hansen, Pacoima and Tujunga spreading grounds caused the most pronounced effect on the direction of groundwater flow in the SFB. In particular, the BOU may create such a significant cone of pumping depression that groundwater appears to flow inward toward the wellfield from all directions (radial flow).
- A groundwater divide apparently develops south of the Burbank OU wells. This appears to be primarily due to the ‘pumping trough” created by the pumping at the BOU.

Plate 6: Simulated Groundwater Flow Direction Model Layer 2 – Fall 2015

- Plate 6 consists of groundwater flow direction arrows superimposed on the simulated groundwater elevation contours to illustrate the general or regional direction of groundwater flow within Layer 2 of the model.

Plates 7 – 10: Simulated Groundwater Flow Direction and TCE, PCE, NO_3, and Chromium (Cr) Contamination in Model Layer 1 – Fall 2015

- Plates 7 through 10 depict the most recent TCE, PCE, NO_3, and Cr contaminant plumes available from the work of USEPA (as of 2009), and these plumes have been superimposed onto the horizontal direction of groundwater movement in Layer 1 for Fall 2015. The BOU appears to contain most of the 1,000 to 5,000 μg/L TCE and PCE plumes and a large portion of the 0-5, 5-50, 100-500, and 500-1,000 μg/L TCE and PCE plumes. The uncultured portions of these plumes are likely to continue migrating southeasterly in the direction of the Glendale OU and the Los Angeles Narrow area.

- Pumping by the Burbank OU (11,026 AF/Y) tends to flatten the horizontal gradient in a southeasterly direction and slows the natural movement of groundwater southeasterly of the plume in the area of the Burbank OU.

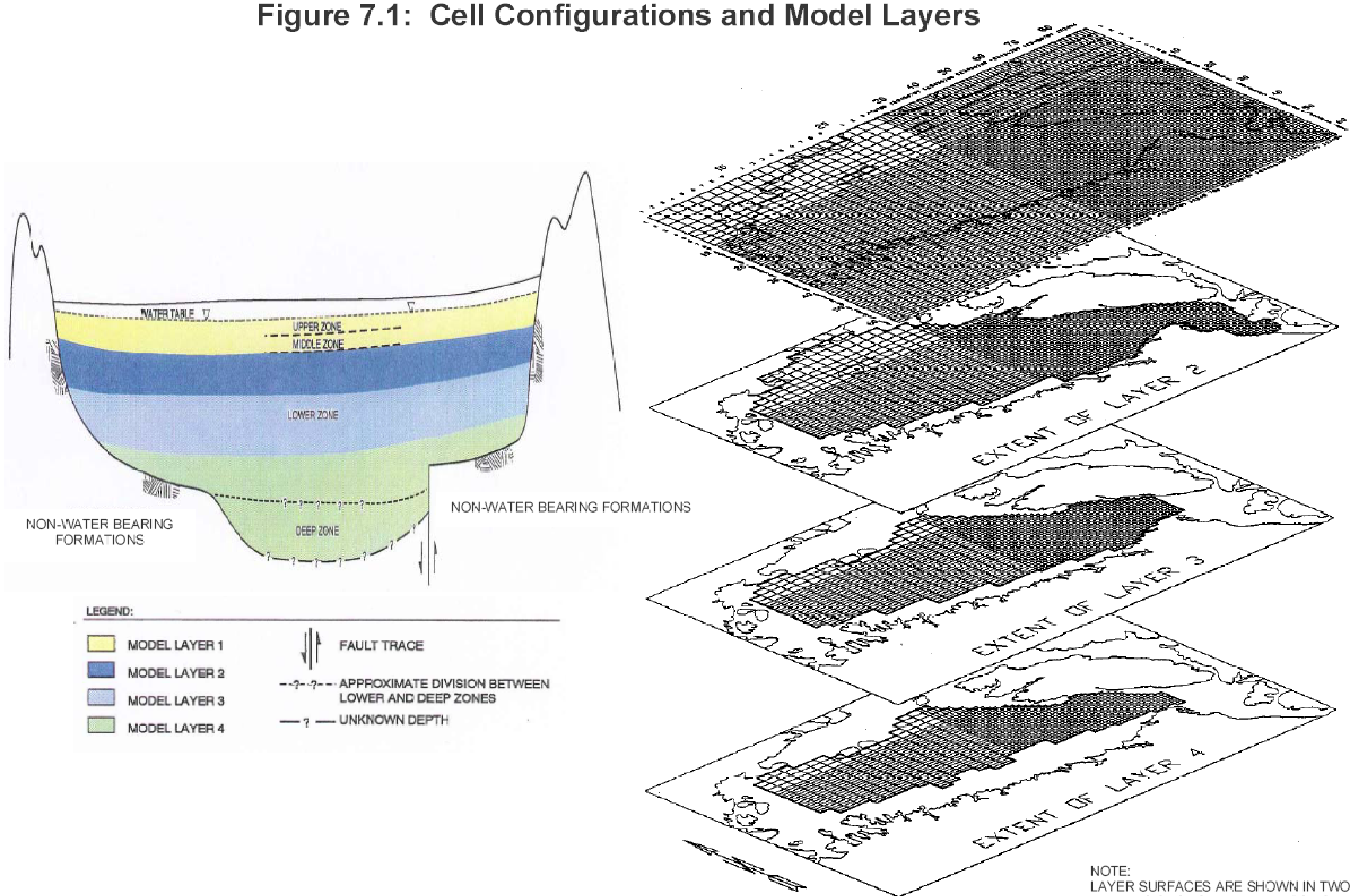
- Wells in the Glendale North OU and South OU were designed to capture a portion of the plume(s) that is (are) not captured by the Burbank OU wells. Wells in both GOUs tend to capture the plume upgradient from and within the radius of influence of these wells.

- Pumping by the Pollock wells (2,178 AF/Y) appears to have little effect on Layer 1 because approximately 75 percent of the pumping by this facility extracts groundwater from the zones within Layer 2.

- Plate 9 indicates that groundwater extracted from model Layer 1 by the NHOU, BOU and GOU wells may be impacted by nitrate (as NO_3).

- Plate 10 (Total Dissolved Chromium) indicates that Layer 1 extractions by wells in the NHOU, BOU, the north and south GOUs, and the Pollock wells may be impacted by the chromium plume(s).

Figure 7.1: Cell Configurations and Model Layers



NOTE:
LAYER SURFACES ARE SHOWN IN TWO DIAMENSIONS FOR THE PURPOSE OF THIS ILLUSTRATION ONLY. ACTUAL MODEL LAYER THICKNESS VARIES BY NODE.

Source: Remedial Investigation Report of Groundwater Contamination in the San Fernando Valley, December 1992

VIII. WATERMASTER EVALUATION AND RECOMMENDATIONS

Declining groundwater levels combined with continually increasing Stored Water Credits for the three municipal-supply Parties in the SFB represent serious problems that require ongoing analysis and review with respect to the hydrogeology and management of this basin. The 2007-dated Stipulated Agreement between these cities (Burbank, Glendale and Los Angeles) will help to limit the future pumping of Stored Water Credits in the SFB. As part of the Stipulated Agreement, the first re-evaluation of the safe yield of the SFB since 1964-65 was initiated by a consulting engineering firm selected by the Administrative Committee in late-2008. Importantly, although that Draft report by that consultant will not be finalized, the Watermaster has opined that groundwater pumping by the municipal-supply purveyors will need to be reduced until basin recharge and their groundwater extraction volumes become more in equilibrium over time. Further, in an effort to increase stormwater recharge in SFB, the City and County of Los Angeles have embarked upon an ambitious and very important program to increase the recharge capacity in several of the local spreading grounds, and the City is investigating additional alternatives to increase water conservation. This Watermaster commends the City and County of Los Angeles for these vital efforts.

VOC contamination continues to be the most serious challenge to water quality and to the ability of the Parties to pump non-contaminated groundwater from the San Fernando Basin. The various contaminant plumes continue to be large and to migrate, despite years of pumping and treatment. For example, the VOC plumes in North Hollywood have not been completely controlled by the extraction wells in the NHOU, due in large part to declining groundwater levels which have resulted in the reduced pumping capacity of those wells. It is encouraging to see USEPA's Second Interim Remedy for the NHOU which entails facility improvements to increase its peak pumping capacity to as much as 4,000 gpm (3,050 gpm on average). Although the planned implementation of these improvements is several years away, this Remedy should eventually help remove contaminant mass and control contaminant migration in the nearby plume(s). The Burbank Operable Unit has undergone several capital improvements and that facility now operates with much greater reliability to pump and treat VOC-contaminated groundwater near its 9,000 gpm design capacity on a consistent basis. Testing of the 9,000 gpm design capacity has also been performed which may lead to the deflation of the packers in some/all BOU wells.

The Watermaster is also aware of the rising trends in and/or recent detections of chromium in several production wells in the eastern portion of the SFB. As of this date, none of the existing water treatment plants are capable of removing this contaminant. As Watermaster, I continue to support an aggressive approach by regulatory agencies including USEPA, LARWQCB, and DTSC in identifying the various sources of this contaminant and in requiring cleanup by the responsible parties. The Watermaster appreciates Glendale's lead in the development of chromium treatment technology in the area and in the construction of the Chromium Removal Demonstration Facilities.

Another ongoing concern of this Watermaster is that MTBE has not only been detected at higher concentrations but it has also been encountered in additional CVWD municipal-supply water wells in the Verdugo Basin. The MTBE Task Force was successful in identifying several potential source sites and, along with the LARWQCB, is pursuing additional subsurface investigations and cleanup by the responsible parties at various active and even abandoned service stations in Verdugo Basin. The support and enforcement actions of the LARWQCB have been very helpful in helping to define and mitigate the MTBE problems in this basin.

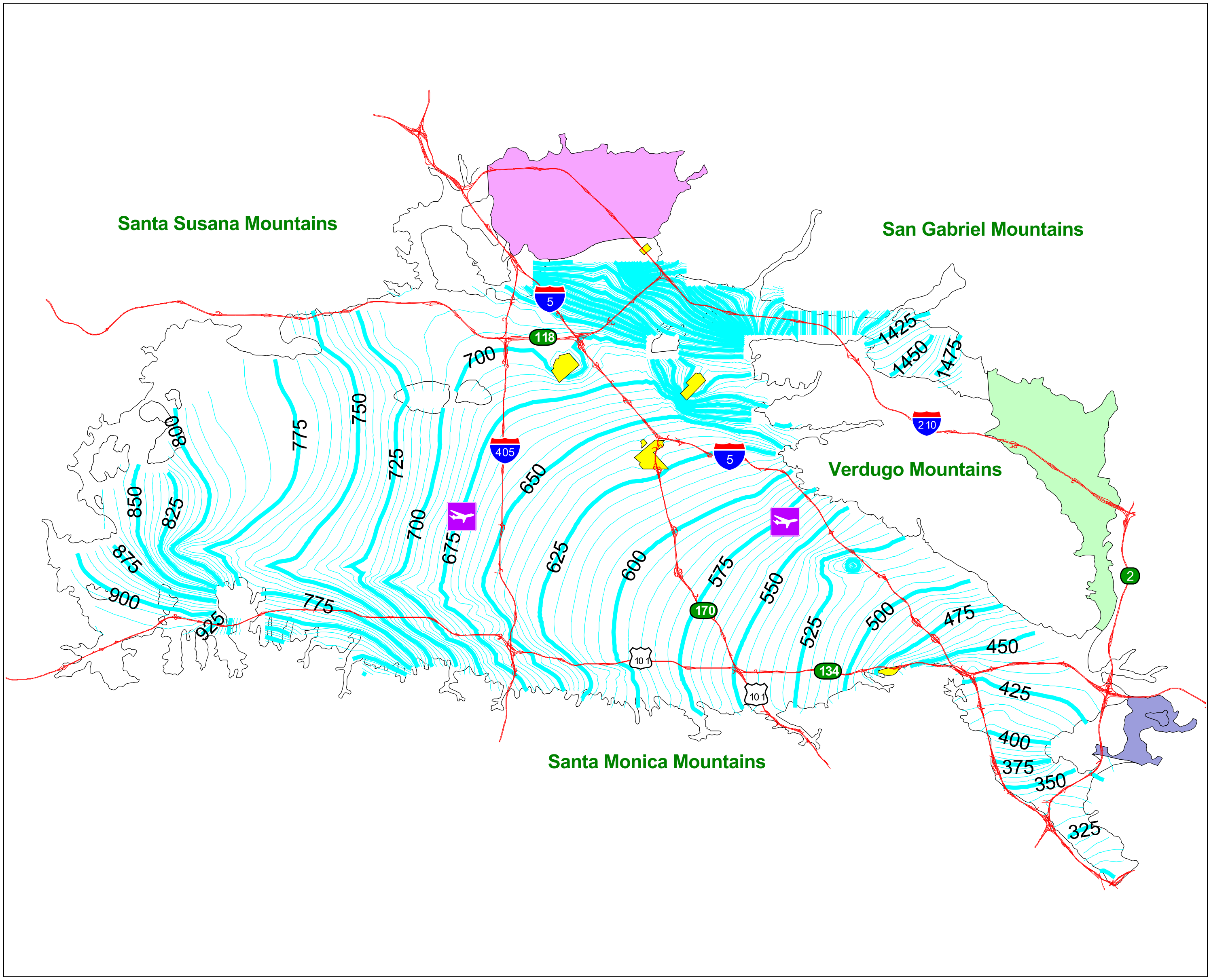
Due to the geologic conditions in the Verdugo Basin and the presence of local bedrock constrictions, groundwater tends to rise to ground surface near the Verdugo Wash Narrows and leaves the basin as surface outflow. Glendale is currently unable to pump its full right from the Verdugo Basin, but by rehabilitating one of its previously-abandoned wells and pursuing the construction of a new municipal-supply well, Glendale has taken steps to increase its extractions from the Verdugo Basin and help reduce the continued groundwater outflow from this basin. The Watermaster commends the ongoing efforts of Glendale to increase its pumping capacity and also the efforts of CVWD to begin an evaluation of potential stormwater recharge projects in Verdugo Basin.

The Parties should expect to face unprecedented challenges to both water quality and quantity in the ULARA groundwater basins during the 2010-2015 water years. It is the opinion of this Watermaster that, over the forthcoming years, it will be essential for the continuing safe yield operation of the ULARA groundwater basins to continue to: provide more recharge at existing spreading basins; define and implement new locations and/or other methods (such as the use of injection wells) for recharging these groundwater basins; and to seriously consider the possibility of using recycled water to augment the recharge that occurs seasonally in the existing spreading basins but also to begin working with CDPH and the LARWQCB to define possible constraints to the direct recharge of treated recycled water into injection wells located near or east of the 405 Freeway.

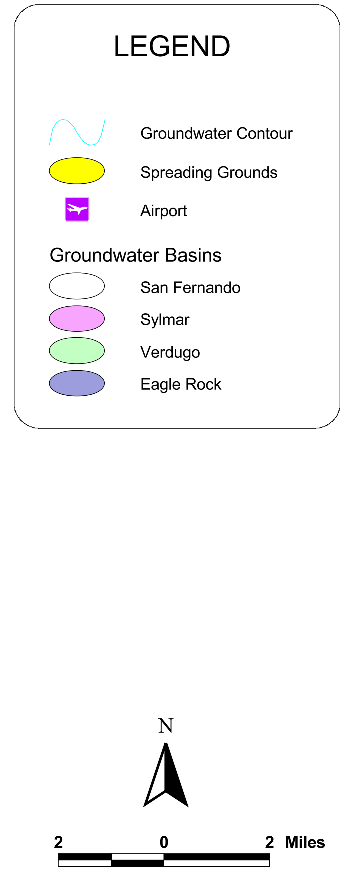
PLATES

PLATE 1

Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010- 2015 Water Years



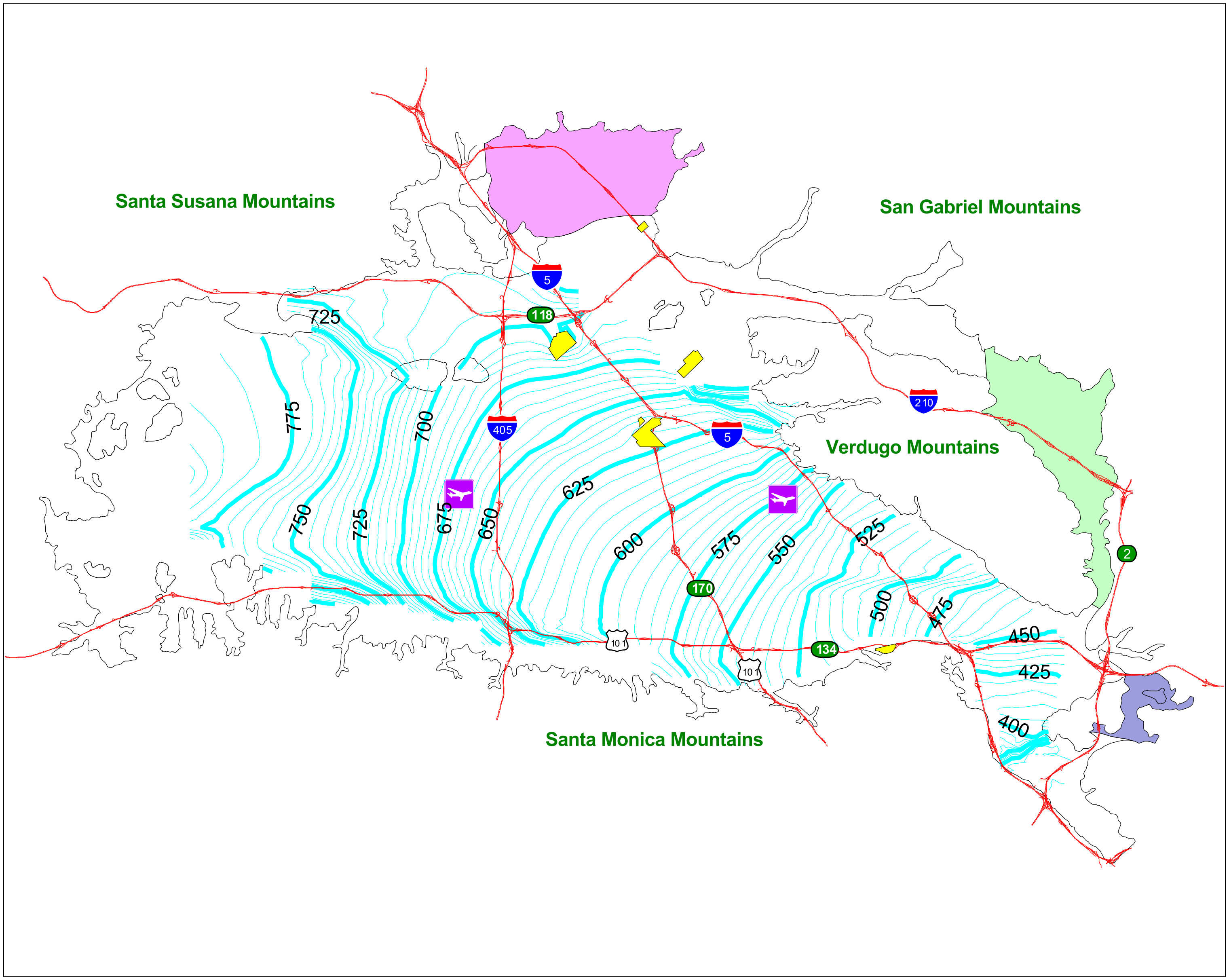
LEGEND



Simulated Groundwater Contours - Model Layer 1
FALL 2015

PLATE 2

Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years



LEGEND

Groundwater Contour
Spreading Grounds
Airport

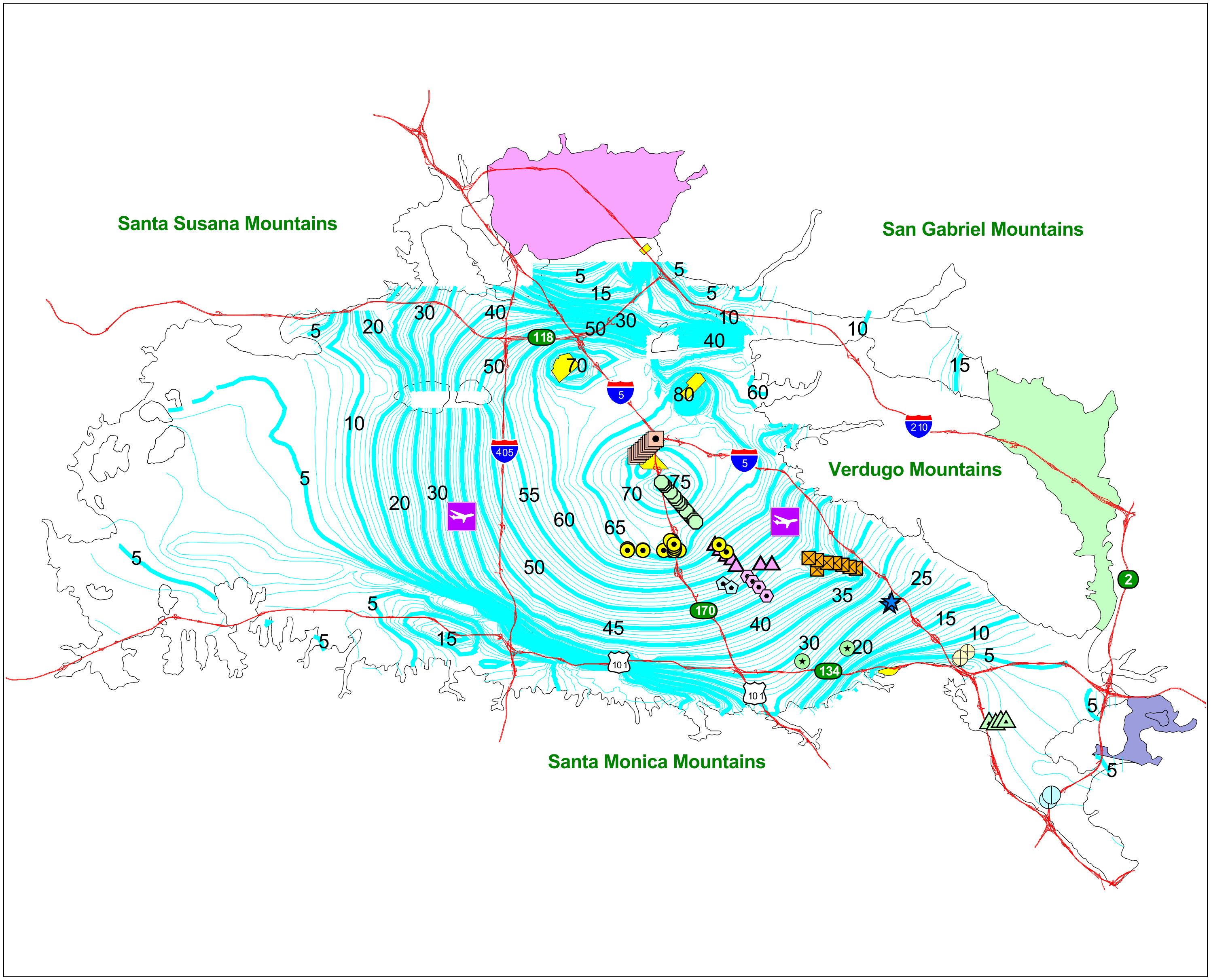
Groundwater Basins
San Fernando
Sylmar
Verdugo
Eagle Rock

N

2 0 2 Miles

Simulated Groundwater Contours - Model Layer 2
FALL 2015

PLATE 3



Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years

LEGEND

Well Fields

- Burbank OU
- Glendale North OU
- Glendale South OU
- Burbank GAC
- North Hollywood OU
- Pollock
- Tujunga
- Rinaldi - Toluca
- North Hollywood
- Whitnall
- Erwin
- Verdugo

Change in GW Elev.

Spreading Grounds

Airport

Groundwater Basins

- San Fernando
- Sylmar
- Verdugo
- Eagle Rock

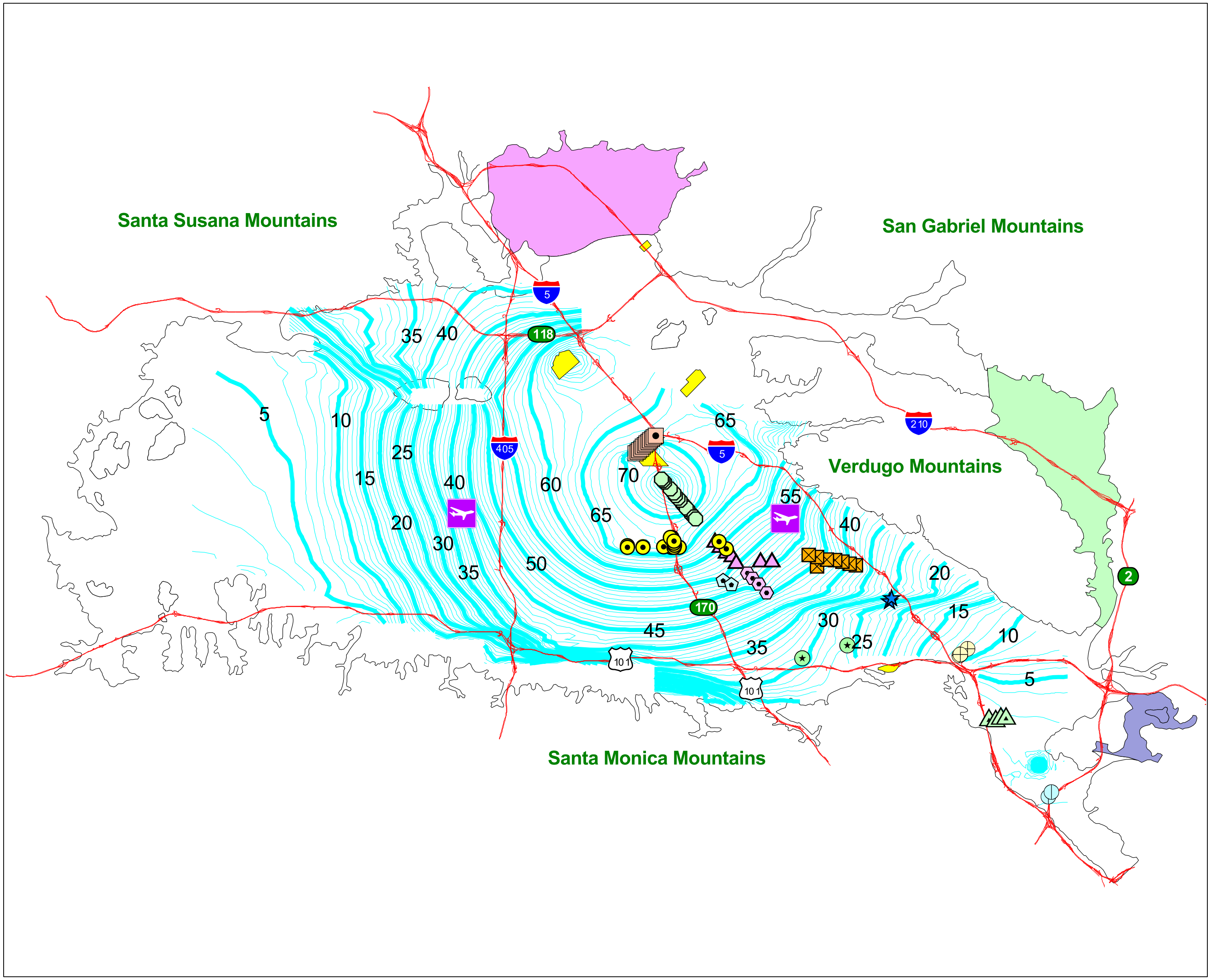
N

2 0 2 Miles

Simulated Change in Groundwater Elevation - Model Layer 1
Fall 2010 - Fall 2015

PLATE 4

Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years



LEGEND

Well Fields

- Burbank OU
- Glendale North OU
- Glendale South OU
- Burbank GAC
- North Hollywood OU
- Pollock
- Tujunga
- Rinaldi - Toluca
- North Hollywood
- Whitnall
- Erwin
- Verdugo

Change in GW Elev.

Spreading Grounds

Airport

Groundwater Basins

- San Fernando
- Sylmar
- Verdugo
- Eagle Rock

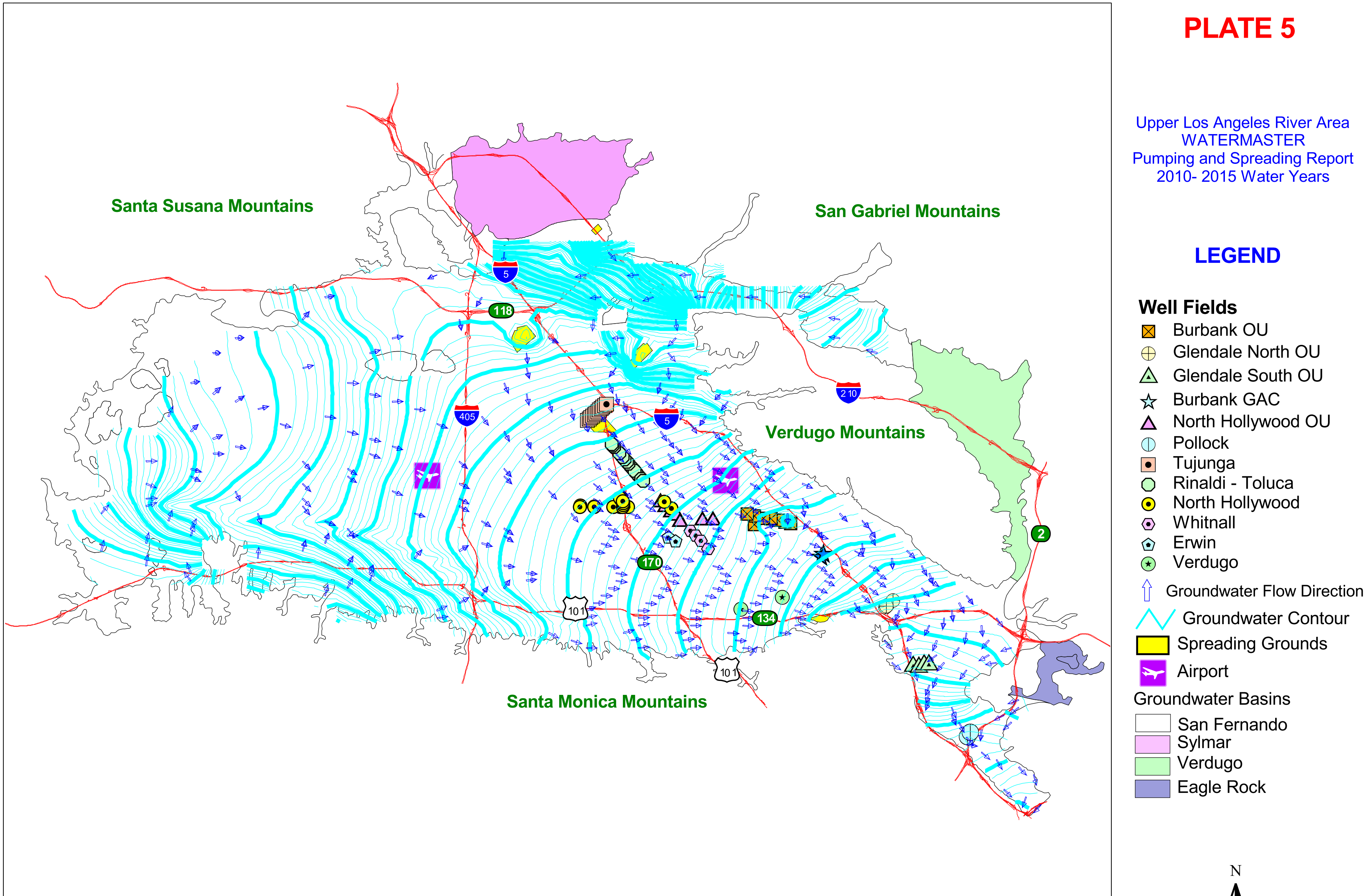
N

2 0 2 Miles

Simulated Change in Groundwater Elevation - Model Layer 2
Fall 2010 - Fall 2015

PLATE 5

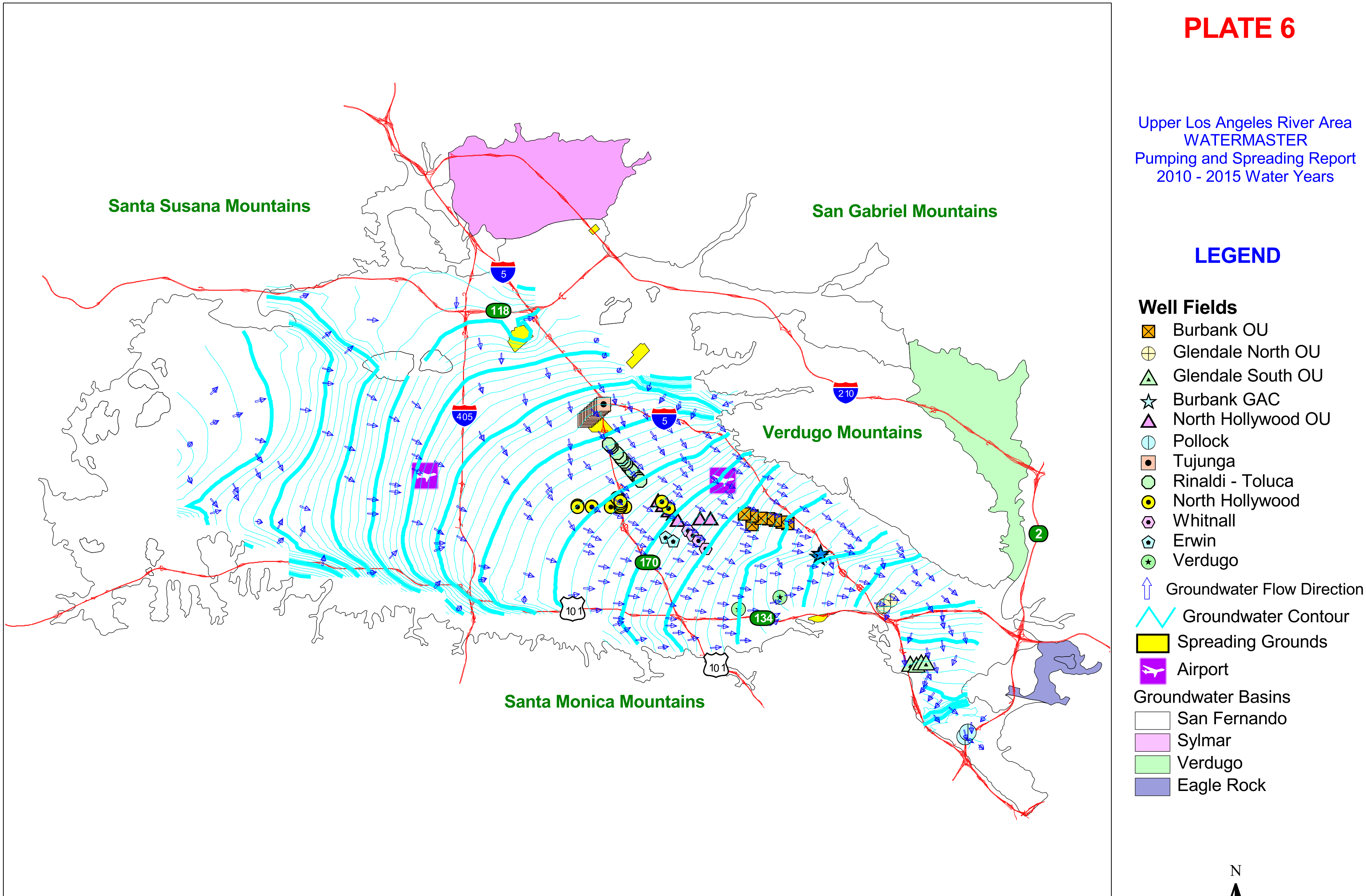
Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010- 2015 Water Years



Simulated Groundwater Flow Direction - Model Layer 1
FALL 2015

PLATE 6

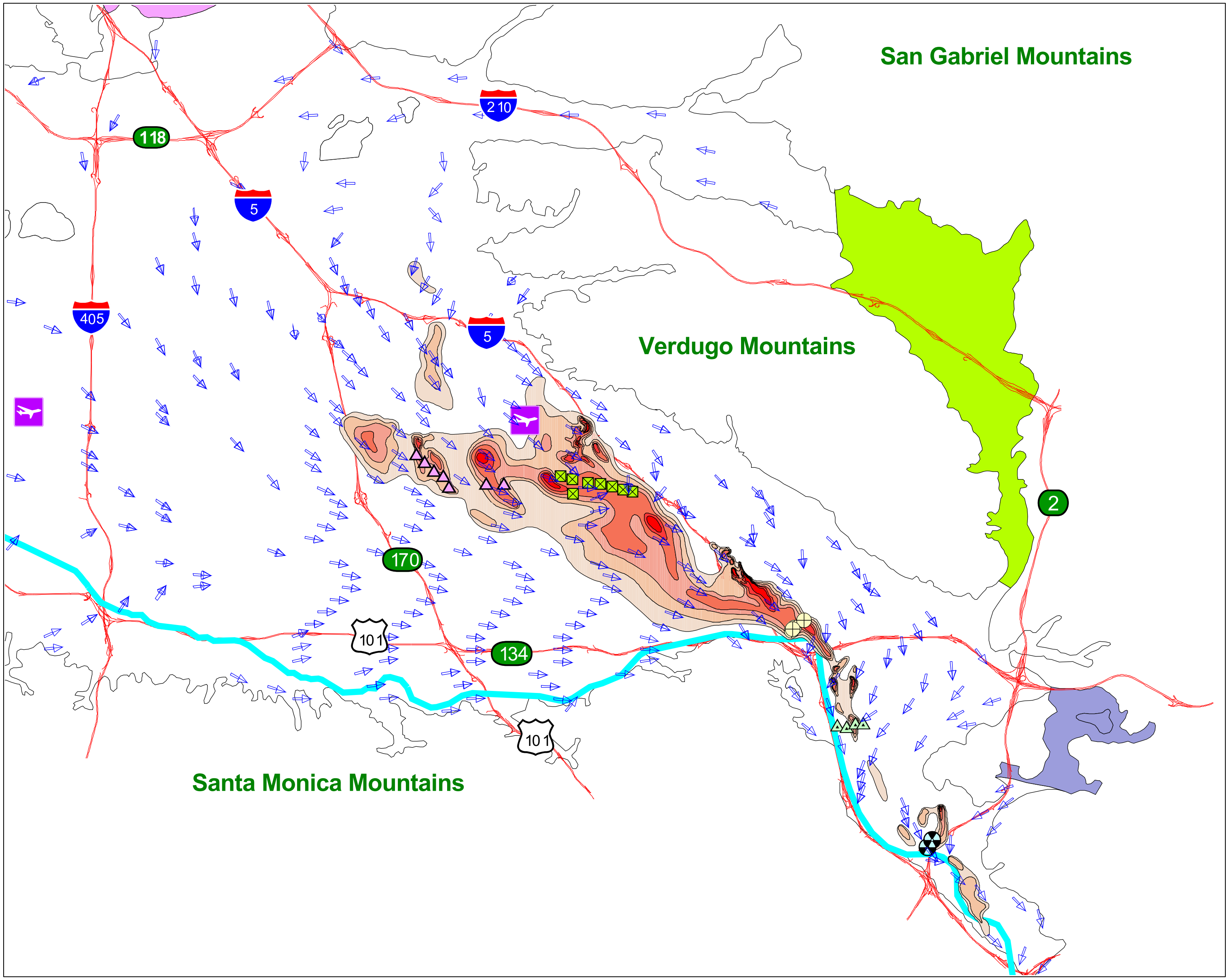
Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years



Simulated Groundwater Flow Direction - Model Layer 2
FALL 2015

PLATE 7

Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years



LEGEND

- Burbank OU
- Glendale North OU
- Glendale South OU
- North Hollywood OU
- Pollock Wells

TCE Plume (Source: EPA)

- > DL - 5 ug/L (MCL)
- 5.01 - 50 ug/L
- 50.01 - 100 ug/L
- 100.01 - 500 ug/L
- 500.01 - 1000 ug/L
- 1000.01 - 5000 ug/L
- Groundwater Flow Direction
- Los Angeles River
- Airport

Groundwater Basins

- San Fernando
- Sylmar
- Verdugo
- Eagle Rock

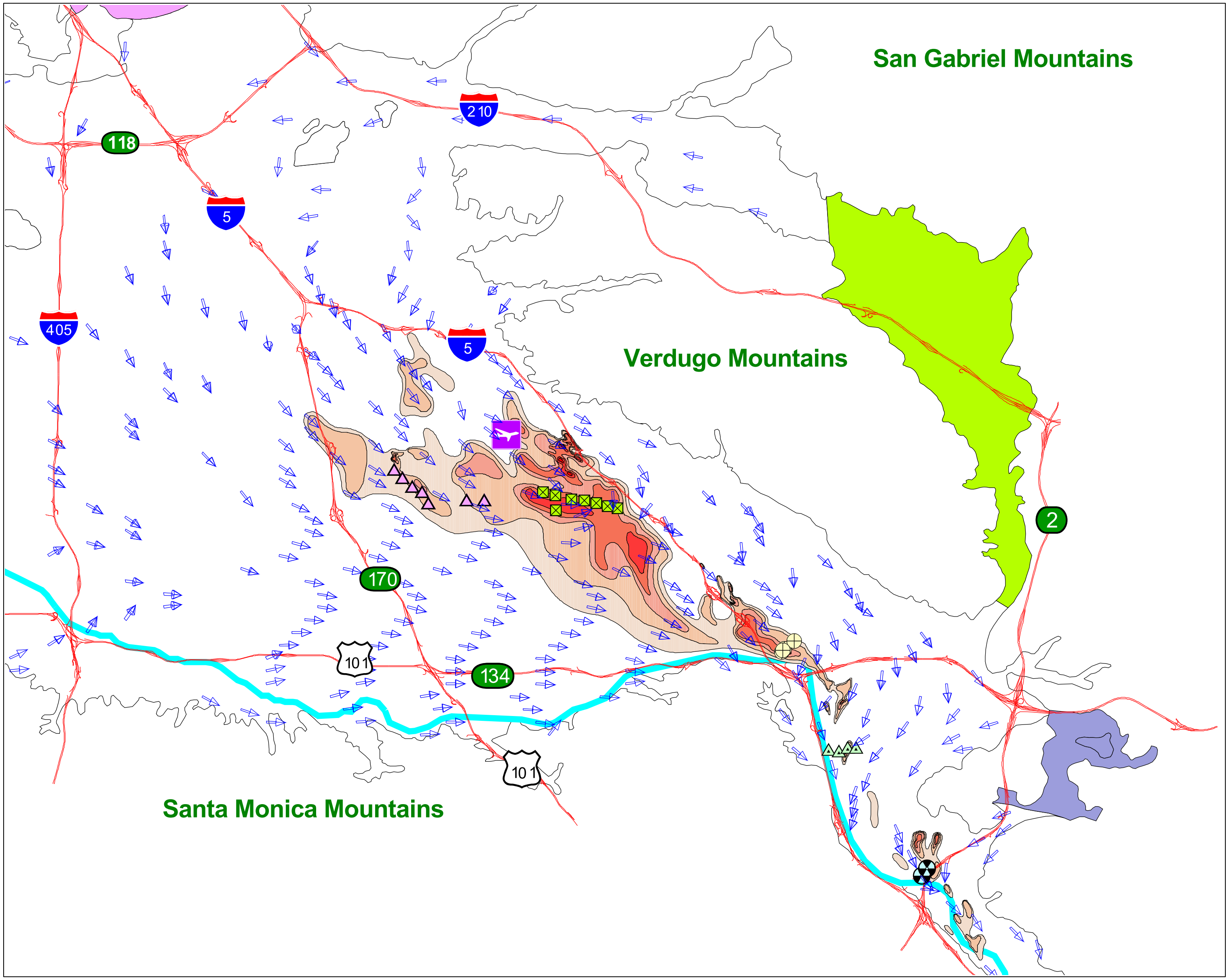
N

1 0 1 2 Miles

2009 TCE Contamination and 2015 Simulated Groundwater Flow Direction
Model Layer 1

PLATE 8

Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years



LEGEND

- Burbank OU
- Glendale North OU
- Glendale South OU
- North Hollywood OU
- Pollock Wells

PCE Plume (Source: EPA)

- > DL - 5 ug/L (MCL)
- 5.01 - 50 ug/L
- 50.01 - 100 ug/L
- 100.01 - 500 ug/L
- 500.01 - 1000 ug/L
- 1000.01 - 5000 ug/L
- Groundwater Flow Direction
- Los Angeles River
- Airport

Groundwater Basins

- San Fernando
- Sylmar
- Verdugo
- Eagle Rock

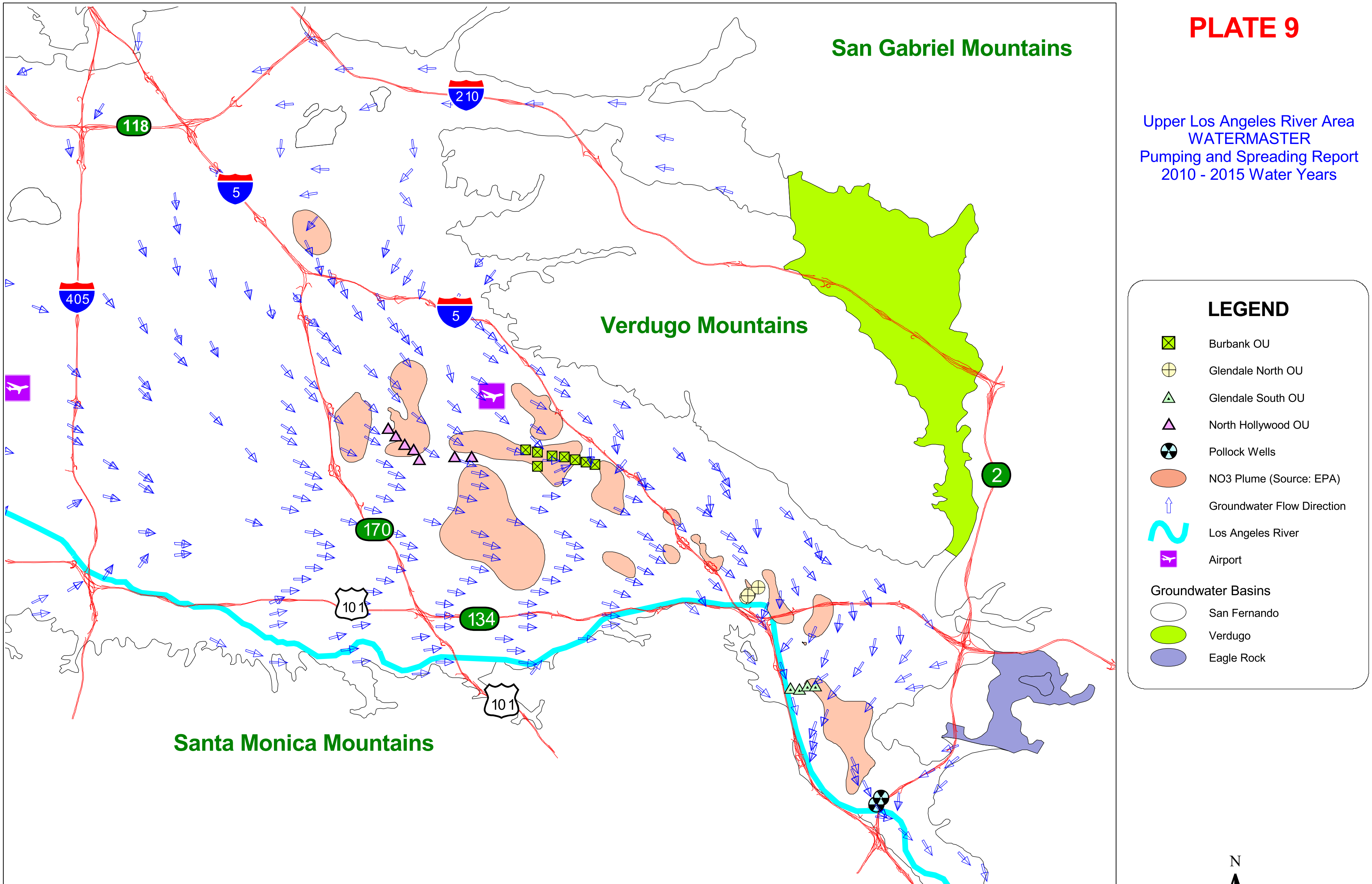
N

1 0 1 2 Miles

2009 PCE Contamination and 2015 Simulated Groundwater Flow Direction
Model Layer 1

PLATE 9

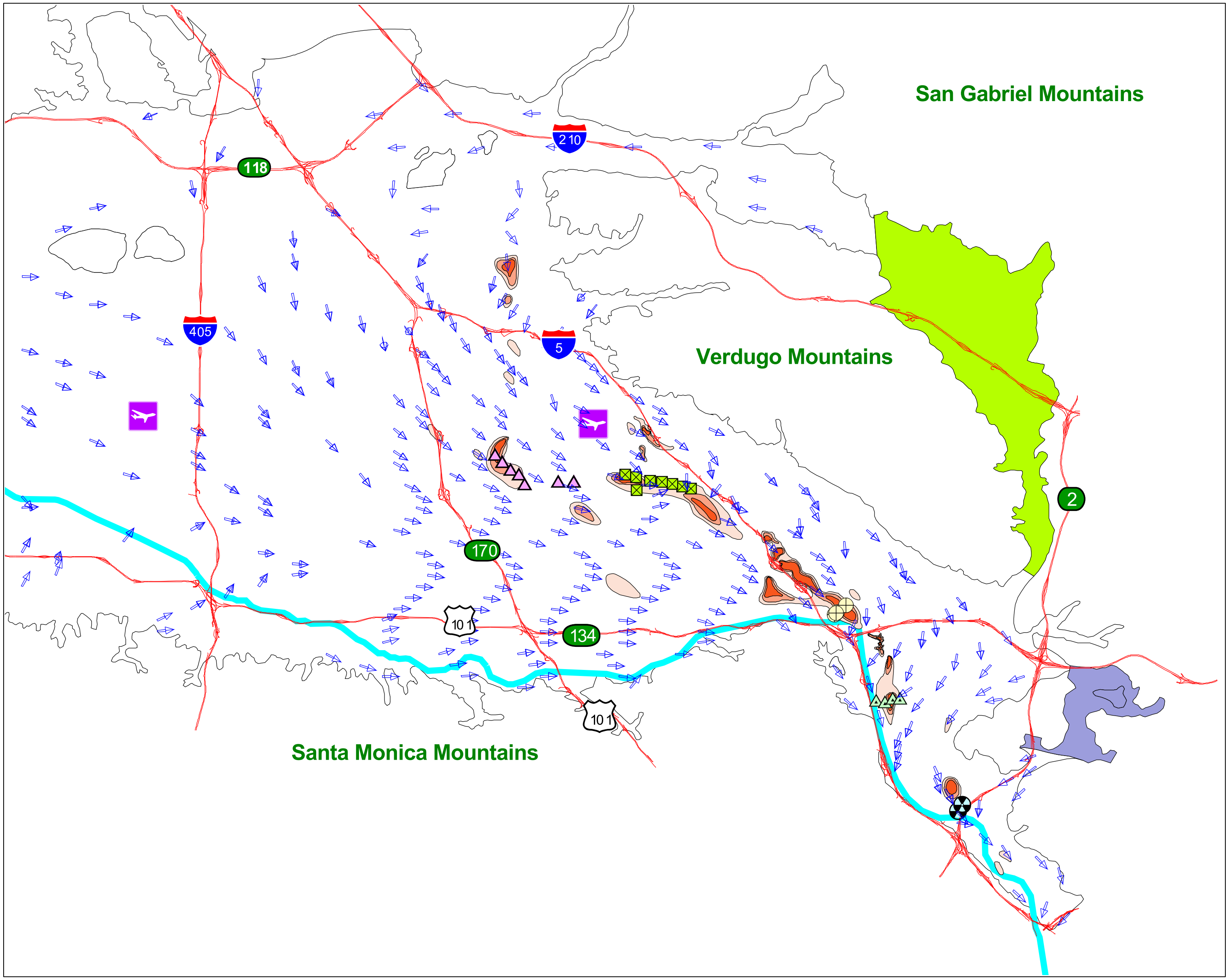
Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years



**2009 Nitrate (as NO3) Contamination and 2015 Simulated Groundwater Flow Direction
Model Layer 1**

PLATE 10

Upper Los Angeles River Area
WATERMASTER
Pumping and Spreading Report
2010 - 2015 Water Years



LEGEND

Burbank OU
Glendale North OU
Glendale South OU
North Hollywood OU
Pollock Wells

Total Chromium Plume (Source: EPA)
5 - 25 ug/L
25.01 - 50 ug/L
> 50 ug/L
Groundwater Flow Direction
Los Angeles River
Airport

Groundwater Basins
San Fernando
Verdugo
Eagle Rock

N

1 0 1 2 Miles

2009 Total Dissolved Chromium Contamination and 2015 Simulated Groundwater Flow Direction
Model Layer 1

APPENDIX A

CITY OF LOS ANGELES

PUMPING AND SPREADING PLAN

2010-2015 Water Years

CITY OF LOS ANGELES
GROUNDWATER PUMPING AND SPREADING PLAN
IN THE UPPER LOS ANGELES RIVER AREA
FOR THE 2010-2015 WATER YEARS

MAY 2011

Prepared by:
Groundwater Management Group
WATER QUALITY DIVISION
Los Angeles Department of Water and Power

TABLE OF CONTENTS

Introduction

The water rights in the Upper Los Angeles River Area (ULARA) were set forth in a Final Judgment, entered on January 26, 1979, ending litigation that lasted over 20 years. The ULARA Watermaster's Policies and Procedures give a summary of the decreed extraction rights within ULARA, together with a detailed statement describing the ULARA Administrative Committee operations, reports to and by the Watermaster and necessary measuring tests and inspection programs. The ULARA Policies and Procedures have been revised several times since the original issuance, to reflect current groundwater management thinking.

In Section 5.4 of the ULARA Policies and Procedures as amended in February 1998, it is stated that:

> *"...all parties or non-parties who pump groundwater are required to submit annual reports by May 1 to the Watermaster that include the following:*
>
> - *A 5-year projection of annual groundwater pumping rates and volumes.*
> - *A 5-year projection of annual spreading rates and volumes.*
> - *The most recent water quality data for each well."*

This report constitutes Los Angeles' 2011 Groundwater Pumping and Spreading Plan for the Water Years 2010 - 2015.

Section 1: Facilities Description

This section describes facilities that influence groundwater conditions in ULARA and relate to Los Angeles.

a.) Spreading Grounds: There are five spreading ground facilities that can be used for groundwater recharge of native water in ULARA. The Los Angeles County Department of Public Works (LACDPW) operates the Branford, Hansen, Lopez, and Pacoima spreading grounds. LACDPW and LADWP operate the Tujunga Spreading Grounds cooperatively. Estimated capacities for these are shown in Table 1-1 and their locations are shown in Figure 1-1.

TABLE 1-1

ESTIMATED CAPACITIES OF ULARA SPREADING GROUNDS

Spreading Ground	Type	Total wetted area [ac]	Capacity [ac-ft/yr.]
Operated by LACDPW			
Branford	Deep basin	7	2,100
Hansen	Med. Depth basins	105	35,000
Lopez	Shallow basins	12	2,000
Pacoima	Med. Depth basins	107	23,000
Operated by LACDPW and LADWP			
Tujunga	Shallow basins	83	43,000
		TOTAL:	105,100

b.) Extraction Wells: The LADWP has nine well fields in the San Fernando Basin, and one in the Sylmar Basin. The rated capacities of the nine well fields are shown in Table 1-2. The rated capacities are approximate as operating capacities vary depending on the water levels. Actual groundwater pumping is dependent on maintenance schedules and water quality for each well.

TABLE 1-2

RATED CAPACITIES OF LADWP WELL FIELDS IN ULARA

Well Field	Number of Wells			Rated Capacity	
San Fernando Basin	Active	Stand-by	Total	cfs	gpm
Aeration	7	---	7	2.4	1,077
Crystal Springs (A)	---	---	---	---	---
Erwin	2	0	2	6.1	2,738
Headworks			---	---	---
North Hollywood	14	3	17	69.6	31,237
Pollock	2	0	2	5.9	2,648
Rinaldi-Toluca	15	---	15	113	50,714
Tujunga	12	---	12	98.2	44,072
Verdugo	2	---	2	7.4	3,321
Whitnall	4	---	4	14.8	6,642
Sylmar Basin					
Mission	2	---	2	5	2,244
TOTAL	60	3	63	322	144,693

(A) Well field has been abandoned pursuant to sale of property to DreamWorks, Inc.

c.) Groundwater Treatment Facilities: The LADWP operates three groundwater treatment facilities. Water treated at these facilities is delivered to the water distribution system for consumption.

North Hollywood Groundwater Treatment Facility: This plant was placed into service in December 1989 to treat up to 2,000 gpm of groundwater to remove VOCs by using aeration with granular activated carbon (GAC) for off-gas treatment. This facility is a part of the North Hollywood Operable Unit (NHOU) that also includes a system of shallow wells. The NHOU is financed, in part, by the U.S. Environmental Protection Agency.

Pollock Wells Treatment Plant: This plant was placed into service in March 1999 to remove VOCs from the groundwater at a rate up to 3,000 gpm from the Pollock Well Field. The facility features the use of liquid-phase GAC, restores the use of Pollock Wells, and addresses the excessive rising groundwater discharges from the San Fernando Basin into the Los Angeles River.

Tujunga Wells Treatment Plant: New Liquid-Phase GAC groundwater treatment vessels were installed on two production wells at the Tujunga Well field, and has restored the use of 7,440 gpm of pumping capacity that were inoperable due to water quality constraints. Operational testing began in November 2009 and the groundwater produced during the testing was conserved by discharging it to he Tujunga Spreading Grounds. The CDPH permitted that treatment system and the treated groundwater started to be discharged into the distribution system in May 2010.

Section 2: Annual Pumping And Spreading Projections

a.) Pumping Projections for the Water Years 2010-2015: The City of Los Angeles has the following four sources of water supply: 1.) Los Angeles Aqueduct supply imported from the Owens Valley/Mono Basin area; 2.) Local groundwater supply from the Central, San Fernando, and Sylmar Basins; 3.) Purchased water from the Metropolitan Water District of Southern California (MWD); and 4) Recycled water. The MWD sources of supply are the State Water Project and the Colorado River Aqueduct. Use of San Fernando Basin groundwater can fluctuate annually depending on the availability of imported water which varies due to climatic and operational constraints; the increasing levels of hexavalent chromium and other emerging chemicals; and the migration of volatile organic compounds that have spread beyond the sphere of influence created by the small capacity of the NHOU.

The San Fernando Basin and Sylmar Basin provide most of the City's local groundwater supply. The City of Los Angeles has the following average annual water rights which comprise approximately 11% of the City's supply:

San Fernando Basin	87,000 AF
Sylmar Basin	3,405 AF

Table 2-1 shows the amount of groundwater extractions that are expected during the 2010-11 Water Year from the San Fernando and Sylmar Basins. Appendix B provides groundwater extraction projections from 2010 to 2015. These projections are based upon assumed demand and Los Angeles Aqueduct flows, and are subject to yearly adjustments.

TABLE 2-1

CITY OF LOS ANGELES
ACTUAL AND PROJECTED PUMPING FOR WY 2010-2011

San Fernando Basin		Actual Extraction (Acre-Feet)						Projected Extraction (Acre-Feet)					
	TOTAL	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11
AERATION	1,008	94	80	71	27	46	0	104	108	104	126	126	122
ERWIN	1,373	122	1	0	0	75.00	62	0	0	0	375	375	363
HEADWORKS	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH HOLLYWOOD	5,845	725	449	814	1	0	0	417	0	0	1,273	1,273	893
POLLOCK	3,553	186	344	393	337	299	0	357	369	357	185	369	357
RINALDI-TOLUCA	6,892	714	709	899	0	0	0	417	0	0	1,722	1,538	893
TUJUNGA	20,663	2,119	2,100	1,389	1,159	2,393	1,882	1,905	923	952	1,968	1,968	1,905
VERDUGO	1,760	312	1	0	0	92.00	5	0	0	0	455	455	440
WHITNALL	2,724	141	1	1	1	40.00	37	0	0	0	910	910	684
SAN FERNANDO BASIN TOTAL:	43,817	4,413	3,684	3,567	1,524	2,945	1,986	3,200	1,400	1,413	7,014	7,014	5,657
Sylmar Basin													
MISSION	1,092	0	0	0	0	0	0	179	185	179	185	185	179
ULARA TOTAL:	44,909	4,413	3,684	3,567	1,524	2,945	1,986	3,379	1,585	1,592	7,199	7,199	5,836

b.) <u>Spreading Projections for the 2010-11 Water Year</u>: Native groundwater recharge from captured storm runoff occurs primarily as a result of the use of man-made spreading grounds. Spreading grounds operations are primarily controlled by the LACDPW. Table 2-2 represents the anticipated spreading volumes for 2010-11.

TABLE 2-2

ACTUAL AND PROJECTED SPREADING IN ULARA SPREADING GROUNDS 2010-11

(acre-feet)

Operated by:							
	LACDPW				LADWP	LACDPW and LADWP	Monthly Total
Month	Branford	Hansen	Lopez	Pacoima	Headworks (A)	Tujunga	
Actual							
Oct-10	92	0	0	24	0	551	667
Nov-10	77	135	0	1,770	0	1,441	3,423
Dec-10	146	4,170	45	2,350	0	2,671	9,382
Jan-11	37	4,710	175	3,070	0	6,460	14,452
Feb-11	114	3,080	58	1,372	0	2,638	7,262
Mar-11	145	3,190	300	3,320	0	7,304	14,259
Projected							
Apr-11	70	600	480	1,600	0	4,706	7,456
May-11	68	1,860	600	1,800	0	5,143	9,471
Jun-11	40	1,800	600	1,860	0	2,000	6,300
Jul-11	37	1,200	50	1,600	0	1,900	4,787
Aug-11	36	800	45	1,300	0	1,500	3,681
Sep-11	30	400	45	1,000	0	1,200	2,675
Total	892	21,945	2,398	21,066	0	37,514	83,815

(A) 1992-93 Water Year was the last year of spreading.

Section 3: Water Quality Monitoring Program Description

All of LADWP's 60 active wells in ULARA are monitored in conformance with the requirements set forth in Title 22, California Code of Regulations. For all active wells, monitoring is required whether the well is in production or not. State regulations require the following types of monitoring regimens:

1. Inorganic compounds
2. Organic compounds
3. Phase II and V Initial monitoring
4. Radiological compounds
5. Quarterly organics compounds

Each well, whether on active or standby status, is monitored every three years for a full range of inorganic and organic compounds. Phase II and V Initial monitoring involves analysis for newly regulated organic compounds at all wells. Each well must be sampled for four consecutive quarters within a three-year period. Quarterly organic compounds analysis monitoring is performed four times a year for each well where organic compounds have been detected. A complete list of the parameters that must be tested for is contained in Title 22 of the California Code of Regulations. Appendix A provides a recent report for Nitrate, TCE, PCE, Perchlorate, Chromium, Iron, Manganese, 1,2-Dichloroethene-cis, Carbon Tetrachloride, Total Coliform, 1,1-DCA, 1,1-DCE, 1,4-Dioxane, Bromide, and MTBE in Los Angeles' San Fernando and Sylmar Basins wells.

Section 4: Groundwater Treatment Facilities Operations Summary

North Hollywood Operable Unit (NHOU): All NHOU wells were shutdown on January 1, 2011 through February 4, 2011 and February 25, 2011 through April 7, 2001 to conduct repairs to the distribution system and to construct the infrastructure to switch to chloramines. The Aeration Tower shut down due to power bumps during April 18 to 19, 2010, July 27 to 30, and February 18 to 23. Starting January 2009, Honeywell is operating Well No. 2 and discharging the water to the sewer system. LADWP is reimbursed for the amount of water being pumped by Honeywell. Honeywell will continue to discharge the water to the sewer system until the 97-005 approval is obtained from the California Department of Public Health in order to serve the water to LADWP customers.

TABLE 2-3A
GROUNDWATER PRODUCTION FROM NORTH HOLLYWOOD OU
(AERATION WELLS)

	Aeration Well No. (AF)							Total (AF)	Influent to Facility TCE/PCE	Effluent from Facility TCE/PCE
Mon/Yr	2*	3	4	5	6	7	8		(ug/L)	(ug/L)
Apr-10	9.32	4.06	0.00	0.00	18.34	16.92	11.55	60.19	36.5/9.05	ND/ND
May-10	18.43	11.16	0.00	0.00	55.19	53.79	25.60	164.17	34.2/8.37	ND/ND
Jun-10	8.13	8.93	0.00	0.00	34.07	32.46	7.48	91.07	31.4/7.74	ND/ND
Jul-10	8.84	9.83	0.00	0.00	35.88	28.54	6.22	89.31	30.8/7.62	ND/ND
Aug-10	3.01	4.71	0.00	0.00	16.94	14.49	3.90	43.05	31.6/7.87	ND/ND
Sep-10	14.39	15.01	0.00	0.00	53.15	50.92	12.65	146.12	30.9/7.85	ND/ND
Oct-10	18.39	12.47	0.00	0.00	40.93	36.32	3.83	111.94	26.2/6.81	ND/ND
Nov-10	10.10	10.33	0.00	0.00	36.78	32.76	0.00	89.97	22.3/7.9	ND/ND
Dec-10	8.20	8.10	0.00	0.00	34.66	20.09	0.00	71.05	23.5/7.86	ND/ND
Jan-11	3.01	3.10	0.00	0.00	11.80	5.85	3.17	26.93	22.7/8.6	ND/ND
Feb-11**	8.26	3.70	0.00	0.00	21.00	21.00	0.00	53.96	31.4/9.3	ND/ND
Mar-11**	15.61	0.00	0.00	0.00	0.00	0.00	0.00	15.61	14.0/4.7	ND/ND

Note:
* : Well is operated by outside contractor.
** : Numbers are estimated. Actual numbers will be revised as it becomes available.
ND: Not Detected
NS: No Sample

<u>Pollock Wells Treatment Plant (PWTP)</u>: PWTF was shut down to replace the spent granular activated carbon (GAC) with virgin GAC from February 12 to April 8, 2010, from July 27 to September 11, 2010, and from February 25 to April 13, 2011. During the three shutdowns, an additional week was required to complete the replacement of the GAC in the last two vessels and restart the second well. PWTF was also shut down from September 27 to October 8, 2011 to disinfect the GAC in all four vessels.

TABLE 2-3B
GROUNDWATER PRODUCTION FROM NORTH HOLLYWOOD OU
(POLLOCK WELLS)

	Pollock Well No. (AF)		Influent to Facility TCE/PCE	Effluent from Facility TCE/PCE
Mon/Yr	4	6	(ug/L)	(ug/L)
Apr-10	66.80	95.02	6.6 / 5.4	2.7/0.56
May-10	179.36	159.53	9.3 / 8.3	1.4/ND
Jun-10	209.16	191.12	9.8 / 9.4	0.63/ND
Jul-10	178.26	163.71	9.8 / 8.9	1.1/ND
Aug-10	0.00	0.00	--	--
Sep-10	112.05	44.12	5.7 / 5.6	0.98/ND
Oct-10	113.15	72.87	8.2 / 7.7	0.84/ND
Nov-10	168.32	175.57	9.6 / 8.7	0.88/ND
Dec-10	203.12	189.33	9.7 / 9.0	ND/ND
Jan-11	174.15	158.15	10.0 / 9.0	ND/ND
Feb-11*	145.70	140.80	10.5 / 9.2	0.53/ND
Mar-11*	0.00	0.00	--	--

* : Numbers are estimated. Actual numbers will be revised as it becomes available.

Tujunga Wells Treatment Plant (TWTP): The Tujunga Well Field liquid phase GAC was installed to provide treatment for Well No. 6 and Well No. 7. The Project began facility testing on November 10, 2009 and after the operating permits were issued by the California Department of Public Health, the project began discharging into the water distribution system on May 18, 2010.

TABLE 2-3C

GROUNDWATER PRODUCTION FROM NORTH HOLLYWOOD OU

(TUJUNGA WELLS)

	TJ006			**TJ007**		
		Influent	Effluent		Influent	Effluent
		TCE/PCE	TCE/PCE		TCE/PCE	TCE/PCE
Mon/Yr	(AF)	(ug/L)	(ug/L)	(AF)	(ug/L)	(ug/L)
Apr-10	511.75	19.0/17.0	ND/ND	494.52	25.0/24.0	ND/ND
May-10	527.03	21.0/17.0	ND/ND	521.96	28.0/25.0	ND/ND
Jun-10	514.14	18.0/15.0	ND/ND	458.19	26.0/23.0	ND/ND
Jul-10	527.71	16.0/15.0	ND/ND	504.56	22.9/19.3	ND/ND
Aug-10	524.01	18.0/15.0	ND/ND	500.18	24.0/19.0	ND/ND
Sep-10	501.41	18.0/14.6	ND/ND	466.41	23.8/18.7	ND/ND
Oct-10	517.71	13.9/11.1	ND/ND	473.46	24.5/21.1	ND/ND
Nov-10	497.04	13.3/10.8	ND/ND	474.89	25.3/22.6	ND/ND
Dec-10	511.00	13.5/11.1	ND/ND	485.52	19.0/22.1	ND/ND
Jan-11	516.89	13.4/11.1	ND/ND	481.27	21.7/22.0	ND/ND
Feb-11*	462.79	16.8/13.5	ND/ND	429.25	22.0/20.8	ND/ND
Mar-11*	517.58	18.3/16.1	ND/ND	484.42	19.0/14.2	ND/ND

* : Numbers are estimated. Actual numbers will be revised as it becomes available.

Section 5: Plans For Facilities Modifications

This section describes any plans for modifications to existing facilities, or plans to construct new facilities in the 2010-11 and the 2011-12 Water Years, as of the printing of this report (May 2011).

a.) Spreading Grounds:

Hansen Spreading Grounds During 2009-10 Water Year the Hansen Spreading Grounds was out of service while major upgrades are made to the facility. These upgrades include deepening and combining the basins to increase storage, and retrofitting the intake facility to improve operations efficiency. Construction was complete by December 2009. However, the construction of the new intake structure is estimated to be complete in October 2011. Benefit for Average year is 1200 ac-ft and wet year is 2300 ac-ft.

Tujunga Spreading Grounds The full groundwater recharge capacity of the Tujunga Spreading Grounds was restored by December 2009 through the completion of the mitigation action plan to control the methane gas migration from the Sheldon-Arleta Landfill. Plans are underway to improve the Tujunga Spreading Grounds to increase the storage capacity, improve the intake facilities, and add a second intake downstream of the confluence of the Tujunga and Pacoima Wash channels. The project design is currently in design.

Pacoima Spreading Grounds Conceptual plans are completed to improve the Pacoima Spreading Grounds to increase the storage capacity and improve the intake facilities. This project is currently undergoing a feasibility analysis. The concept plan was approved on March 2011, this project is schedule to go to our design team in 2011-2012 if we could find cost sharing partners. The construction cost is about $28M. Benefit for Average year is 6,400 ac-ft and wet year is 19,780 ac-ft.

Lopez Spreading Grounds Feasibility study is complete, Conceptual plans are scheduled for 2011-2012 to improve the Lopez Spreading Grounds to increase the storage capacity and improve the intake facilities. Wetted area is 12 ac-ft.

Branford Spreading Basin Conceptual plans are scheduled for 2011-2012 to improve the Branford Spreading Basin to increase percolation rates.

Headworks Spreading Grounds Historically, water from the LA River was diverted into Headworks Spreading Grounds, however it ceased operating as a groundwater recharge site in the mid-1980s when the Tillman Water Reclamation Plant began discharging treated effluent into the Los Angeles River, upstream of Headworks. The site is now being prepared for a multi-phased construction project, which includes a 110-million gallon buried concrete reservoir. This reservoir will replace the operational storage capacity of Silver Lake and Ivanhoe Reservoirs.

b.) Groundwater Treatment Facilities:

North Hollywood Operable Unit (NHOU). A feasibility study is being developed by the USEPA to improve and upgrade the production capacity of the NHOU well system; to enhance the NHOU capture zone; and to improve the reliability of the NHOU. This plan includes the construction of additional new wells in the NHOU area. The USEPA, the City of Los Angeles, DTSC, and the RWQCB are also investigating the source of various contaminant plumes in the area.

c.) Recycled Water Projects:

Water Recycling Projects in the San Fernando Valley. The LADWP Recycled Water Master Plan is in the development phase and will identify potential projects citywide where recycled water can be delivered to customers for their non-potable uses. The Groundwater Replenishment project in the San Fernando Basin will provide recycled water for conjunctive use and this project is also under development by this master plan, which is anticipated to be completed by mid-2011.

In November 2009, LADWP began supplying recycled water to the Van Nuys Golf Course for irrigation uses to meet an expected demand of 185 acre-feet per year (AF/Y); actual delivery of recycled water during the first quarter of 2010 was 10 AF. Distribution facilities are being designed to deliver approximately 500 AF/Y of recycled water to the Hansen Dam Golf Course. It is expected that these facilities will be constructed and in service by October 2012.

LADWP also began delivering recycled water to Van Nuys High School for irrigation in October 2010. It is expected to offset potable demand by 30 AF/Y. Construction of pipelines to supply Valley Presbyterian Hospital with recycled water was completed in February 2010. These pipelines are intended to deliver 44 AF/Y of recycled water for industrial and irrigation uses. Deliveries are scheduled to begin as early as summer 2012.

By 2014, LADWP expects to deliver as much as 19,350 AF of recycled water annually within the City of Los Angeles, which includes an estimated 3,000 AF/Y of delivery within the San Fernando Basin. LADWP is working to expand water recycling to meet the water supply goals set fourth by City of Los Angeles Mayor Antonio Villaraigosa to as much as 50,000 AF delivered city-wide each year for non-potable reuse and conjunctive use by 2019.

APPENDIX A:
2010-2011 Water Quality Sampling Results

SAN FERNANDO AND SYLMAR BASINS WELL FIELDS
NITRATE (AS NO3), PCE, TCE, PERCHLORATE, CHROMIUM, IRON, MANGANESE
1,2-DICHLOROETHENE-CIS, CARBON TETRACHLORIDE, TOTAL COLIFORM
1,1-DCA, 1,1-DCE, 1,4-DIOXANE, BROMIDE, AND MTBE CONCENTRATION
SAMPLES TAKEN BETWEEN 4/1/2009 AND 3/31/2010

Location Code	Analyte Name	Result	Collection Date	Units
AT002	1,1-Dichloroethane (1,1-DCA)	2.13	4/7/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	2.25	5/6/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.72	6/3/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.99	7/7/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.87	8/3/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.97	9/8/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.4	10/5/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.88	11/17/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.94	12/8/2010	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.92	2/17/2011	µg/L
AT002	1,1-Dichloroethane (1,1-DCA)	1.7	3/3/2011	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	10.1	4/7/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	10.4	5/6/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	7.09	6/3/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	9.43	7/7/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	9.13	8/3/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	10.5	9/8/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	6.85	10/5/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	9.78	11/17/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	9.96	12/8/2010	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	10.6	2/17/2011	µg/L
AT002	1,1-Dichloroethene (1,1-DCE)	9.66	3/3/2011	µg/L
AT002	1,2-Dichloroethane (1,2-DCA)	0.342	2/17/2011	µg/L
AT002	1,2-Dichloroethane (1,2-DCA)	0.299	3/3/2011	µg/L
AT002	1,2-Dichloroethene-cis	6.11	4/7/2010	µg/L
AT002	1,2-Dichloroethene-cis	6.35	5/6/2010	µg/L
AT002	1,2-Dichloroethene-cis	5.15	6/3/2010	µg/L
AT002	1,2-Dichloroethene-cis	6.02	7/7/2010	µg/L
AT002	1,2-Dichloroethene-cis	5.87	8/3/2010	µg/L
AT002	1,2-Dichloroethene-cis	6.19	9/8/2010	µg/L
AT002	1,2-Dichloroethene-cis	4.8	10/5/2010	µg/L
AT002	1,2-Dichloroethene-cis	6.03	11/17/2010	µg/L
AT002	1,2-Dichloroethene-cis	5.8	12/8/2010	µg/L
AT002	1,2-Dichloroethene-cis	5.98	2/17/2011	µg/L
AT002	1,2-Dichloroethene-cis	5.41	3/3/2011	µg/L
AT002	Carbon tetrachloride	1.27	4/7/2010	µg/L
AT002	Carbon tetrachloride	1.11	5/6/2010	µg/L
AT002	Carbon tetrachloride	0.919	6/3/2010	µg/L
AT002	Carbon tetrachloride	1.07	7/7/2010	µg/L
AT002	Carbon tetrachloride	0.986	8/3/2010	µg/L
AT002	Carbon tetrachloride	1.09	9/8/2010	µg/L
AT002	Carbon tetrachloride	0.825	10/5/2010	µg/L
AT002	Carbon tetrachloride	1.01	11/17/2010	µg/L
AT002	Carbon tetrachloride	0.969	12/8/2010	µg/L
AT002	Carbon tetrachloride	1.12	2/17/2011	µg/L
AT002	Carbon tetrachloride	0.894	3/3/2011	µg/L
AT002	Chromium	176	9/8/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	211	4/7/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	200	5/6/2010	ug/L

Location Code	Analyte Name	Result	Collection Date	Units
AT002	Chromium (Cr) Total, ICP/MS	195	5/18/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	191	6/3/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	198	7/7/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	185	8/3/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	187	9/15/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	157	10/5/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	165	11/17/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	167	12/8/2010	ug/L
AT002	Chromium (Cr) Total, ICP/MS	163	1/5/2011	ug/L
AT002	Chromium (Cr) Total, ICP/MS	147	2/17/2011	ug/L
AT002	Chromium (Cr) Total, ICP/MS	128	3/3/2011	ug/L
AT002	Nitrate (as NO3) ,calculated IC value	38.6	4/7/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	37.4	5/6/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	36.6	6/3/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	35.7	7/7/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	35.2	8/3/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	34.9	9/8/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	35.1	10/5/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	33.8	11/17/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	33.7	12/8/2010	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	33.3	2/17/2011	mg/L
AT002	Nitrate (as NO3) ,calculated IC value	33.4	3/3/2011	mg/L
AT002	Perchlorate	ND	4/7/2010	µg/L
AT002	Perchlorate	ND	5/6/2010	µg/L
AT002	Perchlorate	ND	6/3/2010	µg/L
AT002	Perchlorate	ND	7/7/2010	µg/L
AT002	Perchlorate	ND	8/3/2010	µg/L
AT002	Perchlorate	ND	10/5/2010	µg/L
AT002	Perchlorate	ND	11/17/2010	µg/L
AT002	Perchlorate	ND	12/8/2010	µg/L
AT002	Perchlorate	ND	2/17/2011	µg/L
AT002	Perchlorate	ND	3/3/2011	µg/L
AT002	Tetrachloroethylene (PCE)	25.8	4/7/2010	µg/L
AT002	Tetrachloroethylene (PCE)	23.4	5/6/2010	µg/L
AT002	Tetrachloroethylene (PCE)	21.3	6/3/2010	µg/L
AT002	Tetrachloroethylene (PCE)	24.2	7/7/2010	µg/L
AT002	Tetrachloroethylene (PCE)	22.2	8/3/2010	µg/L
AT002	Tetrachloroethylene (PCE)	24.5	9/8/2010	µg/L
AT002	Tetrachloroethylene (PCE)	20.4	10/5/2010	µg/L
AT002	Tetrachloroethylene (PCE)	24.9	11/17/2010	µg/L
AT002	Tetrachloroethylene (PCE)	21.8	12/8/2010	µg/L
AT002	Tetrachloroethylene (PCE)	23.1	2/17/2011	µg/L
AT002	Tetrachloroethylene (PCE)	24.3	3/3/2011	µg/L
AT002	Trichloroethene (TCE)	365	4/7/2010	µg/L
AT002	Trichloroethene (TCE)	346	5/6/2010	µg/L
AT002	Trichloroethene (TCE)	318	6/3/2010	µg/L
AT002	Trichloroethene (TCE)	358	7/7/2010	µg/L
AT002	Trichloroethene (TCE)	323	8/3/2010	µg/L
AT002	Trichloroethene (TCE)	319	9/8/2010	µg/L
AT002	Trichloroethene (TCE)	231	10/5/2010	µg/L
AT002	Trichloroethene (TCE)	303	11/17/2010	µg/L
AT002	Trichloroethene (TCE)	260	12/8/2010	µg/L
AT002	Trichloroethene (TCE)	241	2/17/2011	µg/L
AT002	Trichloroethene (TCE)	260	3/3/2011	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
AT003	1,1-Dichloroethane (1,1-DCA)	0.766	4/7/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.787	5/6/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.742	6/3/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.763	7/7/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.789	8/3/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.671	9/15/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.593	10/5/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.759	11/17/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.723	12/8/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.607	12/15/2010	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.747	1/11/2011	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.76	2/17/2011	µg/L
AT003	1,1-Dichloroethane (1,1-DCA)	0.702	3/3/2011	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	4.18	4/7/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	3.95	5/6/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	3.92	6/3/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	4.25	7/7/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	4.09	8/3/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	3.78	9/15/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	3.1	10/5/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	4.18	11/17/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	4.09	12/8/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	3.8	12/15/2010	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	4.14	1/11/2011	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	4.19	2/17/2011	µg/L
AT003	1,1-Dichloroethene (1,1-DCE)	3.92	3/3/2011	µg/L
AT003	1,2-Dichloroethene-cis	3.28	4/7/2010	µg/L
AT003	1,2-Dichloroethene-cis	3.29	5/6/2010	µg/L
AT003	1,2-Dichloroethene-cis	3.18	6/3/2010	µg/L
AT003	1,2-Dichloroethene-cis	3.18	7/7/2010	µg/L
AT003	1,2-Dichloroethene-cis	3.23	8/3/2010	µg/L
AT003	1,2-Dichloroethene-cis	2.85	9/15/2010	µg/L
AT003	1,2-Dichloroethene-cis	2.57	10/5/2010	µg/L
AT003	1,2-Dichloroethene-cis	2.93	11/17/2010	µg/L
AT003	1,2-Dichloroethene-cis	2.93	12/8/2010	µg/L
AT003	1,2-Dichloroethene-cis	2.58	12/15/2010	µg/L
AT003	1,2-Dichloroethene-cis	3.02	1/11/2011	µg/L
AT003	1,2-Dichloroethene-cis	2.97	2/17/2011	µg/L
AT003	1,2-Dichloroethene-cis	2.67	3/3/2011	µg/L
AT003	Carbon tetrachloride	0.444	1/11/2011	µg/L
AT003	Carbon tetrachloride	0.404	2/17/2011	µg/L
AT003	Carbon tetrachloride	0.442	3/3/2011	µg/L
AT003	Chromium	14.6	12/15/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	12.6	4/7/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	12.7	5/6/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	13	6/3/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	12.9	7/7/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	12.9	8/3/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	14.9	9/15/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	14.7	10/5/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	14.9	11/17/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	14.3	12/8/2010	ug/L
AT003	Chromium (Cr) Total, ICP/MS	14.2	1/5/2011	ug/L
AT003	Chromium (Cr) Total, ICP/MS	13.2	2/17/2011	ug/L
AT003	Chromium (Cr) Total, ICP/MS	11	3/3/2011	ug/L

Location Code	Analyte Name	Result	Collection Date	Units
AT003	Nitrate (as NO3) ,calculated IC value	37.5	4/7/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	36.9	5/6/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	36.2	6/3/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	35.2	7/7/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	34.3	8/3/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	33.4	9/15/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	33.8	10/5/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	33.8	11/17/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	33.8	12/8/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	33.1	12/15/2010	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	32.6	1/11/2011	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	32.2	2/17/2011	mg/L
AT003	Nitrate (as NO3) ,calculated IC value	31.9	3/3/2011	mg/L
AT003	Perchlorate	ND	4/7/2010	µg/L
AT003	Perchlorate	ND	5/6/2010	µg/L
AT003	Perchlorate	ND	6/3/2010	µg/L
AT003	Perchlorate	ND	7/7/2010	µg/L
AT003	Perchlorate	ND	8/3/2010	µg/L
AT003	Perchlorate	ND	9/15/2010	µg/L
AT003	Perchlorate	ND	10/5/2010	µg/L
AT003	Perchlorate	ND	11/17/2010	µg/L
AT003	Perchlorate	ND	12/8/2010	µg/L
AT003	Perchlorate	ND	1/11/2011	µg/L
AT003	Perchlorate	ND	2/17/2011	µg/L
AT003	Perchlorate	ND	3/3/2011	µg/L
AT003	Tetrachloroethylene (PCE)	9.39	4/7/2010	µg/L
AT003	Tetrachloroethylene (PCE)	8.12	5/6/2010	µg/L
AT003	Tetrachloroethylene (PCE)	9.36	6/3/2010	µg/L
AT003	Tetrachloroethylene (PCE)	8.44	7/7/2010	µg/L
AT003	Tetrachloroethylene (PCE)	8.03	8/3/2010	µg/L
AT003	Tetrachloroethylene (PCE)	8.23	9/15/2010	µg/L
AT003	Tetrachloroethylene (PCE)	7.29	10/5/2010	µg/L
AT003	Tetrachloroethylene (PCE)	7.88	11/17/2010	µg/L
AT003	Tetrachloroethylene (PCE)	7.6	12/8/2010	µg/L
AT003	Tetrachloroethylene (PCE)	7.46	12/15/2010	µg/L
AT003	Tetrachloroethylene (PCE)	7.76	1/11/2011	µg/L
AT003	Tetrachloroethylene (PCE)	7.99	2/17/2011	µg/L
AT003	Tetrachloroethylene (PCE)	7.32	3/3/2011	µg/L
AT003	Trichloroethene (TCE)	64.4	4/7/2010	µg/L
AT003	Trichloroethene (TCE)	54	5/6/2010	µg/L
AT003	Trichloroethene (TCE)	63	6/3/2010	µg/L
AT003	Trichloroethene (TCE)	62.3	7/7/2010	µg/L
AT003	Trichloroethene (TCE)	61.9	8/3/2010	µg/L
AT003	Trichloroethene (TCE)	62.6	9/15/2010	µg/L
AT003	Trichloroethene (TCE)	60	10/5/2010	µg/L
AT003	Trichloroethene (TCE)	53.7	11/17/2010	µg/L
AT003	Trichloroethene (TCE)	54	12/8/2010	µg/L
AT003	Trichloroethene (TCE)	54.4	12/15/2010	µg/L
AT003	Trichloroethene (TCE)	56.9	1/11/2011	µg/L
AT003	Trichloroethene (TCE)	63.8	2/17/2011	µg/L
AT003	Trichloroethene (TCE)	53.7	3/3/2011	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.651	4/7/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.683	5/6/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.561	6/3/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
AT006	1,1-Dichloroethane (1,1-DCA)	0.587	7/7/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.641	8/3/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.698	9/8/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.578	10/5/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.599	11/17/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.616	12/8/2010	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.604	1/11/2011	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.679	2/17/2011	µg/L
AT006	1,1-Dichloroethane (1,1-DCA)	0.542	3/3/2011	µg/L
AT006	1,2-Dichloroethene-cis	1.4	4/7/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.47	5/6/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.29	6/3/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.34	7/7/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.5	8/3/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.66	9/8/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.51	10/5/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.5	11/17/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.59	12/8/2010	µg/L
AT006	1,2-Dichloroethene-cis	1.59	1/11/2011	µg/L
AT006	1,2-Dichloroethene-cis	1.81	2/17/2011	µg/L
AT006	1,2-Dichloroethene-cis	1.51	3/3/2011	µg/L
AT006	Chromium	3.3	9/8/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.2	4/7/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3	5/6/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.4	6/3/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.1	7/7/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3	8/3/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.7	9/15/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.2	10/5/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.5	11/17/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.3	12/8/2010	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.3	1/5/2011	ug/L
AT006	Chromium (Cr) Total, ICP/MS	3.2	2/17/2011	ug/L
AT006	Chromium (Cr) Total, ICP/MS	1.8	3/3/2011	ug/L
AT006	Nitrate (as NO3) ,calculated IC value	21.7	4/7/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21	5/6/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	20.7	6/3/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	20.7	7/7/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	20.9	8/3/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21.1	9/8/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21.4	10/5/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21.5	11/17/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21.5	12/8/2010	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21.2	1/11/2011	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21.5	2/17/2011	mg/L
AT006	Nitrate (as NO3) ,calculated IC value	21.5	3/3/2011	mg/L
AT006	Perchlorate	ND	4/7/2010	µg/L
AT006	Perchlorate	ND	5/6/2010	µg/L
AT006	Perchlorate	ND	6/3/2010	µg/L
AT006	Perchlorate	ND	7/7/2010	µg/L
AT006	Perchlorate	ND	8/3/2010	µg/L
AT006	Perchlorate	ND	9/15/2010	µg/L
AT006	Perchlorate	ND	10/5/2010	µg/L
AT006	Perchlorate	ND	11/17/2010	µg/L
AT006	Perchlorate	ND	12/8/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
AT006	Perchlorate	ND	1/11/2011	µg/L
AT006	Perchlorate	ND	2/17/2011	µg/L
AT006	Perchlorate	ND	3/3/2011	µg/L
AT006	Tetrachloroethylene (PCE)	10.9	4/7/2010	µg/L
AT006	Tetrachloroethylene (PCE)	9.82	5/6/2010	µg/L
AT006	Tetrachloroethylene (PCE)	10.7	6/3/2010	µg/L
AT006	Tetrachloroethylene (PCE)	9.78	7/7/2010	µg/L
AT006	Tetrachloroethylene (PCE)	9.71	8/3/2010	µg/L
AT006	Tetrachloroethylene (PCE)	10.4	9/8/2010	µg/L
AT006	Tetrachloroethylene (PCE)	10.1	10/5/2010	µg/L
AT006	Tetrachloroethylene (PCE)	10.9	11/17/2010	µg/L
AT006	Tetrachloroethylene (PCE)	10.3	12/8/2010	µg/L
AT006	Tetrachloroethylene (PCE)	10.7	1/11/2011	µg/L
AT006	Tetrachloroethylene (PCE)	10.9	2/17/2011	µg/L
AT006	Tetrachloroethylene (PCE)	9.26	3/3/2011	µg/L
AT006	Trichloroethene (TCE)	11	4/7/2010	µg/L
AT006	Trichloroethene (TCE)	9.79	5/6/2010	µg/L
AT006	Trichloroethene (TCE)	10.2	6/3/2010	µg/L
AT006	Trichloroethene (TCE)	10	7/7/2010	µg/L
AT006	Trichloroethene (TCE)	10.3	8/3/2010	µg/L
AT006	Trichloroethene (TCE)	11.2	9/8/2010	µg/L
AT006	Trichloroethene (TCE)	10.3	10/5/2010	µg/L
AT006	Trichloroethene (TCE)	11.6	11/17/2010	µg/L
AT006	Trichloroethene (TCE)	11.4	12/8/2010	µg/L
AT006	Trichloroethene (TCE)	12.2	1/11/2011	µg/L
AT006	Trichloroethene (TCE)	13.9	2/17/2011	µg/L
AT006	Trichloroethene (TCE)	11.6	3/3/2011	µg/L
AT007	1,1-Dichloroethane (1,1-DCA)	0.512	5/6/2010	µg/L
AT007	1,1-Dichloroethane (1,1-DCA)	0.535	8/3/2010	µg/L
AT007	1,1-Dichloroethane (1,1-DCA)	0.516	9/8/2010	µg/L
AT007	1,1-Dichloroethane (1,1-DCA)	0.554	11/17/2010	µg/L
AT007	1,1-Dichloroethane (1,1-DCA)	0.581	12/8/2010	µg/L
AT007	1,1-Dichloroethane (1,1-DCA)	0.608	1/11/2011	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	1.37	4/7/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	1.5	5/6/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	1.11	6/3/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	1.29	7/7/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	1.28	8/3/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	1.28	9/8/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	1.08	10/5/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	0.98	11/17/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	0.852	12/8/2010	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	0.6	1/11/2011	µg/L
AT007	1,1-Dichloroethene (1,1-DCE)	2.48	2/17/2011	µg/L
AT007	1,2-Dichloroethene-cis	0.524	5/6/2010	µg/L
AT007	1,2-Dichloroethene-cis	0.543	8/3/2010	µg/L
AT007	1,2-Dichloroethene-cis	0.511	9/8/2010	µg/L
AT007	1,2-Dichloroethene-cis	0.541	11/17/2010	µg/L
AT007	1,2-Dichloroethene-cis	0.524	12/8/2010	µg/L
AT007	Carbon tetrachloride	0.626	4/7/2010	µg/L
AT007	Carbon tetrachloride	0.583	5/6/2010	µg/L
AT007	Carbon tetrachloride	0.516	6/3/2010	µg/L
AT007	Carbon tetrachloride	0.533	7/7/2010	µg/L
AT007	Carbon tetrachloride	0.564	8/3/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
AT007	Carbon tetrachloride	0.51	9/8/2010	µg/L
AT007	Carbon tetrachloride	0.506	10/5/2010	µg/L
AT007	Carbon tetrachloride	0.391	1/11/2011	µg/L
AT007	Carbon tetrachloride	4.44	2/17/2011	µg/L
AT007	Chromium	1.8	9/8/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.5	4/7/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.6	5/6/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.7	6/3/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.4	7/7/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.4	8/3/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.8	9/15/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.5	10/5/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.5	11/17/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.3	12/8/2010	ug/L
AT007	Chromium (Cr) Total, ICP/MS	1.1	1/5/2011	ug/L
AT007	Nitrate (as NO3) ,calculated IC value	32.2	4/7/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	33	5/6/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	32.4	6/3/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	33	7/7/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	32	8/3/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	32.2	9/8/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	32.5	10/5/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	29.7	11/17/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	28.5	12/8/2010	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	25.5	1/11/2011	mg/L
AT007	Nitrate (as NO3) ,calculated IC value	30.7	2/17/2011	mg/L
AT007	Perchlorate	ND	4/7/2010	µg/L
AT007	Perchlorate	ND	5/6/2010	µg/L
AT007	Perchlorate	ND	6/3/2010	µg/L
AT007	Perchlorate	ND	7/7/2010	µg/L
AT007	Perchlorate	ND	8/3/2010	µg/L
AT007	Perchlorate	ND	9/15/2010	µg/L
AT007	Perchlorate	ND	10/5/2010	µg/L
AT007	Perchlorate	ND	11/17/2010	µg/L
AT007	Perchlorate	ND	12/8/2010	µg/L
AT007	Perchlorate	ND	1/11/2011	µg/L
AT007	Perchlorate	ND	2/17/2011	µg/L
AT007	Tetrachloroethylene (PCE)	5.98	4/7/2010	µg/L
AT007	Tetrachloroethylene (PCE)	5.58	5/6/2010	µg/L
AT007	Tetrachloroethylene (PCE)	5.31	6/3/2010	µg/L
AT007	Tetrachloroethylene (PCE)	5.18	7/7/2010	µg/L
AT007	Tetrachloroethylene (PCE)	5.12	8/3/2010	µg/L
AT007	Tetrachloroethylene (PCE)	4.86	9/8/2010	µg/L
AT007	Tetrachloroethylene (PCE)	4.59	10/5/2010	µg/L
AT007	Tetrachloroethylene (PCE)	4.88	11/17/2010	µg/L
AT007	Tetrachloroethylene (PCE)	4.24	12/8/2010	µg/L
AT007	Tetrachloroethylene (PCE)	3.6	1/11/2011	µg/L
AT007	Tetrachloroethylene (PCE)	7.62	2/17/2011	µg/L
AT007	Trichloroethene (TCE)	56	4/7/2010	µg/L
AT007	Trichloroethene (TCE)	49.3	5/6/2010	µg/L
AT007	Trichloroethene (TCE)	45.6	6/3/2010	µg/L
AT007	Trichloroethene (TCE)	48.5	7/7/2010	µg/L
AT007	Trichloroethene (TCE)	44.6	8/3/2010	µg/L
AT007	Trichloroethene (TCE)	41.2	9/8/2010	µg/L
AT007	Trichloroethene (TCE)	34.6	10/5/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
AT007	Trichloroethene (TCE)	24.6	11/17/2010	µg/L
AT007	Trichloroethene (TCE)	24.9	12/8/2010	µg/L
AT007	Trichloroethene (TCE)	15.7	1/11/2011	µg/L
AT007	Trichloroethene (TCE)	38	2/17/2011	µg/L
AT008	1,1-Dichloroethane (1,1-DCA)	0.662	4/7/2010	µg/L
AT008	1,1-Dichloroethane (1,1-DCA)	0.701	5/6/2010	µg/L
AT008	1,1-Dichloroethane (1,1-DCA)	0.53	6/3/2010	µg/L
AT008	1,1-Dichloroethane (1,1-DCA)	0.505	8/3/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	3.22	4/7/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	3.4	5/6/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	2.83	6/3/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	3	7/7/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	3.26	8/3/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	3.05	9/8/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	2.12	10/5/2010	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	2.36	1/11/2011	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	2.46	2/17/2011	µg/L
AT008	1,1-Dichloroethene (1,1-DCE)	2.42	3/3/2011	µg/L
AT008	Carbon tetrachloride	4.89	4/7/2010	µg/L
AT008	Carbon tetrachloride	4.53	5/6/2010	µg/L
AT008	Carbon tetrachloride	4.79	6/3/2010	µg/L
AT008	Carbon tetrachloride	4.95	7/7/2010	µg/L
AT008	Carbon tetrachloride	5.3	8/3/2010	µg/L
AT008	Carbon tetrachloride	4.81	9/8/2010	µg/L
AT008	Carbon tetrachloride	4.09	10/5/2010	µg/L
AT008	Carbon tetrachloride	4.68	1/11/2011	µg/L
AT008	Carbon tetrachloride	3.83	2/17/2011	µg/L
AT008	Carbon tetrachloride	3.73	3/3/2011	µg/L
AT008	Chromium	1.2	9/8/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1.1	4/7/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1	5/6/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1.5	6/3/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1.4	7/7/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1	8/3/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1.4	9/15/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1	10/5/2010	ug/L
AT008	Chromium (Cr) Total, ICP/MS	1	2/17/2011	ug/L
AT008	Nitrate (as NO3) ,calculated IC value	32.5	4/7/2010	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	33.1	5/6/2010	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	32.8	6/3/2010	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	32.6	8/3/2010	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	32.3	9/8/2010	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	32.7	10/5/2010	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	32.4	1/11/2011	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	30.9	2/17/2011	mg/L
AT008	Nitrate (as NO3) ,calculated IC value	30.8	3/3/2011	mg/L
AT008	Perchlorate	ND	4/7/2010	µg/L
AT008	Perchlorate	ND	5/6/2010	µg/L
AT008	Perchlorate	ND	6/3/2010	µg/L
AT008	Perchlorate	ND	7/7/2010	µg/L
AT008	Perchlorate	ND	7/7/2010	µg/L
AT008	Perchlorate	ND	8/3/2010	µg/L
AT008	Perchlorate	ND	9/15/2010	µg/L
AT008	Perchlorate	ND	10/5/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
AT008	Perchlorate	ND	1/11/2011	µg/L
AT008	Perchlorate	ND	2/17/2011	µg/L
AT008	Perchlorate	ND	3/3/2011	µg/L
AT008	Tetrachloroethylene (PCE)	11.1	4/7/2010	µg/L
AT008	Tetrachloroethylene (PCE)	10.1	5/6/2010	µg/L
AT008	Tetrachloroethylene (PCE)	10.7	6/3/2010	µg/L
AT008	Tetrachloroethylene (PCE)	8.96	7/7/2010	µg/L
AT008	Tetrachloroethylene (PCE)	9.11	8/3/2010	µg/L
AT008	Tetrachloroethylene (PCE)	8.41	9/8/2010	µg/L
AT008	Tetrachloroethylene (PCE)	7.39	10/5/2010	µg/L
AT008	Tetrachloroethylene (PCE)	8.01	1/11/2011	µg/L
AT008	Tetrachloroethylene (PCE)	7.8	2/17/2011	µg/L
AT008	Tetrachloroethylene (PCE)	7.41	3/3/2011	µg/L
AT008	Trichloroethene (TCE)	43.3	4/7/2010	µg/L
AT008	Trichloroethene (TCE)	39.9	5/6/2010	µg/L
AT008	Trichloroethene (TCE)	42.9	6/3/2010	µg/L
AT008	Trichloroethene (TCE)	41.1	7/7/2010	µg/L
AT008	Trichloroethene (TCE)	44	8/3/2010	µg/L
AT008	Trichloroethene (TCE)	41.7	9/8/2010	µg/L
AT008	Trichloroethene (TCE)	34.2	10/5/2010	µg/L
AT008	Trichloroethene (TCE)	35.3	1/11/2011	µg/L
AT008	Trichloroethene (TCE)	39.7	2/17/2011	µg/L
AT008	Trichloroethene (TCE)	37.7	3/3/2011	µg/L
ER006	Nitrate (as NO3) ,calculated IC value	18.6	4/28/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	18.5	5/27/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	23.2	6/29/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	29.3	7/27/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	31.2	8/26/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	31.9	9/30/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	25.8	10/28/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	25.5	11/23/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	24.7	12/28/2010	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	24.9	1/27/2011	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	25.9	2/15/2011	mg/L
ER006	Nitrate (as NO3) ,calculated IC value	29.1	3/22/2011	mg/L
ER006	Perchlorate	ND	3/22/2011	µg/L
ER006	Tetrachloroethylene (PCE)	0.598	10/28/2010	µg/L
ER006	Tetrachloroethylene (PCE)	0.623	2/15/2011	µg/L
ER006	Tetrachloroethylene (PCE)	1.15	3/22/2011	µg/L
ER006	Trichloroethene (TCE)	2.4	4/28/2010	µg/L
ER006	Trichloroethene (TCE)	1.96	5/27/2010	µg/L
ER006	Trichloroethene (TCE)	2.39	6/29/2010	µg/L
ER006	Trichloroethene (TCE)	2.61	7/27/2010	µg/L
ER006	Trichloroethene (TCE)	3	8/26/2010	µg/L
ER006	Trichloroethene (TCE)	3.16	9/30/2010	µg/L
ER006	Trichloroethene (TCE)	5.77	10/28/2010	µg/L
ER006	Trichloroethene (TCE)	4.35	11/23/2010	µg/L
ER006	Trichloroethene (TCE)	3.09	12/28/2010	µg/L
ER006	Trichloroethene (TCE)	2.65	1/27/2011	µg/L
ER006	Trichloroethene (TCE)	6.9	2/15/2011	µg/L
ER006	Trichloroethene (TCE)	11	3/22/2011	µg/L
ER010	Chromium	2.4	2/15/2011	ug/L
ER010	Iron (Fe), ICP-OES	102	2/15/2011	ug/L

Location Code	Analyte Name	Result	Collection Date	Units
ER010	Nitrate (as NO3) ,calculated IC value	3.83	6/17/2010	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	10.4	7/27/2010	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	10.9	8/24/2010	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	11.3	9/30/2010	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	3.48	10/28/2010	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	3.11	11/23/2010	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	3.08	12/28/2010	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	3.17	1/27/2011	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	3.26	2/15/2011	mg/L
ER010	Nitrate (as NO3) ,calculated IC value	8.42	3/22/2011	mg/L
ER010	Perchlorate	ND	6/17/2010	µg/L
MI006	Nitrate (as NO3) ,calculated IC value	12.5	4/6/2010	mg/L
MI006	Nitrate (as NO3) ,calculated IC value	12.6	5/5/2010	mg/L
MI006	Nitrate (as NO3) ,calculated IC value	13.3	6/2/2010	mg/L
MI006	Trichloroethene (TCE)	0.632	4/6/2010	µg/L
MI006	Trichloroethene (TCE)	0.632	5/5/2010	µg/L
MI006	Trichloroethene (TCE)	0.679	6/2/2010	µg/L
MI007	Nitrate (as NO3) ,calculated IC value	24.3	4/6/2010	mg/L
MI007	Nitrate (as NO3) ,calculated IC value	23	5/5/2010	mg/L
MI007	Nitrate (as NO3) ,calculated IC value	25.6	6/2/2010	mg/L
MI007	Trichloroethene (TCE)	8.84	4/6/2010	µg/L
MI007	Trichloroethene (TCE)	7.54	5/5/2010	µg/L
MI007	Trichloroethene (TCE)	7.79	6/2/2010	µg/L
NH004	Nitrate (as NO3) ,calculated IC value	9.13	4/22/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	9.52	5/20/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	8.95	6/16/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	9.13	7/22/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	8.99	8/20/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	8.99	9/21/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	8.99	10/18/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	8.99	11/22/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	9.04	12/16/2010	mg/L
NH004	Nitrate (as NO3) ,calculated IC value	8.46	2/14/2011	mg/L
NH004	Perchlorate	ND	6/16/2010	µg/L
NH007	Nitrate (as NO3) ,calculated IC value	14.1	4/23/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	14.9	5/20/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	13.9	6/16/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	13.5	7/26/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	13.6	8/20/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	14.4	9/21/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	14.2	10/18/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	13.7	11/22/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	13.6	12/16/2010	mg/L
NH007	Nitrate (as NO3) ,calculated IC value	11.8	2/24/2011	mg/L
NH007	Perchlorate	ND	9/21/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.504	4/23/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.517	5/20/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.547	6/16/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.504	7/26/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.55	8/20/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.583	9/21/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
NH007	Tetrachloroethylene (PCE)	0.636	10/18/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.727	11/22/2010	µg/L
NH007	Tetrachloroethylene (PCE)	0.672	12/16/2010	µg/L
NH007	Tetrachloroethylene (PCE)	1.48	2/24/2011	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	0.593	4/22/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	0.643	5/20/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	1.75	6/23/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	2.95	7/22/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	3.77	8/19/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	2.49	9/21/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	2.04	10/18/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	1.94	11/22/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	1.53	12/16/2010	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	0.916	1/17/2011	µg/L
NH022	1,1-Dichloroethene (1,1-DCE)	1.8	2/10/2011	µg/L
NH022	Iron (Fe), ICP-OES	25.9	12/29/2010	ug/L
NH022	Nitrate (as NO3) ,calculated IC value	22	4/22/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	24.3	5/20/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	25.3	6/23/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	25.7	7/22/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	24.4	8/19/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	24.3	9/21/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	23.3	10/18/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	22.9	11/22/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	22.4	12/16/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	16.2	12/29/2010	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	15.9	1/17/2011	mg/L
NH022	Nitrate (as NO3) ,calculated IC value	18.3	2/10/2011	mg/L
NH022	Perchlorate	ND	7/22/2010	µg/L
NH022	Tetrachloroethylene (PCE)	0.839	6/23/2010	µg/L
NH022	Tetrachloroethylene (PCE)	1.09	7/22/2010	µg/L
NH022	Tetrachloroethylene (PCE)	0.979	8/19/2010	µg/L
NH022	Tetrachloroethylene (PCE)	0.881	9/21/2010	µg/L
NH022	Tetrachloroethylene (PCE)	0.768	10/18/2010	µg/L
NH022	Tetrachloroethylene (PCE)	1.15	11/22/2010	µg/L
NH022	Tetrachloroethylene (PCE)	0.971	12/16/2010	µg/L
NH022	Trichloroethene (TCE)	0.804	4/22/2010	µg/L
NH022	Trichloroethene (TCE)	1.16	5/20/2010	µg/L
NH022	Trichloroethene (TCE)	4.01	6/23/2010	µg/L
NH022	Trichloroethene (TCE)	5.94	7/22/2010	µg/L
NH022	Trichloroethene (TCE)	6.04	8/19/2010	µg/L
NH022	Trichloroethene (TCE)	4.85	9/21/2010	µg/L
NH022	Trichloroethene (TCE)	3.92	10/18/2010	µg/L
NH022	Trichloroethene (TCE)	5.11	11/22/2010	µg/L
NH022	Trichloroethene (TCE)	5.09	12/16/2010	µg/L
NH022	Trichloroethene (TCE)	1.46	1/17/2011	µg/L
NH022	Trichloroethene (TCE)	2.82	2/10/2011	µg/L
NH023	1,2-Dichloroethene-cis	0.524	11/22/2010	µg/L
NH023	1,2-Dichloroethene-cis	0.905	1/17/2011	µg/L
NH023	1,2-Dichloroethene-cis	0.807	2/10/2011	µg/L
NH023	Iron (Fe), ICP-OES	65.4	4/22/2010	ug/L
NH023	Iron (Fe), ICP-OES	36.1	5/20/2010	ug/L
NH023	Iron (Fe), ICP-OES	49.9	6/23/2010	ug/L

Location Code	Analyte Name	Result	Collection Date	Units
NH023	Iron (Fe), ICP-OES	55.6	7/22/2010	ug/L
NH023	Iron (Fe), ICP-OES	42.2	8/19/2010	ug/L
NH023	Iron (Fe), ICP-OES	46.1	9/23/2010	ug/L
NH023	Iron (Fe), ICP-OES	33.7	10/21/2010	ug/L
NH023	Iron (Fe), ICP-OES	38.2	11/22/2010	ug/L
NH023	Iron (Fe), ICP-OES	42.4	12/21/2010	ug/L
NH023	Iron (Fe), ICP-OES	30.3	1/17/2011	ug/L
NH023	Iron (Fe), ICP-OES	39.8	2/10/2011	ug/L
NH023	Nitrate (as NO3) ,calculated IC value	23.3	4/22/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	20.4	5/20/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	17.7	6/23/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	19	7/22/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	18.6	8/19/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	18.8	9/23/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	20.6	10/21/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	20	11/22/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	18.7	12/21/2010	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	22.2	1/17/2011	mg/L
NH023	Nitrate (as NO3) ,calculated IC value	21.4	2/10/2011	mg/L
NH023	Perchlorate	ND	9/23/2010	µg/L
NH023	Tetrachloroethylene (PCE)	0.642	4/22/2010	µg/L
NH023	Tetrachloroethylene (PCE)	0.507	5/20/2010	µg/L
NH023	Tetrachloroethylene (PCE)	0.533	6/23/2010	µg/L
NH023	Tetrachloroethylene (PCE)	0.859	7/22/2010	µg/L
NH023	Tetrachloroethylene (PCE)	1.02	8/19/2010	µg/L
NH023	Tetrachloroethylene (PCE)	1.28	9/23/2010	µg/L
NH023	Tetrachloroethylene (PCE)	1.96	10/21/2010	µg/L
NH023	Tetrachloroethylene (PCE)	2	11/22/2010	µg/L
NH023	Tetrachloroethylene (PCE)	1.5	12/21/2010	µg/L
NH023	Tetrachloroethylene (PCE)	3.21	1/17/2011	µg/L
NH023	Tetrachloroethylene (PCE)	2.92	2/10/2011	µg/L
NH023	Trichloroethene (TCE)	6.81	4/22/2010	µg/L
NH023	Trichloroethene (TCE)	5.87	5/20/2010	µg/L
NH023	Trichloroethene (TCE)	6.45	6/23/2010	µg/L
NH023	Trichloroethene (TCE)	13.1	7/22/2010	µg/L
NH023	Trichloroethene (TCE)	16	8/19/2010	µg/L
NH023	Trichloroethene (TCE)	19	9/23/2010	µg/L
NH023	Trichloroethene (TCE)	29.8	10/21/2010	µg/L
NH023	Trichloroethene (TCE)	23.8	11/22/2010	µg/L
NH023	Trichloroethene (TCE)	22.6	12/21/2010	µg/L
NH023	Trichloroethene (TCE)	35.1	1/17/2011	µg/L
NH023	Trichloroethene (TCE)	32.3	2/10/2011	µg/L
NH025	1,1-Dichloroethene (1,1-DCE)	0.624	11/4/2010	µg/L
NH025	1,1-Dichloroethene (1,1-DCE)	0.645	12/16/2010	µg/L
NH025	Chromium	1.7	9/8/2010	ug/L
NH025	Nitrate (as NO3) ,calculated IC value	16.9	4/22/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	18	5/20/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	18.1	6/23/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	19	7/22/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	18.9	8/19/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	19	9/8/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	19.6	10/18/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	19.6	11/4/2010	mg/L
NH025	Nitrate (as NO3) ,calculated IC value	19.3	12/16/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
NH025	Nitrate (as NO3) ,calculated IC value	7.35	2/14/2011	mg/L
NH025	Perchlorate	ND	9/8/2010	µg/L
NH025	Trichloroethene (TCE)	0.51	11/4/2010	µg/L
NH025	Trichloroethene (TCE)	0.638	12/16/2010	µg/L
NH026	Nitrate (as NO3) ,calculated IC value	16.7	4/29/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	21.5	5/20/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	24.6	6/23/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	24.5	7/22/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	23	8/19/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	22.7	9/21/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	16.1	10/21/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	17.7	11/22/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	17.5	12/21/2010	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	13	1/17/2011	mg/L
NH026	Nitrate (as NO3) ,calculated IC value	11.3	2/10/2011	mg/L
NH026	Perchlorate	ND	6/23/2010	µg/L
NH026	Tetrachloroethylene (PCE)	1.24	6/23/2010	µg/L
NH026	Tetrachloroethylene (PCE)	2.11	7/22/2010	µg/L
NH026	Tetrachloroethylene (PCE)	2.07	8/19/2010	µg/L
NH026	Tetrachloroethylene (PCE)	2.47	9/21/2010	µg/L
NH026	Tetrachloroethylene (PCE)	3.8	10/21/2010	µg/L
NH026	Tetrachloroethylene (PCE)	5.38	11/22/2010	µg/L
NH026	Tetrachloroethylene (PCE)	4.75	12/21/2010	µg/L
NH026	Tetrachloroethylene (PCE)	3.53	1/17/2011	µg/L
NH026	Tetrachloroethylene (PCE)	2.02	2/10/2011	µg/L
NH026	Trichloroethene (TCE)	6.44	6/23/2010	µg/L
NH026	Trichloroethene (TCE)	12	7/22/2010	µg/L
NH026	Trichloroethene (TCE)	11.8	8/19/2010	µg/L
NH026	Trichloroethene (TCE)	12.2	9/21/2010	µg/L
NH026	Trichloroethene (TCE)	12.7	10/21/2010	µg/L
NH026	Trichloroethene (TCE)	11.4	11/22/2010	µg/L
NH026	Trichloroethene (TCE)	13.9	12/21/2010	µg/L
NH026	Trichloroethene (TCE)	9.61	1/17/2011	µg/L
NH026	Trichloroethene (TCE)	5.08	2/10/2011	µg/L
NH032	Manganese (Mn) ,ICP/MS	48	4/23/2010	µg/L
NH032	Manganese (Mn) ,ICP/MS	45.1	7/26/2010	µg/L
NH032	Manganese (Mn) ,ICP/MS	44.8	10/18/2010	µg/L
NH032	Manganese (Mn) ,ICP/MS	91.9	2/14/2011	µg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.78	4/23/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.96	5/20/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.83	6/16/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.87	7/26/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.92	8/20/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.87	9/21/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.92	10/18/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	5.01	10/18/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.96	11/22/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	4.92	12/16/2010	mg/L
NH032	Nitrate (as NO3) ,calculated IC value	1.68	2/14/2011	mg/L
NH032	Perchlorate	ND	9/21/2010	µg/L
NH033	Iron (Fe), ICP-OES	172	6/16/2010	ug/L
NH033	Nitrate (as NO3) ,calculated IC value	3.41	5/18/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
NH033	Nitrate (as NO3) ,calculated IC value	3.32	6/16/2010	mg/L
NH033	Nitrate (as NO3) ,calculated IC value	3.97	7/22/2010	mg/L
NH033	Nitrate (as NO3) ,calculated IC value	3.73	8/24/2010	mg/L
NH033	Nitrate (as NO3) ,calculated IC value	3.81	9/23/2010	mg/L
NH033	Nitrate (as NO3) ,calculated IC value	3.9	10/21/2010	mg/L
NH033	Nitrate (as NO3) ,calculated IC value	3.94	11/22/2010	mg/L
NH033	Nitrate (as NO3) ,calculated IC value	3.92	12/21/2010	mg/L
NH033	Perchlorate	ND	5/18/2010	µg/L
NH033	Perchlorate	ND	9/23/2010	µg/L
NH034	1,1-Dichloroethene (1,1-DCE)	1.82	4/22/2010	µg/L
NH034	1,2-Dichloroethene-cis	0.505	4/22/2010	µg/L
NH034	Nitrate (as NO3) ,calculated IC value	20.5	4/22/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	10.1	5/20/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	9.39	6/23/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	9.26	7/22/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	9.04	8/19/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	8.73	9/23/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	8.28	10/21/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	8.15	11/22/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	8.64	12/21/2010	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	8.33	1/17/2011	mg/L
NH034	Nitrate (as NO3) ,calculated IC value	8.37	2/10/2011	mg/L
NH034	Perchlorate	ND	10/21/2010	µg/L
NH034	Perchlorate	ND	11/22/2010	µg/L
NH034	Tetrachloroethylene (PCE)	2.29	4/22/2010	µg/L
NH034	Trichloroethene (TCE)	5.08	4/22/2010	µg/L
NH036	Chromium	3.8	10/20/2010	ug/L
NH036	Iron (Fe), ICP-OES	55.1	10/20/2010	ug/L
NH036	Nitrate (as NO3) ,calculated IC value	10.1	4/22/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	8.11	5/20/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	8.2	6/23/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	8.33	7/22/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	8.2	8/19/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	8.15	9/23/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	8.02	10/20/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	7.84	11/22/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	7.84	12/21/2010	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	7.75	1/17/2011	mg/L
NH036	Nitrate (as NO3) ,calculated IC value	7.84	2/10/2011	mg/L
NH036	Perchlorate	ND	9/23/2010	µg/L
NH036	Trichloroethene (TCE)	0.549	4/22/2010	µg/L
NH037	Chromium	3.9	12/15/2010	ug/L
NH037	Iron (Fe), ICP-OES	21.6	12/15/2010	ug/L
NH037	Nitrate (as NO3) ,calculated IC value	10.5	4/22/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	10	5/20/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	9.7	6/23/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	9.88	7/22/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	9.52	8/19/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	9.3	9/23/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	9.3	10/21/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	9.04	11/22/2010	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	9.35	12/15/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
NH037	Nitrate (as NO3) ,calculated IC value	9.13	1/17/2011	mg/L
NH037	Nitrate (as NO3) ,calculated IC value	8.95	2/10/2011	mg/L
NH037	Perchlorate	ND	11/22/2010	µg/L
NH043A	Iron (Fe), ICP-OES	29.7	12/29/2010	ug/L
NH043A	Nitrate (as NO3) ,calculated IC value	9.48	4/29/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	9.52	5/20/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	8.42	6/23/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	7.44	7/22/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	6.91	8/19/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	6.73	9/23/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	6.78	10/21/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	6.73	11/22/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	6.87	12/21/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	6.87	12/29/2010	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	6.96	1/17/2011	mg/L
NH043A	Nitrate (as NO3) ,calculated IC value	7.04	2/10/2011	mg/L
NH043A	Perchlorate	ND	5/20/2010	µg/L
NH043A	Perchlorate	ND	9/23/2010	µg/L
NH045	Chromium	3.6	9/8/2010	ug/L
NH045	Nitrate (as NO3) ,calculated IC value	6.6	4/29/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	6.96	5/20/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	7.89	6/23/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	8.42	7/22/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	8.64	8/19/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	8.55	9/8/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	8.55	10/21/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	8.02	11/22/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	8.37	12/21/2010	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	7.89	1/17/2011	mg/L
NH045	Nitrate (as NO3) ,calculated IC value	7.84	2/10/2011	mg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.77	4/21/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	2.39	5/6/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.82	6/24/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	2.02	7/13/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.43	9/16/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.8	10/27/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.79	11/17/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.72	12/14/2010	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.48	1/13/2011	µg/L
PL004	1,1-Dichloroethene (1,1-DCE)	1.5	2/3/2011	µg/L
PL004	Chromium (Cr) Total, ICP/MS	2	4/21/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	1.9	5/6/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	2.2	6/3/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	1.8	7/7/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	2.3	9/15/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	2.2	10/20/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	2	11/17/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	1.9	12/8/2010	ug/L
PL004	Chromium (Cr) Total, ICP/MS	1.8	1/5/2011	ug/L
PL004	Chromium (Cr) Total, ICP/MS	1.7	2/17/2011	ug/L
PL004	Nitrate (as NO3) ,calculated IC value	30.6	4/21/2010	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	29.1	5/6/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
PL004	Nitrate (as NO3) ,calculated IC value	27.5	6/24/2010	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	27.1	7/13/2010	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	29.4	9/16/2010	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	28.8	10/27/2010	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	28	11/17/2010	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	27	12/14/2010	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	26.1	1/13/2011	mg/L
PL004	Nitrate (as NO3) ,calculated IC value	25.3	2/3/2011	mg/L
PL004	Perchlorate	ND	9/16/2010	µg/L
PL004	Tetrachloroethylene (PCE)	2.8	4/21/2010	µg/L
PL004	Tetrachloroethylene (PCE)	3.29	5/6/2010	µg/L
PL004	Tetrachloroethylene (PCE)	3.1	6/24/2010	µg/L
PL004	Tetrachloroethylene (PCE)	2.9	7/13/2010	µg/L
PL004	Tetrachloroethylene (PCE)	3.05	9/16/2010	µg/L
PL004	Tetrachloroethylene (PCE)	3.24	10/27/2010	µg/L
PL004	Tetrachloroethylene (PCE)	3.1	11/17/2010	µg/L
PL004	Tetrachloroethylene (PCE)	2.97	12/14/2010	µg/L
PL004	Tetrachloroethylene (PCE)	2.63	1/13/2011	µg/L
PL004	Tetrachloroethylene (PCE)	2.7	2/3/2011	µg/L
PL004	Trichloroethene (TCE)	4.02	4/21/2010	µg/L
PL004	Trichloroethene (TCE)	4.54	5/6/2010	µg/L
PL004	Trichloroethene (TCE)	4.14	6/24/2010	µg/L
PL004	Trichloroethene (TCE)	4.17	7/13/2010	µg/L
PL004	Trichloroethene (TCE)	4.08	9/16/2010	µg/L
PL004	Trichloroethene (TCE)	4.26	10/27/2010	µg/L
PL004	Trichloroethene (TCE)	4.27	11/17/2010	µg/L
PL004	Trichloroethene (TCE)	4.06	12/14/2010	µg/L
PL004	Trichloroethene (TCE)	3.91	1/13/2011	µg/L
PL004	Trichloroethene (TCE)	3.98	2/3/2011	µg/L
PL006	1,1-Dichloroethane (1,1-DCA)	0.564	5/6/2010	µg/L
PL006	1,1-Dichloroethane (1,1-DCA)	0.554	6/24/2010	µg/L
PL006	1,1-Dichloroethane (1,1-DCA)	0.61	7/13/2010	µg/L
PL006	1,1-Dichloroethane (1,1-DCA)	0.509	11/17/2010	µg/L
PL006	1,1-Dichloroethane (1,1-DCA)	0.557	12/14/2010	µg/L
PL006	1,1-Dichloroethane (1,1-DCA)	0.608	1/13/2011	µg/L
PL006	1,1-Dichloroethane (1,1-DCA)	0.671	2/3/2011	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	7.57	4/21/2010	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	12.2	5/6/2010	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	12.4	6/24/2010	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	13.2	7/13/2010	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	8.52	10/27/2010	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	11.2	11/17/2010	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	12.3	12/14/2010	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	13.1	1/13/2011	µg/L
PL006	1,1-Dichloroethene (1,1-DCE)	14.2	2/3/2011	µg/L
PL006	1,2-Dichloroethene-cis	0.594	5/6/2010	µg/L
PL006	1,2-Dichloroethene-cis	0.558	6/24/2010	µg/L
PL006	1,2-Dichloroethene-cis	0.631	7/13/2010	µg/L
PL006	1,2-Dichloroethene-cis	0.606	10/27/2010	µg/L
PL006	1,2-Dichloroethene-cis	0.62	11/17/2010	µg/L
PL006	1,2-Dichloroethene-cis	0.593	12/14/2010	µg/L
PL006	1,2-Dichloroethene-cis	0.64	1/13/2011	µg/L
PL006	1,2-Dichloroethene-cis	0.656	2/3/2011	µg/L
PL006	Carbon tetrachloride	0.335	1/13/2011	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
PL006	Carbon tetrachloride	0.358	2/3/2011	µg/L
PL006	Chromium	2.3	11/17/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.2	4/21/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.2	5/6/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.4	6/3/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.2	7/7/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.6	9/16/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.5	10/20/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.3	12/8/2010	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.2	1/5/2011	ug/L
PL006	Chromium (Cr) Total, ICP/MS	2.1	2/17/2011	ug/L
PL006	Nitrate (as NO3) ,calculated IC value	37.2	4/21/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	36.8	5/6/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	36.5	6/24/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	36.4	7/13/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	39.3	9/16/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	35.9	10/27/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	36.1	11/17/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	36.2	12/14/2010	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	36.4	1/13/2011	mg/L
PL006	Nitrate (as NO3) ,calculated IC value	36.2	2/3/2011	mg/L
PL006	Perchlorate	ND	4/21/2010	µg/L
PL006	Perchlorate	ND	7/13/2010	µg/L
PL006	Perchlorate	ND	9/16/2010	µg/L
PL006	Perchlorate	ND	10/27/2010	µg/L
PL006	Perchlorate	2.77	1/13/2011	µg/L
PL006	Tetrachloroethylene (PCE)	8.05	4/21/2010	µg/L
PL006	Tetrachloroethylene (PCE)	13.2	5/6/2010	µg/L
PL006	Tetrachloroethylene (PCE)	15.6	6/24/2010	µg/L
PL006	Tetrachloroethylene (PCE)	14.8	7/13/2010	µg/L
PL006	Tetrachloroethylene (PCE)	8.05	9/16/2010	µg/L
PL006	Tetrachloroethylene (PCE)	12.2	10/27/2010	µg/L
PL006	Tetrachloroethylene (PCE)	14.3	11/17/2010	µg/L
PL006	Tetrachloroethylene (PCE)	15.1	12/14/2010	µg/L
PL006	Tetrachloroethylene (PCE)	15.4	1/13/2011	µg/L
PL006	Tetrachloroethylene (PCE)	15.7	2/3/2011	µg/L
PL006	Trichloroethene (TCE)	9.25	4/21/2010	µg/L
PL006	Trichloroethene (TCE)	14.1	5/6/2010	µg/L
PL006	Trichloroethene (TCE)	15.4	6/24/2010	µg/L
PL006	Trichloroethene (TCE)	15.4	7/13/2010	µg/L
PL006	Trichloroethene (TCE)	7.37	9/16/2010	µg/L
PL006	Trichloroethene (TCE)	12.2	10/27/2010	µg/L
PL006	Trichloroethene (TCE)	14.9	11/17/2010	µg/L
PL006	Trichloroethene (TCE)	15.4	12/14/2010	µg/L
PL006	Trichloroethene (TCE)	16.1	1/13/2011	µg/L
PL006	Trichloroethene (TCE)	17.1	2/3/2011	µg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.83	4/8/2010	mg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.75	5/12/2010	mg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.79	6/17/2010	mg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.75	7/14/2010	mg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.75	8/12/2010	mg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.48	9/2/2010	mg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.35	10/19/2010	mg/L
RT001	Nitrate (as NO3) ,calculated IC value	9.26	11/10/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
RT001	Perchlorate	ND	6/17/2010	µg/L
RT001	Perchlorate	ND	7/14/2010	µg/L
RT001	Trichloroethene (TCE)	0.586	7/14/2010	µg/L
RT001	Trichloroethene (TCE)	0.65	8/12/2010	µg/L
RT001	Trichloroethene (TCE)	0.517	9/2/2010	µg/L
RT002	Chromium	1.2	4/14/2010	ug/L
RT002	Nitrate (as NO3) ,calculated IC value	18.8	4/14/2010	mg/L
RT002	Nitrate (as NO3) ,calculated IC value	19.4	5/12/2010	mg/L
RT002	Nitrate (as NO3) ,calculated IC value	12.9	6/18/2010	mg/L
RT002	Nitrate (as NO3) ,calculated IC value	12.3	7/15/2010	mg/L
RT002	Nitrate (as NO3) ,calculated IC value	12.7	8/12/2010	mg/L
RT002	Nitrate (as NO3) ,calculated IC value	12.5	9/2/2010	mg/L
RT002	Nitrate (as NO3) ,calculated IC value	16.6	10/19/2010	mg/L
RT002	Nitrate (as NO3) ,calculated IC value	19.2	11/10/2010	mg/L
RT002	Perchlorate	ND	10/19/2010	µg/L
RT002	Tetrachloroethylene (PCE)	0.851	4/14/2010	µg/L
RT002	Tetrachloroethylene (PCE)	0.957	5/12/2010	µg/L
RT002	Tetrachloroethylene (PCE)	1.12	11/10/2010	µg/L
RT002	Trichloroethene (TCE)	13.2	4/14/2010	µg/L
RT002	Trichloroethene (TCE)	10.5	5/12/2010	µg/L
RT002	Trichloroethene (TCE)	6.95	10/19/2010	µg/L
RT002	Trichloroethene (TCE)	8.88	11/10/2010	µg/L
RT004	Nitrate (as NO3) ,calculated IC value	15.5	4/13/2010	mg/L
RT004	Nitrate (as NO3) ,calculated IC value	15.4	5/13/2010	mg/L
RT004	Perchlorate	4.99	4/13/2010	µg/L
RT004	Trichloroethene (TCE)	1.28	4/13/2010	µg/L
RT004	Trichloroethene (TCE)	0.857	5/13/2010	µg/L
RT005	Nitrate (as NO3) ,calculated IC value	22.9	4/13/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	22.8	5/13/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	21	6/22/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	20.6	7/20/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	20.3	8/11/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	19.9	9/14/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	19.6	10/27/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	19.2	11/16/2010	mg/L
RT005	Nitrate (as NO3) ,calculated IC value	15.8	12/16/2010	mg/L
RT005	Tetrachloroethylene (PCE)	1.37	4/13/2010	µg/L
RT005	Tetrachloroethylene (PCE)	1.1	5/13/2010	µg/L
RT005	Tetrachloroethylene (PCE)	0.67	6/22/2010	µg/L
RT005	Tetrachloroethylene (PCE)	0.656	7/20/2010	µg/L
RT005	Tetrachloroethylene (PCE)	0.699	8/11/2010	µg/L
RT005	Tetrachloroethylene (PCE)	0.779	9/14/2010	µg/L
RT005	Tetrachloroethylene (PCE)	0.638	10/27/2010	µg/L
RT005	Tetrachloroethylene (PCE)	0.624	11/16/2010	µg/L
RT005	Trichloroethene (TCE)	1.79	4/13/2010	µg/L
RT005	Trichloroethene (TCE)	1.38	5/13/2010	µg/L
RT005	Trichloroethene (TCE)	0.852	6/22/2010	µg/L
RT005	Trichloroethene (TCE)	0.781	7/20/2010	µg/L
RT005	Trichloroethene (TCE)	0.867	8/11/2010	µg/L
RT005	Trichloroethene (TCE)	0.908	9/14/2010	µg/L
RT005	Trichloroethene (TCE)	0.701	10/27/2010	µg/L
RT005	Trichloroethene (TCE)	0.588	11/16/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
RT006	Nitrate (as NO3) ,calculated IC value	14.4	4/13/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	14.7	5/13/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	15.1	6/22/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	15	7/20/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	14.7	8/11/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	14.7	9/14/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	14.9	10/27/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	14.6	11/16/2010	mg/L
RT006	Nitrate (as NO3) ,calculated IC value	14.9	12/16/2010	mg/L
RT006	Perchlorate	ND	4/13/2010	µg/L
RT006	Perchlorate	ND	5/13/2010	µg/L
RT006	Perchlorate	ND	6/22/2010	µg/L
RT006	Perchlorate	ND	7/20/2010	µg/L
RT006	Perchlorate	ND	8/11/2010	µg/L
RT006	Perchlorate	ND	10/27/2010	µg/L
RT006	Perchlorate	ND	11/16/2010	µg/L
RT006	Perchlorate	ND	12/16/2010	µg/L
RT007	Nitrate (as NO3) ,calculated IC value	13.1	4/13/2010	mg/L
RT007	Nitrate (as NO3) ,calculated IC value	13.2	5/13/2010	mg/L
RT007	Nitrate (as NO3) ,calculated IC value	15.6	6/22/2010	mg/L
RT007	Nitrate (as NO3) ,calculated IC value	14	7/20/2010	mg/L
RT007	Nitrate (as NO3) ,calculated IC value	13.9	8/11/2010	mg/L
RT007	Nitrate (as NO3) ,calculated IC value	13.4	9/14/2010	mg/L
RT007	Nitrate (as NO3) ,calculated IC value	15.7	10/27/2010	mg/L
RT007	Nitrate (as NO3) ,calculated IC value	14.2	11/16/2010	mg/L
RT007	Perchlorate	ND	4/13/2010	µg/L
RT007	Perchlorate	ND	5/13/2010	µg/L
RT007	Perchlorate	ND	6/22/2010	µg/L
RT007	Perchlorate	ND	7/20/2010	µg/L
RT007	Perchlorate	ND	8/11/2010	µg/L
RT007	Perchlorate	ND	10/27/2010	µg/L
RT007	Perchlorate	4.24	11/16/2010	µg/L
RT007	Trichloroethene (TCE)	0.725	4/13/2010	µg/L
RT007	Trichloroethene (TCE)	0.611	5/13/2010	µg/L
RT007	Trichloroethene (TCE)	1.01	6/22/2010	µg/L
RT007	Trichloroethene (TCE)	0.849	7/20/2010	µg/L
RT007	Trichloroethene (TCE)	0.867	8/11/2010	µg/L
RT007	Trichloroethene (TCE)	0.745	9/14/2010	µg/L
RT007	Trichloroethene (TCE)	1.13	10/27/2010	µg/L
RT007	Trichloroethene (TCE)	1.27	11/16/2010	µg/L
RT008	Chromium	1.4	8/11/2010	ug/L
RT008	Nitrate (as NO3) ,calculated IC value	11.8	4/13/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	12	5/13/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	12	6/22/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	11.6	7/20/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	11.7	8/11/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	11.9	9/14/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	16.2	10/27/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	13.6	11/16/2010	mg/L
RT008	Nitrate (as NO3) ,calculated IC value	15.6	12/16/2010	mg/L
RT008	Perchlorate	ND	4/13/2010	µg/L
RT008	Perchlorate	ND	5/13/2010	µg/L
RT008	Perchlorate	ND	6/22/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
RT008	Perchlorate	ND	7/20/2010	µg/L
RT008	Perchlorate	ND	8/11/2010	µg/L
RT008	Perchlorate	ND	10/27/2010	µg/L
RT008	Perchlorate	ND	11/16/2010	µg/L
RT008	Perchlorate	ND	12/16/2010	µg/L
RT008	Trichloroethene (TCE)	0.673	4/13/2010	µg/L
RT008	Trichloroethene (TCE)	0.592	5/13/2010	µg/L
RT008	Trichloroethene (TCE)	0.531	6/22/2010	µg/L
RT008	Trichloroethene (TCE)	0.509	7/20/2010	µg/L
RT008	Trichloroethene (TCE)	0.517	8/11/2010	µg/L
RT008	Trichloroethene (TCE)	1.12	10/27/2010	µg/L
RT008	Trichloroethene (TCE)	0.713	11/16/2010	µg/L
RT008	Trichloroethene (TCE)	0.94	12/16/2010	µg/L
RT009	Nitrate (as NO3) ,calculated IC value	10.7	4/13/2010	mg/L
RT009	Nitrate (as NO3) ,calculated IC value	11	5/13/2010	mg/L
RT009	Nitrate (as NO3) ,calculated IC value	10.7	6/22/2010	mg/L
RT009	Nitrate (as NO3) ,calculated IC value	10.5	7/20/2010	mg/L
RT009	Nitrate (as NO3) ,calculated IC value	10.6	8/11/2010	mg/L
RT009	Nitrate (as NO3) ,calculated IC value	10.8	9/14/2010	mg/L
RT009	Nitrate (as NO3) ,calculated IC value	15.6	10/27/2010	mg/L
RT009	Nitrate (as NO3) ,calculated IC value	10.1	11/16/2010	mg/L
RT009	Perchlorate	ND	5/13/2010	µg/L
RT009	Trichloroethene (TCE)	0.588	4/13/2010	µg/L
RT009	Trichloroethene (TCE)	0.661	5/13/2010	µg/L
RT009	Trichloroethene (TCE)	0.763	6/22/2010	µg/L
RT009	Trichloroethene (TCE)	0.766	7/20/2010	µg/L
RT009	Trichloroethene (TCE)	0.857	8/11/2010	µg/L
RT009	Trichloroethene (TCE)	0.873	9/14/2010	µg/L
RT009	Trichloroethene (TCE)	0.595	10/27/2010	µg/L
RT010	1,2-Dichloroethene-cis	0.664	11/10/2010	µg/L
RT010	Nitrate (as NO3) ,calculated IC value	24.1	4/8/2010	mg/L
RT010	Nitrate (as NO3) ,calculated IC value	18.5	5/12/2010	mg/L
RT010	Nitrate (as NO3) ,calculated IC value	11.6	6/18/2010	mg/L
RT010	Nitrate (as NO3) ,calculated IC value	12.1	7/15/2010	mg/L
RT010	Nitrate (as NO3) ,calculated IC value	12.8	8/12/2010	mg/L
RT010	Nitrate (as NO3) ,calculated IC value	13.5	9/2/2010	mg/L
RT010	Nitrate (as NO3) ,calculated IC value	17.3	10/19/2010	mg/L
RT010	Nitrate (as NO3) ,calculated IC value	21	11/10/2010	mg/L
RT010	Perchlorate	ND	8/12/2010	µg/L
RT010	Tetrachloroethylene (PCE)	2.03	4/8/2010	µg/L
RT010	Tetrachloroethylene (PCE)	1.39	5/12/2010	µg/L
RT010	Tetrachloroethylene (PCE)	1.32	10/19/2010	µg/L
RT010	Tetrachloroethylene (PCE)	2.56	11/10/2010	µg/L
RT010	Trichloroethene (TCE)	28.2	4/8/2010	µg/L
RT010	Trichloroethene (TCE)	16.4	5/12/2010	µg/L
RT010	Trichloroethene (TCE)	3.43	6/18/2010	µg/L
RT010	Trichloroethene (TCE)	1.8	7/15/2010	µg/L
RT010	Trichloroethene (TCE)	1.66	8/12/2010	µg/L
RT010	Trichloroethene (TCE)	0.864	9/2/2010	µg/L
RT010	Trichloroethene (TCE)	14.9	10/19/2010	µg/L
RT010	Trichloroethene (TCE)	24	11/10/2010	µg/L
RT011	Nitrate (as NO3) ,calculated IC value	8.44	4/8/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
RT011	Nitrate (as NO3) ,calculated IC value	8.33	5/12/2010	mg/L
RT011	Nitrate (as NO3) ,calculated IC value	8.33	6/17/2010	mg/L
RT011	Nitrate (as NO3) ,calculated IC value	8.15	7/14/2010	mg/L
RT011	Nitrate (as NO3) ,calculated IC value	7.89	8/12/2010	mg/L
RT011	Nitrate (as NO3) ,calculated IC value	7.66	9/2/2010	mg/L
RT011	Nitrate (as NO3) ,calculated IC value	7.27	10/19/2010	mg/L
RT011	Nitrate (as NO3) ,calculated IC value	7.44	11/10/2010	mg/L
RT011	Perchlorate	ND	8/12/2010	µg/L
RT011	Trichloroethene (TCE)	1.23	4/8/2010	µg/L
RT012	Nitrate (as NO3) ,calculated IC value	7.68	4/8/2010	mg/L
RT012	Nitrate (as NO3) ,calculated IC value	7.89	5/12/2010	mg/L
RT012	Nitrate (as NO3) ,calculated IC value	8.24	6/17/2010	mg/L
RT012	Nitrate (as NO3) ,calculated IC value	8.02	7/15/2010	mg/L
RT012	Nitrate (as NO3) ,calculated IC value	8.2	8/12/2010	mg/L
RT012	Nitrate (as NO3) ,calculated IC value	8.15	9/2/2010	mg/L
RT012	Nitrate (as NO3) ,calculated IC value	7.75	10/19/2010	mg/L
RT012	Nitrate (as NO3) ,calculated IC value	7.93	11/10/2010	mg/L
RT012	Perchlorate	ND	8/12/2010	µg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.19	4/8/2010	mg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.44	5/12/2010	mg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.93	6/17/2010	mg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.75	7/15/2010	mg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.89	8/12/2010	mg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.84	9/2/2010	mg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.53	10/19/2010	mg/L
RT013	Nitrate (as NO3) ,calculated IC value	7.75	11/10/2010	mg/L
RT013	Perchlorate	ND	8/12/2010	µg/L
RT013	Trichloroethene (TCE)	0.621	4/8/2010	µg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.08	4/8/2010	mg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.13	5/12/2010	mg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.21	6/17/2010	mg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.35	7/14/2010	mg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.35	8/12/2010	mg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.26	9/2/2010	mg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.26	10/19/2010	mg/L
RT014	Nitrate (as NO3) ,calculated IC value	9.21	11/10/2010	mg/L
RT014	Perchlorate	ND	9/2/2010	µg/L
RT014	Trichloroethene (TCE)	0.801	4/8/2010	µg/L
RT014	Trichloroethene (TCE)	0.769	5/12/2010	µg/L
RT014	Trichloroethene (TCE)	1.04	6/17/2010	µg/L
RT014	Trichloroethene (TCE)	1.1	7/14/2010	µg/L
RT014	Trichloroethene (TCE)	1.27	8/12/2010	µg/L
RT014	Trichloroethene (TCE)	1.14	9/2/2010	µg/L
RT014	Trichloroethene (TCE)	1.2	10/19/2010	µg/L
RT014	Trichloroethene (TCE)	1.44	11/10/2010	µg/L
RT015	Nitrate (as NO3) ,calculated IC value	7.04	4/8/2010	mg/L
RT015	Nitrate (as NO3) ,calculated IC value	7.18	5/12/2010	mg/L
RT015	Nitrate (as NO3) ,calculated IC value	7.53	6/17/2010	mg/L
RT015	Nitrate (as NO3) ,calculated IC value	7.49	7/14/2010	mg/L
RT015	Nitrate (as NO3) ,calculated IC value	7.44	8/12/2010	mg/L
RT015	Nitrate (as NO3) ,calculated IC value	7.35	9/2/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
RT015	Nitrate (as NO3) ,calculated IC value	7.49	10/19/2010	mg/L
RT015	Nitrate (as NO3) ,calculated IC value	7.18	11/10/2010	mg/L
RT015	Perchlorate	ND	6/17/2010	µg/L
TJ001	Nitrate (as NO3) ,calculated IC value	13.6	5/25/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	13.7	6/8/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	17.2	7/8/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	18.8	8/17/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	19.7	9/10/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	20.7	10/13/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	21.6	11/4/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	21.2	12/7/2010	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	19.4	1/6/2011	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	21.5	2/8/2011	mg/L
TJ001	Nitrate (as NO3) ,calculated IC value	22.1	3/17/2011	mg/L
TJ001	Perchlorate	ND	5/25/2010	µg/L
TJ001	Perchlorate	ND	7/8/2010	µg/L
TJ001	Perchlorate	ND	8/17/2010	µg/L
TJ001	Perchlorate	ND	10/13/2010	µg/L
TJ001	Perchlorate	ND	1/6/2011	µg/L
TJ003	Nitrate (as NO3) ,calculated IC value	16.5	5/25/2010	mg/L
TJ003	Nitrate (as NO3) ,calculated IC value	27.8	8/17/2010	mg/L
TJ003	Perchlorate	ND	8/17/2010	µg/L
TJ004	Nitrate (as NO3) ,calculated IC value	22.7	5/25/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	23.7	6/8/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	25.8	7/8/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	27.2	8/17/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	27.6	9/10/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	26.7	10/13/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	25.2	11/3/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	25.2	12/7/2010	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	25.6	2/8/2011	mg/L
TJ004	Nitrate (as NO3) ,calculated IC value	22.8	3/17/2011	mg/L
TJ004	Perchlorate	ND	8/17/2010	µg/L
TJ005	1,1-Dichloroethene (1,1-DCE)	0.512	3/9/2011	µg/L
TJ005	Chromium (Cr) Total, ICP/MS	1.2	5/25/2010	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.1	8/5/2010	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.6	9/9/2010	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.5	10/13/2010	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.6	11/3/2010	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.6	12/10/2010	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.6	1/4/2011	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.2	2/9/2011	ug/L
TJ005	Chromium (Cr) Total, ICP/MS	1.1	3/9/2011	ug/L
TJ005	Nitrate (as NO3) ,calculated IC value	25.3	5/25/2010	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	25.4	6/8/2010	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	26.4	8/5/2010	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	26.1	8/17/2010	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	24.9	9/9/2010	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	24.1	10/26/2010	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	24.3	11/3/2010	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	24.1	12/10/2010	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ005	Nitrate (as NO3) ,calculated IC value	23.5	1/4/2011	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	20.9	2/8/2011	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	20.6	2/9/2011	mg/L
TJ005	Nitrate (as NO3) ,calculated IC value	19.8	3/9/2011	mg/L
TJ005	Perchlorate	ND	5/25/2010	µg/L
TJ005	Perchlorate	ND	8/5/2010	µg/L
TJ005	Perchlorate	ND	8/17/2010	µg/L
TJ005	Perchlorate	ND	9/9/2010	µg/L
TJ005	Perchlorate	ND	10/13/2010	µg/L
TJ005	Perchlorate	ND	11/3/2010	µg/L
TJ005	Perchlorate	ND	12/10/2010	µg/L
TJ005	Perchlorate	ND	1/4/2011	µg/L
TJ005	Perchlorate	2.14	2/9/2011	µg/L
TJ005	Perchlorate	ND	3/9/2011	µg/L
TJ005	Tetrachloroethylene (PCE)	0.758	5/25/2010	µg/L
TJ005	Tetrachloroethylene (PCE)	0.552	6/8/2010	µg/L
TJ005	Tetrachloroethylene (PCE)	0.837	2/8/2011	µg/L
TJ005	Tetrachloroethylene (PCE)	1.68	3/9/2011	µg/L
TJ005	Trichloroethene (TCE)	1.2	5/25/2010	µg/L
TJ005	Trichloroethene (TCE)	0.757	6/8/2010	µg/L
TJ005	Trichloroethene (TCE)	0.503	8/17/2010	µg/L
TJ005	Trichloroethene (TCE)	0.598	9/9/2010	µg/L
TJ005	Trichloroethene (TCE)	0.553	10/13/2010	µg/L
TJ005	Trichloroethene (TCE)	0.658	11/3/2010	µg/L
TJ005	Trichloroethene (TCE)	0.553	12/10/2010	µg/L
TJ005	Trichloroethene (TCE)	0.503	1/4/2011	µg/L
TJ005	Trichloroethene (TCE)	1.33	2/8/2011	µg/L
TJ005	Trichloroethene (TCE)	2.78	3/9/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	4.8	4/13/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	4.24	5/5/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	4.19	5/11/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.1	5/21/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.15	5/26/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.95	6/8/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.36	7/8/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.54	8/5/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	4.09	9/9/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.44	10/13/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.49	11/3/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.44	12/10/2010	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.46	1/4/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.28	1/12/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.05	1/19/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.17	1/26/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	2.16	2/2/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.02	2/9/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.72	2/16/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.86	2/23/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	4.4	3/2/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	4.08	3/9/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	4.66	3/16/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.9	3/23/2011	µg/L
TJ006	1,1-Dichloroethene (1,1-DCE)	3.17	3/30/2011	µg/L
TJ006	Carbon tetrachloride	0.266	3/2/2011	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ006	Chromium (Cr) Total, ICP/MS	1.4	5/26/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.4	6/8/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.2	7/8/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.2	8/5/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.5	9/9/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.4	10/13/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.3	11/3/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.3	12/10/2010	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.2	1/4/2011	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.1	2/9/2011	ug/L
TJ006	Chromium (Cr) Total, ICP/MS	1.1	3/9/2011	ug/L
TJ006	Methyl-t-butyl ether (MTBE)	Not Reportable	5/5/2010	µg/L
TJ006	Nitrate (as NO3) ,calculated IC value	28.6	4/13/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	27.9	5/5/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	28.1	5/26/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	27	6/8/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	26.8	7/8/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	27.2	8/5/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	26.9	9/9/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	25.5	10/26/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	25.4	11/3/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	25.3	12/10/2010	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	24.9	1/4/2011	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	25.6	2/9/2011	mg/L
TJ006	Nitrate (as NO3) ,calculated IC value	28.1	3/9/2011	mg/L
TJ006	Perchlorate	ND	4/13/2010	µg/L
TJ006	Perchlorate	ND	5/26/2010	µg/L
TJ006	Perchlorate	ND	6/8/2010	µg/L
TJ006	Perchlorate	ND	7/8/2010	µg/L
TJ006	Perchlorate	ND	8/5/2010	µg/L
TJ006	Perchlorate	ND	9/9/2010	µg/L
TJ006	Perchlorate	ND	10/13/2010	µg/L
TJ006	Perchlorate	ND	11/3/2010	µg/L
TJ006	Perchlorate	ND	12/10/2010	µg/L
TJ006	Perchlorate	ND	1/4/2011	µg/L
TJ006	Perchlorate	ND	2/9/2011	µg/L
TJ006	Perchlorate	ND	3/9/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	22.6	4/13/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	17	5/5/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	16.9	5/11/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	16.5	5/21/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	17.1	5/26/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	15.2	6/8/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	15	7/8/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	14.9	8/5/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	14.6	9/9/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	11.1	10/13/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	10.8	11/3/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	11.1	12/10/2010	µg/L
TJ006	Tetrachloroethylene (PCE)	11.1	1/4/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	11.1	1/12/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	10	1/19/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	10.4	1/26/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	10.5	2/2/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	13.5	2/9/2011	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ006	Tetrachloroethylene (PCE)	16.5	2/16/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	18.1	2/23/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	20.2	3/2/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	16.1	3/9/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	15.4	3/16/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	16.9	3/23/2011	µg/L
TJ006	Tetrachloroethylene (PCE)	14.1	3/30/2011	µg/L
TJ006	Trichloroethene (TCE)	27.8	4/13/2010	µg/L
TJ006	Trichloroethene (TCE)	21	5/5/2010	µg/L
TJ006	Trichloroethene (TCE)	21.1	5/11/2010	µg/L
TJ006	Trichloroethene (TCE)	19.8	5/21/2010	µg/L
TJ006	Trichloroethene (TCE)	20.6	5/26/2010	µg/L
TJ006	Trichloroethene (TCE)	18.1	6/8/2010	µg/L
TJ006	Trichloroethene (TCE)	18.3	7/8/2010	µg/L
TJ006	Trichloroethene (TCE)	18.3	8/5/2010	µg/L
TJ006	Trichloroethene (TCE)	18	9/9/2010	µg/L
TJ006	Trichloroethene (TCE)	13.9	10/13/2010	µg/L
TJ006	Trichloroethene (TCE)	13.3	11/3/2010	µg/L
TJ006	Trichloroethene (TCE)	13.5	12/10/2010	µg/L
TJ006	Trichloroethene (TCE)	13.4	1/4/2011	µg/L
TJ006	Trichloroethene (TCE)	13.4	1/12/2011	µg/L
TJ006	Trichloroethene (TCE)	12.6	1/19/2011	µg/L
TJ006	Trichloroethene (TCE)	13.2	1/26/2011	µg/L
TJ006	Trichloroethene (TCE)	13	2/2/2011	µg/L
TJ006	Trichloroethene (TCE)	16.8	2/9/2011	µg/L
TJ006	Trichloroethene (TCE)	19.8	2/16/2011	µg/L
TJ006	Trichloroethene (TCE)	20.7	2/23/2011	µg/L
TJ006	Trichloroethene (TCE)	23	3/2/2011	µg/L
TJ006	Trichloroethene (TCE)	18.3	3/9/2011	µg/L
TJ006	Trichloroethene (TCE)	18	3/16/2011	µg/L
TJ006	Trichloroethene (TCE)	19.6	3/23/2011	µg/L
TJ006	Trichloroethene (TCE)	16.8	3/30/2011	µg/L
TJ007	1,1-Dichloroethane (1,1-DCA)	0.58	4/13/2010	µg/L
TJ007	1,1-Dichloroethane (1,1-DCA)	0.543	5/5/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	9.06	4/13/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	8.44	5/5/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	6.51	5/21/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	6.28	5/26/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	6.02	6/8/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	5.88	7/8/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	6.56	8/5/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	7.3	9/9/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	7.05	10/13/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	7.76	11/3/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	7.45	12/10/2010	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	7.01	1/4/2011	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	7.04	2/9/2011	µg/L
TJ007	1,1-Dichloroethene (1,1-DCE)	5.72	3/9/2011	µg/L
TJ007	1,2-Dichloroethene-cis	0.731	4/13/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.686	5/5/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.565	5/21/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.556	5/26/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.514	6/8/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.536	8/5/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ007	1,2-Dichloroethene-cis	0.56	9/9/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.613	10/13/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.623	11/3/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.568	12/10/2010	µg/L
TJ007	1,2-Dichloroethene-cis	0.593	1/4/2011	µg/L
TJ007	1,2-Dichloroethene-cis	0.561	2/9/2011	µg/L
TJ007	Carbon tetrachloride	0.688	4/13/2010	µg/L
TJ007	Carbon tetrachloride	0.546	5/5/2010	µg/L
TJ007	Carbon tetrachloride	0.507	5/21/2010	µg/L
TJ007	Carbon tetrachloride	0.517	1/4/2011	µg/L
TJ007	Carbon tetrachloride	0.526	2/9/2011	µg/L
TJ007	Carbon tetrachloride	0.355	3/9/2011	µg/L
TJ007	Chromium (Cr) Total, ICP/MS	1.7	5/26/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.7	6/8/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.4	7/8/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.4	8/5/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.7	9/9/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.7	10/13/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.6	11/3/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.6	12/10/2010	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.5	1/4/2011	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.4	2/9/2011	ug/L
TJ007	Chromium (Cr) Total, ICP/MS	1.4	3/9/2011	ug/L
TJ007	Nitrate (as NO3) ,calculated IC value	39.5	4/13/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	39.4	5/5/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	40.3	5/26/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	38.8	6/8/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	37.6	7/8/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	37	8/5/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	36.4	9/9/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	36	10/26/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	36.4	11/3/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	36.2	12/10/2010	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	35.9	1/4/2011	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	34.4	2/9/2011	mg/L
TJ007	Nitrate (as NO3) ,calculated IC value	33.8	3/9/2011	mg/L
TJ007	Perchlorate	ND	4/13/2010	µg/L
TJ007	Perchlorate	ND	5/26/2010	µg/L
TJ007	Perchlorate	ND	6/8/2010	µg/L
TJ007	Perchlorate	ND	7/8/2010	µg/L
TJ007	Perchlorate	ND	8/5/2010	µg/L
TJ007	Perchlorate	ND	9/9/2010	µg/L
TJ007	Perchlorate	ND	10/13/2010	µg/L
TJ007	Perchlorate	ND	11/3/2010	µg/L
TJ007	Perchlorate	ND	12/10/2010	µg/L
TJ007	Perchlorate	ND	1/4/2011	µg/L
TJ007	Perchlorate	2.02	2/9/2011	µg/L
TJ007	Perchlorate	2.13	3/9/2011	µg/L
TJ007	Tetrachloroethylene (PCE)	31.7	4/13/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	24.8	5/5/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	25.1	5/21/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	24.6	5/26/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	23.1	6/8/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	19.3	7/8/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	19.1	8/5/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ007	Tetrachloroethylene (PCE)	18.7	9/9/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	21.1	10/13/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	22.6	11/3/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	22.1	12/10/2010	µg/L
TJ007	Tetrachloroethylene (PCE)	22	1/4/2011	µg/L
TJ007	Tetrachloroethylene (PCE)	20.8	2/9/2011	µg/L
TJ007	Tetrachloroethylene (PCE)	14.2	3/9/2011	µg/L
TJ007	Trichloroethene (TCE)	36.1	4/13/2010	µg/L
TJ007	Trichloroethene (TCE)	28.2	5/5/2010	µg/L
TJ007	Trichloroethene (TCE)	27.8	5/21/2010	µg/L
TJ007	Trichloroethene (TCE)	27.6	5/26/2010	µg/L
TJ007	Trichloroethene (TCE)	25.9	6/8/2010	µg/L
TJ007	Trichloroethene (TCE)	22.9	7/8/2010	µg/L
TJ007	Trichloroethene (TCE)	24	8/5/2010	µg/L
TJ007	Trichloroethene (TCE)	23.8	9/9/2010	µg/L
TJ007	Trichloroethene (TCE)	24.5	10/13/2010	µg/L
TJ007	Trichloroethene (TCE)	25.3	11/3/2010	µg/L
TJ007	Trichloroethene (TCE)	19	12/10/2010	µg/L
TJ007	Trichloroethene (TCE)	21.7	1/4/2011	µg/L
TJ007	Trichloroethene (TCE)	22	2/9/2011	µg/L
TJ007	Trichloroethene (TCE)	19	3/9/2011	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	0.863	5/25/2010	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	2.35	9/9/2010	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	3.13	10/13/2010	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	3.99	11/3/2010	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	5.42	12/10/2010	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	4.6	1/4/2011	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	2.74	2/8/2011	µg/L
TJ008	1,1-Dichloroethene (1,1-DCE)	2.54	3/10/2011	µg/L
TJ008	Nitrate (as NO3) ,calculated IC value	13.9	5/25/2010	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	13.8	8/5/2010	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	12.8	8/17/2010	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	15.1	9/9/2010	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	24.7	10/26/2010	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	24.2	11/3/2010	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	26.1	12/10/2010	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	26	1/4/2011	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	26.9	2/8/2011	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	27.4	2/9/2011	mg/L
TJ008	Nitrate (as NO3) ,calculated IC value	16	3/10/2011	mg/L
TJ008	Perchlorate	ND	5/25/2010	µg/L
TJ008	Perchlorate	ND	8/5/2010	µg/L
TJ008	Perchlorate	ND	8/17/2010	µg/L
TJ008	Perchlorate	ND	9/9/2010	µg/L
TJ008	Perchlorate	ND	10/13/2010	µg/L
TJ008	Perchlorate	ND	11/3/2010	µg/L
TJ008	Perchlorate	ND	12/10/2010	µg/L
TJ008	Perchlorate	ND	1/4/2011	µg/L
TJ008	Perchlorate	2.34	2/9/2011	µg/L
TJ008	Perchlorate	ND	3/10/2011	µg/L
TJ008	Tetrachloroethylene (PCE)	0.758	10/13/2010	µg/L
TJ008	Tetrachloroethylene (PCE)	0.893	11/3/2010	µg/L
TJ008	Tetrachloroethylene (PCE)	1.26	12/10/2010	µg/L
TJ008	Tetrachloroethylene (PCE)	1.11	1/4/2011	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ008	Tetrachloroethylene (PCE)	1.5	2/8/2011	µg/L
TJ008	Trichloroethene (TCE)	1.21	5/25/2010	µg/L
TJ008	Trichloroethene (TCE)	0.722	8/5/2010	µg/L
TJ008	Trichloroethene (TCE)	0.517	8/17/2010	µg/L
TJ008	Trichloroethene (TCE)	2.64	9/9/2010	µg/L
TJ008	Trichloroethene (TCE)	5.15	10/13/2010	µg/L
TJ008	Trichloroethene (TCE)	6.91	11/3/2010	µg/L
TJ008	Trichloroethene (TCE)	7.96	12/10/2010	µg/L
TJ008	Trichloroethene (TCE)	8.24	1/4/2011	µg/L
TJ008	Trichloroethene (TCE)	7.72	2/8/2011	µg/L
TJ008	Trichloroethene (TCE)	3.81	3/10/2011	µg/L
TJ009	1,1-Dichloroethene (1,1-DCE)	0.918	10/14/2010	µg/L
TJ009	1,1-Dichloroethene (1,1-DCE)	0.69	11/4/2010	µg/L
TJ009	1,1-Dichloroethene (1,1-DCE)	0.705	12/7/2010	µg/L
TJ009	1,1-Dichloroethene (1,1-DCE)	0.676	2/8/2011	µg/L
TJ009	Methyl-t-butyl ether (MTBE)	2.36	12/7/2010	µg/L
TJ009	Nitrate (as NO3) ,calculated IC value	13.8	5/25/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	12	6/9/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	10.1	7/8/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	7.93	8/18/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	6.69	9/10/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	15.3	10/14/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	18.2	11/4/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	20.8	12/7/2010	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	11.9	2/8/2011	mg/L
TJ009	Nitrate (as NO3) ,calculated IC value	8.2	3/17/2011	mg/L
TJ009	Perchlorate	ND	5/25/2010	µg/L
TJ009	Perchlorate	ND	7/8/2010	µg/L
TJ009	Perchlorate	ND	8/18/2010	µg/L
TJ009	Perchlorate	ND	10/14/2010	µg/L
TJ009	Perchlorate	ND	2/8/2011	µg/L
TJ009	Tetrachloroethylene (PCE)	0.501	12/7/2010	µg/L
TJ009	Trichloroethene (TCE)	0.529	5/25/2010	µg/L
TJ009	Trichloroethene (TCE)	2.59	10/14/2010	µg/L
TJ009	Trichloroethene (TCE)	2.55	11/4/2010	µg/L
TJ009	Trichloroethene (TCE)	3.3	12/7/2010	µg/L
TJ009	Trichloroethene (TCE)	2.24	2/8/2011	µg/L
TJ009	Trichloroethene (TCE)	1.29	3/17/2011	µg/L
TJ011	1,1-Dichloroethene (1,1-DCE)	0.503	11/4/2010	µg/L
TJ011	1,1-Dichloroethene (1,1-DCE)	0.548	12/7/2010	µg/L
TJ011	1,1-Dichloroethene (1,1-DCE)	0.913	1/6/2011	µg/L
TJ011	Nitrate (as NO3) ,calculated IC value	16.7	5/25/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	14.8	6/9/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	14.1	6/16/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	11.6	7/8/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	7.75	8/18/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	6.29	9/10/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	11	10/14/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	13.6	11/4/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	16.5	12/7/2010	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	21.2	1/6/2011	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	17.1	2/8/2011	mg/L
TJ011	Nitrate (as NO3) ,calculated IC value	7.84	3/17/2011	mg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ011	Perchlorate	ND	5/25/2010	µg/L
TJ011	Perchlorate	ND	6/9/2010	µg/L
TJ011	Perchlorate	ND	7/8/2010	µg/L
TJ011	Perchlorate	ND	8/18/2010	µg/L
TJ011	Perchlorate	ND	9/10/2010	µg/L
TJ011	Perchlorate	ND	10/14/2010	µg/L
TJ011	Perchlorate	ND	11/4/2010	µg/L
TJ011	Perchlorate	ND	12/7/2010	µg/L
TJ011	Perchlorate	3.28	1/6/2011	µg/L
TJ011	Perchlorate	2.2	2/8/2011	µg/L
TJ011	Perchlorate	ND	3/17/2011	µg/L
TJ011	Tetrachloroethylene (PCE)	0.846	5/25/2010	µg/L
TJ011	Tetrachloroethylene (PCE)	0.812	6/9/2010	µg/L
TJ011	Tetrachloroethylene (PCE)	0.661	7/8/2010	µg/L
TJ011	Tetrachloroethylene (PCE)	0.805	11/4/2010	µg/L
TJ011	Tetrachloroethylene (PCE)	0.946	12/7/2010	µg/L
TJ011	Tetrachloroethylene (PCE)	1.58	1/6/2011	µg/L
TJ011	Tetrachloroethylene (PCE)	0.629	2/8/2011	µg/L
TJ011	Trichloroethene (TCE)	2.94	5/25/2010	µg/L
TJ011	Trichloroethene (TCE)	2.54	6/9/2010	µg/L
TJ011	Trichloroethene (TCE)	2.16	7/8/2010	µg/L
TJ011	Trichloroethene (TCE)	4.05	10/14/2010	µg/L
TJ011	Trichloroethene (TCE)	6.43	11/4/2010	µg/L
TJ011	Trichloroethene (TCE)	7.61	12/7/2010	µg/L
TJ011	Trichloroethene (TCE)	12.6	1/6/2011	µg/L
TJ011	Trichloroethene (TCE)	6.69	2/8/2011	µg/L
TJ012	1,1-Dichloroethene (1,1-DCE)	0.533	10/14/2010	µg/L
TJ012	1,1-Dichloroethene (1,1-DCE)	0.517	11/4/2010	µg/L
TJ012	1,1-Dichloroethene (1,1-DCE)	0.568	2/8/2011	µg/L
TJ012	Nitrate (as NO3) ,calculated IC value	15.7	6/9/2010	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	12.1	8/17/2010	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	12.5	9/10/2010	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	12.8	10/14/2010	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	12.9	11/4/2010	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	13.6	12/7/2010	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	15.2	1/6/2011	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	12.5	2/8/2011	mg/L
TJ012	Nitrate (as NO3) ,calculated IC value	11.7	3/17/2011	mg/L
TJ012	Perchlorate	ND	6/9/2010	µg/L
TJ012	Perchlorate	ND	8/17/2010	µg/L
TJ012	Perchlorate	ND	9/10/2010	µg/L
TJ012	Perchlorate	ND	10/14/2010	µg/L
TJ012	Perchlorate	ND	11/4/2010	µg/L
TJ012	Perchlorate	ND	12/7/2010	µg/L
TJ012	Perchlorate	ND	1/6/2011	µg/L
TJ012	Perchlorate	2.05	2/8/2011	µg/L
TJ012	Perchlorate	ND	3/17/2011	µg/L
TJ012	Tetrachloroethylene (PCE)	0.895	9/10/2010	µg/L
TJ012	Tetrachloroethylene (PCE)	0.858	10/14/2010	µg/L
TJ012	Tetrachloroethylene (PCE)	0.989	11/4/2010	µg/L
TJ012	Tetrachloroethylene (PCE)	0.923	2/8/2011	µg/L
TJ012	Tetrachloroethylene (PCE)	0.729	3/17/2011	µg/L
TJ012	Trichloroethene (TCE)	3.38	9/10/2010	µg/L
TJ012	Trichloroethene (TCE)	3.76	10/14/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
TJ012	Trichloroethene (TCE)	4.29	11/4/2010	µg/L
TJ012	Trichloroethene (TCE)	1.36	12/7/2010	µg/L
TJ012	Trichloroethene (TCE)	1.79	1/6/2011	µg/L
TJ012	Trichloroethene (TCE)	4.53	2/8/2011	µg/L
TJ012	Trichloroethene (TCE)	3.38	3/17/2011	µg/L
VE011	Chromium	2.4	8/11/2010	ug/L
VE011	Nitrate (as NO3) ,calculated IC value	10.2	4/28/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	10.4	5/27/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	12	6/29/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	12.8	7/27/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	13.4	8/11/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	13.4	9/24/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	11.3	10/28/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	9.61	11/29/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	8.51	12/28/2010	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	8.24	1/27/2011	mg/L
VE011	Nitrate (as NO3) ,calculated IC value	8.95	3/29/2011	mg/L
VE011	Perchlorate	ND	8/11/2010	µg/L
VE011	Trichloroethene (TCE)	2.09	4/28/2010	µg/L
VE011	Trichloroethene (TCE)	2	5/27/2010	µg/L
VE011	Trichloroethene (TCE)	1.92	6/29/2010	µg/L
VE011	Trichloroethene (TCE)	2.42	7/27/2010	µg/L
VE011	Trichloroethene (TCE)	2.63	8/11/2010	µg/L
VE011	Trichloroethene (TCE)	2.68	9/24/2010	µg/L
VE011	Trichloroethene (TCE)	2.32	10/28/2010	µg/L
VE011	Trichloroethene (TCE)	1.68	11/29/2010	µg/L
VE011	Trichloroethene (TCE)	1.61	12/28/2010	µg/L
VE011	Trichloroethene (TCE)	1.54	1/27/2011	µg/L
VE011	Trichloroethene (TCE)	0.834	3/29/2011	µg/L
VE024	Nitrate (as NO3) ,calculated IC value	7.93	6/18/2010	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	5.76	7/27/2010	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	6.47	8/24/2010	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	7.18	9/24/2010	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	6.2	10/28/2010	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	6.69	11/29/2010	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	7.09	12/28/2010	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	7.58	1/27/2011	mg/L
VE024	Nitrate (as NO3) ,calculated IC value	5.76	3/29/2011	mg/L
VE024	Perchlorate	ND	6/18/2010	µg/L
WH004	Nitrate (as NO3) ,calculated IC value	10	4/28/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	10.3	5/27/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	10.2	6/29/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	10.2	7/27/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	10.2	8/24/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	10.5	9/30/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	9.75	10/28/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	9.75	11/23/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	9.57	12/28/2010	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	9.48	1/27/2011	mg/L
WH004	Nitrate (as NO3) ,calculated IC value	9.57	3/22/2011	mg/L
WH004	Perchlorate	ND	5/27/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.21	4/28/2010	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
WH004	Tetrachloroethylene (PCE)	2.43	5/27/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.39	6/29/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.19	7/27/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.3	8/24/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.62	9/30/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.29	10/28/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.5	11/23/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.56	12/28/2010	µg/L
WH004	Tetrachloroethylene (PCE)	2.54	1/27/2011	µg/L
WH004	Tetrachloroethylene (PCE)	2.35	3/22/2011	µg/L
WH004	Trichloroethene (TCE)	1.48	4/28/2010	µg/L
WH004	Trichloroethene (TCE)	1.46	5/27/2010	µg/L
WH004	Trichloroethene (TCE)	1.16	6/29/2010	µg/L
WH004	Trichloroethene (TCE)	1.04	7/27/2010	µg/L
WH004	Trichloroethene (TCE)	1.01	8/24/2010	µg/L
WH004	Trichloroethene (TCE)	1.2	9/30/2010	µg/L
WH004	Trichloroethene (TCE)	0.793	10/28/2010	µg/L
WH004	Trichloroethene (TCE)	0.922	11/23/2010	µg/L
WH004	Trichloroethene (TCE)	0.905	12/28/2010	µg/L
WH004	Trichloroethene (TCE)	0.929	1/27/2011	µg/L
WH004	Trichloroethene (TCE)	0.872	3/22/2011	µg/L
WH005	Nitrate (as NO3) ,calculated IC value	10.2	4/28/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	10.2	5/27/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	9.88	6/29/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	9.97	7/27/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	9.83	8/24/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	10.6	9/30/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	9.3	10/28/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	9.83	11/23/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	9.97	12/28/2010	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	10.1	1/27/2011	mg/L
WH005	Nitrate (as NO3) ,calculated IC value	9.92	3/22/2011	mg/L
WH005	Perchlorate	ND	8/24/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.629	4/28/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.704	5/27/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.652	6/29/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.808	7/27/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.906	8/24/2010	µg/L
WH005	Tetrachloroethylene (PCE)	1.58	9/30/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.529	10/28/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.608	11/23/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.768	12/28/2010	µg/L
WH005	Tetrachloroethylene (PCE)	0.817	1/27/2011	µg/L
WH005	Tetrachloroethylene (PCE)	0.821	3/22/2011	µg/L
WH005	Trichloroethene (TCE)	3.53	4/28/2010	µg/L
WH005	Trichloroethene (TCE)	3.76	5/27/2010	µg/L
WH005	Trichloroethene (TCE)	2.44	6/29/2010	µg/L
WH005	Trichloroethene (TCE)	2.14	7/27/2010	µg/L
WH005	Trichloroethene (TCE)	2.03	8/24/2010	µg/L
WH005	Trichloroethene (TCE)	3.03	9/30/2010	µg/L
WH005	Trichloroethene (TCE)	1.38	10/28/2010	µg/L
WH005	Trichloroethene (TCE)	2.13	11/23/2010	µg/L
WH005	Trichloroethene (TCE)	2.6	12/28/2010	µg/L
WH005	Trichloroethene (TCE)	2.89	1/27/2011	µg/L

Location Code	Analyte Name	Result	Collection Date	Units
WH005	Trichloroethene (TCE)	2.6	3/22/2011	µg/L
WH006A	Nitrate (as NO3) ,calculated IC value	2.49	4/28/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	2.56	5/27/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	6.02	6/29/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	7.09	7/27/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	7.4	8/24/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	7.49	9/30/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	2.32	10/28/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	2.35	11/23/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	2.37	12/28/2010	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	2.36	1/27/2011	mg/L
WH006A	Nitrate (as NO3) ,calculated IC value	2.37	3/29/2011	mg/L
WH006A	Perchlorate	ND	8/24/2010	µg/L
WH006A	Perchlorate	ND	3/29/2011	µg/L
WH006A	Tetrachloroethylene (PCE)	1.02	6/29/2010	µg/L
WH006A	Tetrachloroethylene (PCE)	1.24	7/27/2010	µg/L
WH006A	Tetrachloroethylene (PCE)	1.4	8/24/2010	µg/L
WH006A	Tetrachloroethylene (PCE)	1.41	9/30/2010	µg/L
WH006A	Trichloroethene (TCE)	1.52	6/29/2010	µg/L
WH006A	Trichloroethene (TCE)	2.35	7/27/2010	µg/L
WH006A	Trichloroethene (TCE)	2.63	8/24/2010	µg/L
WH006A	Trichloroethene (TCE)	2.43	9/30/2010	µg/L

APPENDIX B:
Projected Pumping by the City of Los Angeles in the San Fernando Basin for 2010-2015

PROJECTED PUMPING BY THE CITY OF LOS ANGELES IN THE SAN FERNANDO BASIN FOR 2010-2015 (IN ACRE-FEET)

WELL FIELD					
	2010-11	2011-12	2012-13	2013-14	2014-15
AERATION	1,008	1,937	1,937	1,937	1,937
ERWIN	1,373	0	0	0	0
HEADWORKS	0	0	0	0	0
NO HOLLYWOOD	5,845	4,367	2,967	1,567	1,211
POLLOCK	3,553	2,178	2,178	2,178	2,178
RINALDI-TOLUCA	6,892	6,550	4,451	2,350	0
TUJUNGA	20,663	15,674	15,674	15,674	15,674
VERDUGO	1,760	2,687	2,687	2,553	0
WHITNAL	2,724	8,607	5,106	1,741	0
TOTAL ACRE-FEET	43,818	42,000	35,000	28,000	21,000

Note: The Extraction plan numbers for San Fernando Basin can be increased if some of the contaminated wells are treated or if the blending with external source of water will continue to be allowable in future

Sylmar Basin	1,092	1,500	1,400	1,300	4,500

APPENDIX B

CITY OF BURBANK

PUMPING AND SPREADING PLAN

2010-2015 Water Years

GROUNDWATER PUMPING
AND
SPREADING PLAN

FIVE WATER YEARS
OCTOBER 1, 2010 TO SEPTEMBER 30, 2015

Prepared by

BURBANK WATER AND POWER
WATER DIVISION

May 2011

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APPENDICES

I. INTRODUCTION

The groundwater rights of the City of Burbank are defined by the JUDGMENT in Superior Court Case No. 650079, entitled "The City of Los Angeles, a Municipal Corporation, Plaintiff, vs. City of San Fernando, et. al., Defendants". The Final Judgment was signed on January 26, 1979.

In 1993, significant revisions were made to the Upper Los Angeles River Area (ULARA) Policies and Procedures with the addition of Section 2.9, Groundwater Quality Management. This addition has been made by the Watermaster and the Administrative Committee to affirm its commitments to participate in the cleanup and limiting the spread of contamination in the San Fernando Valley. This report is in response to Section 2.9.4, Groundwater Pumping and Spreading Plan.

The Groundwater Pumping and Spreading Plan is based on the water year, October 1 to September 30. The Draft Plan for Burbank will be submitted in May to the Watermaster for the current water year.

II. WATER DEMAND

The annual total water demand for the last ten years and the projected annual water demand for the next five years are shown in Table 1.

Urgent requests for voluntary conservation began in 2007. With increasing public awareness of water supply issues, and to comply with new State legislation, the plan is for 20 percent reduction in per-capita potable water usage by 2020. That target was actually reached in Fiscal Year 2009-10, with some help from the weather. Local supplies will be used as much as possible in order to reduce the demand on imported supplies from the Metropolitan Water District of Southern California (MWD). The projected water demand may vary significantly due to weather and/or economic conditions in the Burbank area. A variance of ±5% may be expected. Major expansion of the recycled system continues in 2011.

III. WATER SUPPLY

The water supply for the City of Burbank is composed of purchased water from MWD, locally produced and treated groundwater, and recycled water from the Burbank Water Reclamation Plant. A discussion about each of the sources of supply is included below, and historic and projected use of each water source is shown in Table 2

A. MWD

Burbank continues to rely on MWD for more than half of its water. For continued operation of the local groundwater wells, Burbank needs to purchase additional quantities of untreated water for basin replenishment in conjunction with physical solution credits from the City of Los Angeles, Department of Water and Power

(LADWP). Allocation of the MWD supply could make the source problematic in a given year. The recent allocation ended in April 2011. See Section IV.

B. GAC TREATMENT PLANT

Historically, the GAC Treatment Plant was normally operated during the summer season from May to October. However, total chromium in the plant effluent would exceed the limit of five parts per billion (ppb) set by Burbank City Council policy for water delivered to the distribution system. Current plans are to keep the plant shut down, except for emergencies and water quality testing, due to the levels of hexavalent chromium (Chromium VI) in the well water. The GAC treatment process does not remove chromium, and facilities for blending are not available New Chromium VI regulations will lead to decisions on the future use of the water. The California Department of Public Health has issued a draft PHG, which is now in the two-year review period and receiving much comment.

The GAC Treatment Plant uses the groundwater produced from Well No. 7 and Well No. 15 (Figure 3.1). The plant has a treatment capacity of 2,000 gpm. In WY 2009-10, pumping for water quality testing resulted in 5 AF being produced and delivered to the power plant.

Lockheed Martin has arranged to utilize the capacity of the GAC Treatment Plant, when available, to augment the production of the Burbank Operable Unit (BOU) to reach the required annual average of 9,000 gpm. Lockheed Martin will pay a share of the operation and maintenance cost of the GAC in proportion with the volume of water which is credited toward the 9,000 gpm.

C. EPA CONSENT DECREE PROJECT

The EPA Consent Decree Project (also known as Burbank Operable Unit or BOU) became operational January 3, 1996. The source of groundwater for treatment at the BOU is wells VO-1 through VO-8 (Figure 3.1) and the treatment plant has a capacity of 9,000 gpm. The Second Consent Decree was entered on June 22, 1998.

D. RECYCLED WATER

A master plan for expansion of the recycled water system was completed in 2007 and updated in 2010. The plan lays out a five-year expansion of the system and is expected to convert 1,000 acre-feet per year of potable water demand to recycled water demand. Execution of the plan is well under way with completion of construction of new facilities expected in 2012.

E. PRODUCTION WELLS

Burbank has eight wells that are part of the BOU collector system, plus another four wells which are mechanically and electrically operable, and two others which have had equipment removed. The eight BOU wells are on “Active” status, while all the others are on "Inactive" status with the California Department of Public

Health (DPH). Except for water quality testing at Wells 7 and 15, Burbank does not plan to operate the inactive wells in the 2010-2011 water year unless an emergency develops. Well No. 7 produces 1,050 gpm and Well No. 15 produces 850 gpm to supply the GAC treatment plant.

Active Wells	Inactive Wells	Inactive-Pulled
VO-1 VO-2 VO-3 VO-4 VO-5 VO-6 VO-7 VO-8	No. 6A No. 7 No. 13A No. 15	No. 11A No. 12

IV. GROUNDWATER CREDITS

The Judgment sets a number of rights and procedures that Burbank and other defendants must follow. In order to pump groundwater, rights to groundwater must be established and in the San Fernando Basin, those rights are accounted for as groundwater credits. Rights and procedures related to establishing, counting and maintaining groundwater credits are discussed in the following paragraphs. Historic and future groundwater credits are shown in Table 3.

A. IMPORT RETURN WATER

Under the judgment, Burbank is entitled to extract 20 percent of water delivered in the prior water year. This is known as import return water. The import return water credited for the 2010-2011 water year (based on water delivered in the 2009-2010 water year) is 4,103 acre-feet.

Estimated import return water credit for the next water year, based on 21,000 acre-feet of delivered water, will be 4,200 acre-feet.

B PHYSICAL SOLUTION

Burbank has a physical solution right to 4,200 acre-feet per year in addition to its import return water extraction rights. This is a right to purchase up to 4,200 acre-feet per year of groundwater credits from the City of Los Angeles. The price paid to the City of Los Angeles for this groundwater is set by formula in the Judgment.

Depending on availability and price of MWD replenishment water or untreated imported water when compared with the price of physical solution water from the City of Los Angeles, a decision will be made each year on the purchase of physical solution credits or imported water from MWD. MWD untreated water is currently less expensive than physical solution water, and allocation of the MWD supply ended in April 2011. Therefore, Burbank will not purchase physical solution water from the City of Los Angeles in the 2010-2011 water year. The current plan reflects the of spreading imported water instead of the purchase of physical solution credits.

In the Judgment, Valhalla Memorial Park and Lockheed Martin also have the right to purchase physical solution credits. Burbank will charge the following physical solution right holders for groundwater they extracted and claim the extractions against Burbank's rights. Below are the amounts of physical solution credits available to the entities.

Physical Solution Producers	
Valhalla	300 acre-feet
Lockheed Martin	25 acre-feet

C. STORED WATER CREDIT

Burbank has a stored water credit of 13,208 acre-feet as of October 1, 2010. Burbank’s objective is to maintain a reserve of 10,000 acre-feet of stored water credits. (See Appendix C.) Therefore, some combination of physical solution and/or spreading of imported water is necessary to avoid depleting the stored water credits.

D. SPREADING OPERATIONS AND TRANSFERS OF CREDITS

Burbank has purchased water for basin replenishment since 1989. The water was typically spread at the Pacoima Spreading Grounds by L.A. County Public Works Department with the assistance of the Los Angeles Department of Water and Power (LADWP). Beginning in water year 1994-95, Burbank exchanged with Los Angeles purchased imported water taken through MWD service connection LA-35 at the L.A. Treatment Plant for groundwater credits.

In 2010 Burbank completed a new service connection to MWD at the end of the Foothill Feeder. (See Figure 4.1.) The connection is capable of delivering 50 cubic feet per second (cfs) of raw imported water to the Pacoima Wash, where the water is conveyed down to the Pacoima Spreading Grounds. Additionally, this service connection allows Burbank to direct water to the Lopez Spreading Grounds via the Lopez Ditch. These facilities allow Burbank to spread 6,000 to 8,000 acre-feet per year of untreated water at the Pacoima Spreading Grounds. Burbank received the first water delivery through the new connection on April 26, 2010. By agreement with MWD, Burbank will spread a minimum of 150 AF twice a year to maintain water quality at the end of the Foothill Feeder. In November and December 2010, 2,000 AF of imported water was delivered and spread at Pacoima. Burbank plans to spread an additional 4,200 AF for a total of 6,200 AF in the 2010-11 WY. In each of the five future water years covered by this plan, Burbank will purchase physical solution credits or imported water or some combination that will total 6,200 AF.

V. CAPITAL IMPROVEMENTS

A. WELLS

Burbank plans to continue the use of Wells No. 7 and No. 15 for the GAC Treatment Plant when it is operated. Wells V-01 through V-08 will continue to be operated to supply water to the BOU. No capital improvements are planned for any wells.

B. GROUNDWATER TREATMENT FACILITIES

EPA Project: The EPA Consent Decree Project became fully operational on January 3, 1996. Burbank assumed responsibility for operation and maintenance of the BOU on March 12, 2001. Initially, the facility had difficulty in sustaining operation at the designed treatment rate of 9,000 gpm. Burbank, Lockheed-Martin, and the USEPA cooperated in efforts to determine the cause(s) of the reduced production. Over the past few years, several process enhancements and repairs were made to the liquid-phase GAC vessels and to the vapor-phase GAC vessels.

As part of the requirement to close the First Consent Decree, USEPA required Burbank to demonstrate that the BOU would operate at its design capacity. In the fall of 2010, Burbank successfully completed the 60-day performance test at the BOU.

The City of Burbank currently contracts with APTwater Services, LLC, for the day-to-day operation of the BOU.

GAC Treatment Plant: The plant will remain on an active status, but will not be operated except for emergencies. No capital improvement projects are planned for the GAC Treatment Plant.

TABLE 1
ACTUAL AND PROJECTED WATER DEMAND

Water Year	Acre-Feet
00-01	25,619
01-02	24,937
02-03	23,129
03-04	24,357
04-05	21,790
05-06	24,110
06-07	25,745
07-08	24,653
08-09	22,532
09-10	20,852
10-11*	20,261
11-12*	21,334
12-13*	21,319
13-14*	21,278
14-15*	21,196

* Projected

NOTES:

(1) Water demand equals the total of MWD, extractions (GAC, Valley/BOU, Valhalla, and cleanup pumpers), and recycled.

(2) The last five year average water demand was 23,578 acre-feet.

TABLE 2

SOURCES OF SUPPLY

Water Year	MWD	GAC	BOU	Recycled	Valhalla	Total
00-01	12,447	987	9,134	2,732	407	25,707
01-02	12,086	0	10,540	2,087	362	25,075
02-03	13,158	0	9,170	488	383	23,199
03-04	13,751	0	9,660	549	397	24,357
04-05	14,415	0	6,399	681	295	21,790
05-06	11,879	0	10,108	1,692	431	24,110
06-07	13,444	0	9,780	2,082	431	25,737
07-08	15,299	0	6,817	2,192	337	24,645
08-09	10,202	148	9,818	2,011	346	22,525
09-10	8,401	5	10,043	2,080	317	20,846
10-11*	7,966	0	10,097	1,890	300	20,253
11-12*	7,143	0	11,026	3,157	0	21,326
12-13*	7,053	0	11,026	3,232	0	21,311
13-14*	6,964	0	11,026	3,280	0	21,270
14-15*	6,874	0	11,026	3,288	0	21,188

*Projected

Notes

(1) Valhalla is expected to be using recycled water instead of groundwater by Water Year 2011-12.

(2) GAC was used only for nonpotable in WY 2008-09 and 2009-10.

(3) BOU includes small amounts of non-municipal use which is not included in the import return credit calculation.

TABLE 3

GROUNDWATER CREDITS

Water Year	Physical Solution	Import Return	Spreading Operations	Other	Total
00-01	0	5,124	0	0	5,124
01-02	0	4,987	0	0	4,987
02-03	300	4,622	0	0	4,922
03-04	0	4,847	0	44 (1)	4,847
04-05	0	4,350	0	0	4,350
05-06	0	4,817	0	0	4,817
06-07	4,200	5,058	0	4,000 (2)	9,258
07-08	4,200	4,855	0		9,055
08-09	4,200	4,432	0	2,000 (3)	8,632
09-10	0	4,103	34	0	4,137
10-11*	0	4,051	6,200	0	10,251
11-12*	0	4,265	6,200	0	10,465
12-13*	0	4,262	6,200	500 (4)	10,462
13-14*	0	4,254	6,200	500 (4)	10,454
14-15*	0	4,238	6,200	500 (4)	10,438

*Projected

(1) In WY 2003-04, 44 AF of stored water credit was transferred from Glendale to Burbank to compensate for April 2004 water transfer via system interconnection.

(2) A 4000 AF exchange of untreated MWD water for groundwater credits was arranged with LADWP for WY 2006-07.

(3) A 2000 AF exchange of untreated MWD water for groundwater credits was arranged with LADWP for WY 2008-09.

(4) Beginning 2012-13, groundwater credits are expected from LADWP in exchange for recycled water delivered from Burbank to the LADWP system.

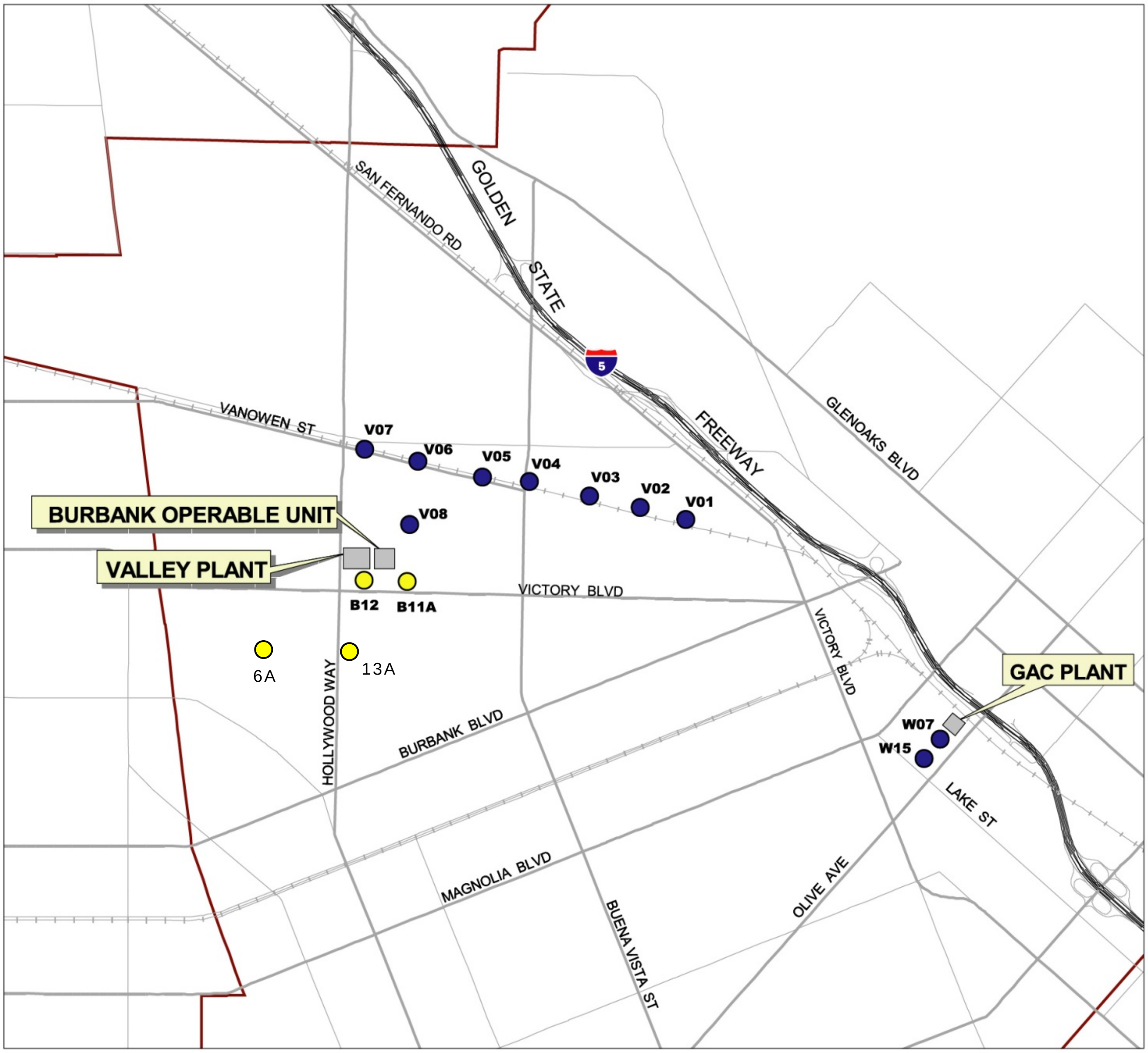


FIGURE 3.1
WELLS AND GROUNDWATER TREATMENT PLANTS

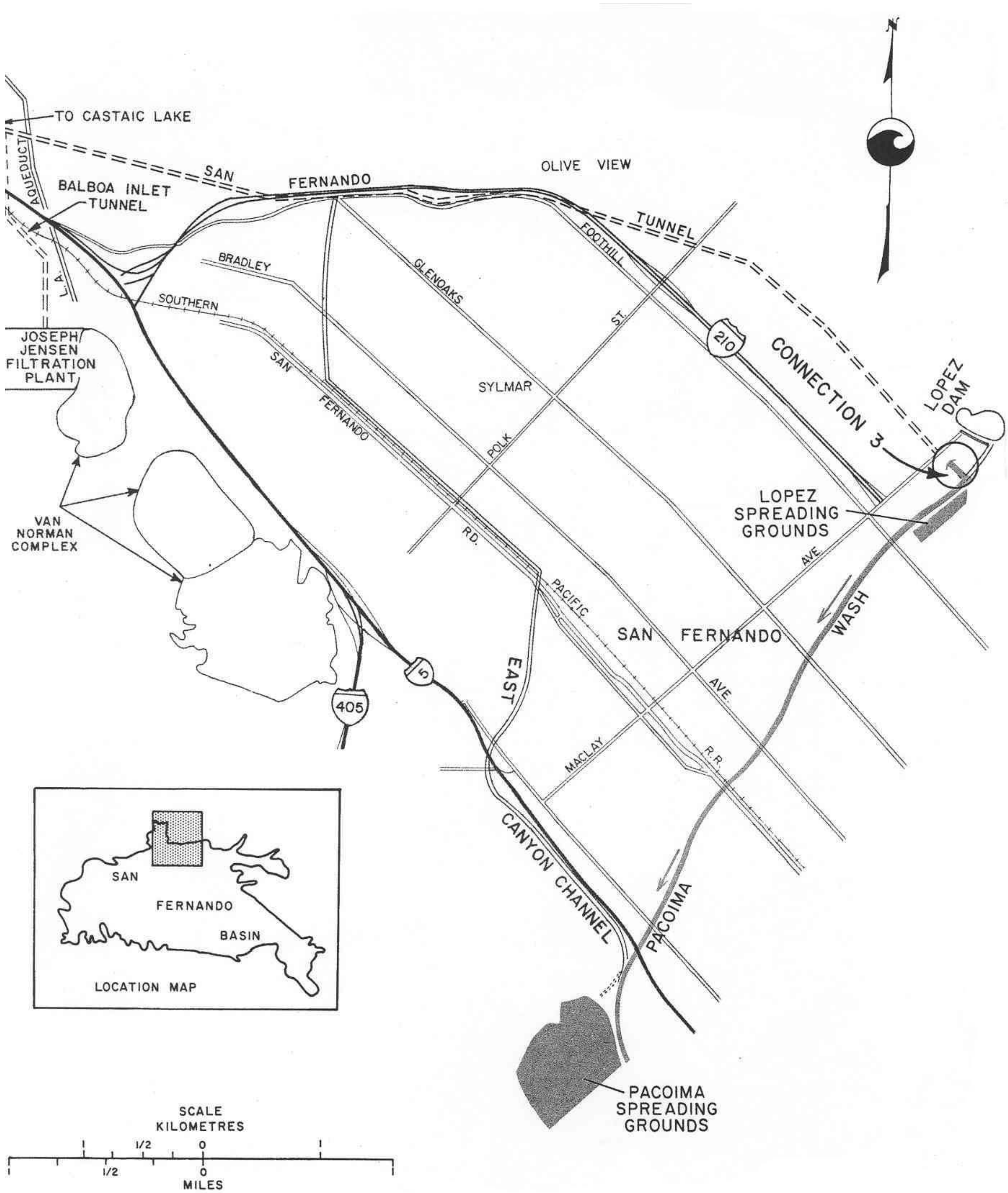


FIGURE 4.1
LOCATION OF MWD UNTREATED WATER CONNECTION

APPENDIX A

WATER QUALITY DATA

The 2010 Annual Water Quality Report is not yet available. Water Quality monitoring and testing of supply sources is not included with this report.

APPENDIX B

WATER TREATMENT FACILITIES

LAKE STREET GAC TREATMENT PLANT

320 North Lake Street
Burbank CA 91502

OPERATOR:

City of Burbank
Burbank Water and Power, Water Division

Albert Lopez, Water Production/ Operations Superintendent

QUANTITY TREATED (10/1/09 through 9/30/10):

5 acre-feet for non-potable power plant use

WATER QUALITY:

Contaminant VOC'S: TCE, PCE, 1,2-DCE, 1,2-DCA

DISPOSITION:

Burbank Water System
Potable Water

EPA CONSENT DECREE PROJECT – BURBANK OPERABLE UNIT

2030 North Hollywood Way
Burbank CA 91505

OPERATOR:

City of Burbank
Burbank Water and Power, Water Division

Albert Lopez, Water Production/ Operations Superintendent

QUANTITY TREATED (10/1/09 through 9/30/10):

10,043 acre-feet

WATER QUALITY:

Contaminants: VOCs, Nitrate, Chromium, 1,2,3-TCP

DISPOSITION:

(1) Test Water- Waste

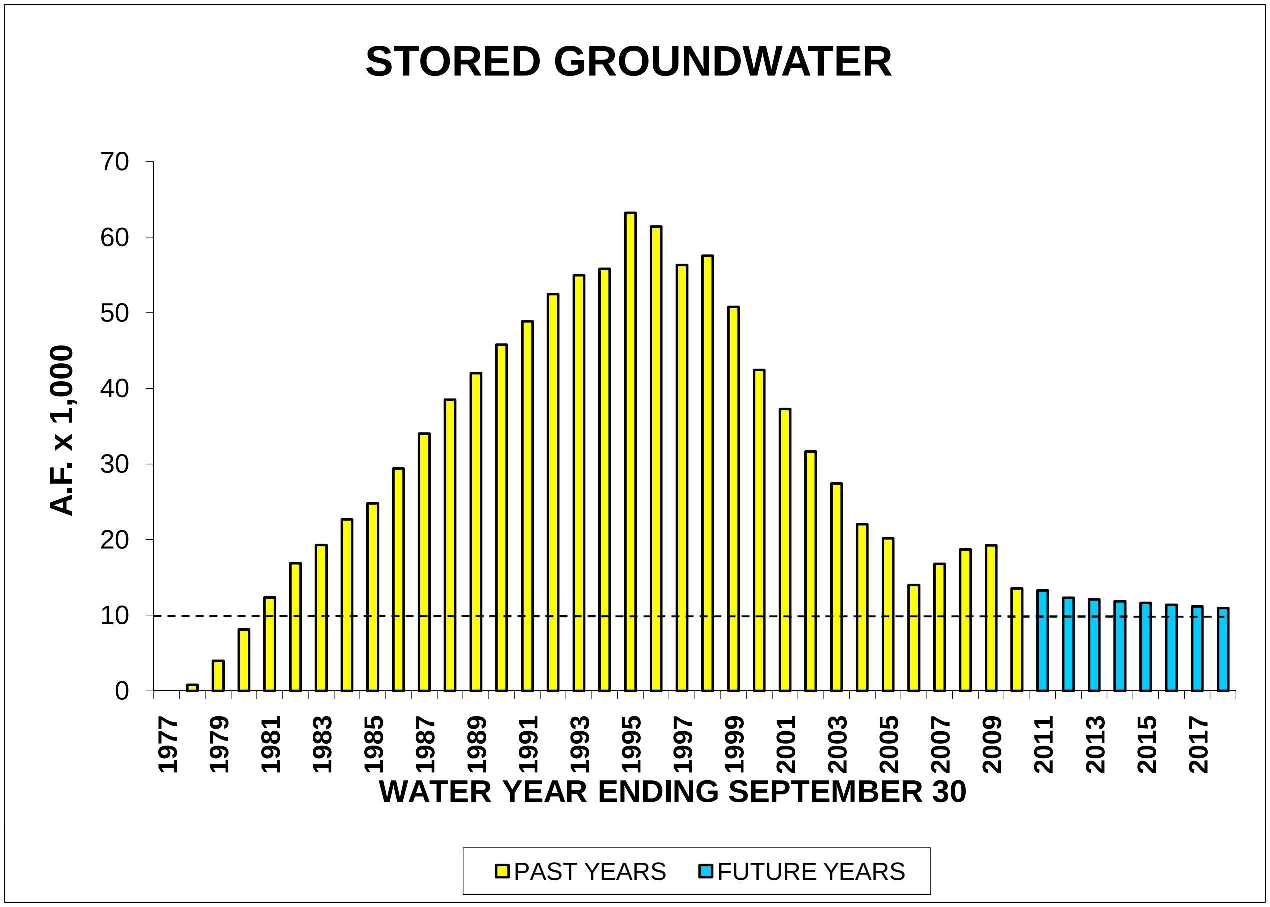
(2) Operation Water (backwash, etc.) - Waste

(3) Burbank Water System-
Potable water after blending

APPENDIX C

STORED GROUNDWATER

BURBANK WATER AND POWER
WATER DIVISION
WY 2009/10



NOTES:

- 10,000 AF RECOMMENDED AS BASIN BALANCE. THIS EQUATES TO ABOUT ONE YEAR OF DOMESTIC SYSTEM PRODUCTION IF REPLENISHMENT NOT AVAILABLE FROM MWD.
- DRAW DOWN STORED WATER BY PRODUCTION EXCEEDING THE RETURN FLOW CREDIT (~4,200 AF) PLUS SPREAD WATER OR PHYSICAL SOLUTION CREDITS.
- SPREADING WATER OR GROUNDWATER CREDIT PURCHASES TO BE CONTINUED TO MAINTAIN BASIN BALANCE.

CITY OF BURBANK WATER AND POWER
WATER DIVISION

BURBANK'S STORED GROUNDWATER

WATER YEAR	DELIVERED WATER AF	RETURN FLOW CREDIT AF	SPREAD WATER AF	OTHER CREDITS AF	PUMPED GROUNDWATER AF	STORED WATER CREDIT AF
1976-77	22,743	4,549				
1977-78	22,513	4,503			3,767	(1) 782
1978-79	24,234	4,847			1,358	(2) 3,947
1979-80	24,184	4,837			677	8,117
1980-81	25,202	5,040			595	12,359
1981-82	22,120	4,424			523	16,876
1982-83	22,118	4,424			2,002	19,298
1983-84	24,927	4,985			1,063	22,659
1984-85	23,641	4,728			2,863	24,781
1985-86	23,180	4,636			123	29,386
1986-87	23,649	4,730			0	34,022
1987-88	23,712	4,742			253	38,498
1988-89	23,863	4,773			1,213	42,027
1989-90	23,053	4,611	378		1,401	45,777
1990-91	20,270	4,054	504		2,032	48,860
1991-92	20,930	4,186	503		938	52,479
1992-93	21,839	4,368	500		(3) 2,184	54,981
1993-94	24,566	4,913	0		(3) 3,539	55,810
1994-95	22,541	4,508	0	5,380	2,888	63,215
1995-96	23,124	4,625	0	2,000	8,308	61,415
1996-97	24,888	4,977	0	1,500	11,243	56,297
1997-98	22,447	4,489	0	0	3,731	57,543
1998-99	22,671	4,534	0	2,000	13,262	50,770
1999-2000	26,312	5,262	0	0	12,862	42,442
2000-01	25,619	5,124	0	0	10,440	37,264
2001-02	24,937	4,987	0	0	10,764	31,624
2002-03	23,108	4,622	0	300	9,483	27,428
2003-04	24,235	4,847	0	44	10,057	22,037
2004-05	21,749	4,350	0	0	6,694	20,190
2005-06	24,084	4,817	0	0	10,543	13,999
2006-07	25,288	5,058	0	8,200	10,220	16,796
2007-08	24,277	4,855	0	4,200	7,161	18,704
2008-09	22,160	4,432	0	6,200	10,319	19,246
2009-10	20,513	4,103	34	0	10,054	13,521
2010-11	19,811	3,962	6,200	0	10,405	13,285
2011-12	21,184	4,237	6,200	0	11,034	12,289
2012-13	21,169	4,234	6,200	500	11,034	12,070
2013-14	21,128	4,226	6,200	500	11,034	11,850
2014-15	21,046	4,209	6,200	500	11,034	11,624
2015-16	21,061	4,212	6,200	500	11,034	11,384
2016-17	21,165	4,233	6,200	500	11,034	11,150
2017-18	21,269	4,254	6,200	500	11,034	10,939

NOTES:
(1) STORED WATER AS OF OCTOBER 1, 1978
(2) STORED WATER AS OF OCTOBER 1, 1979
(3) EXCLUDES 150 A.F. OF PUMPING FOR TESTING.
OTHER CREDITS INCLUDE PHYSICAL SOLUTION PURCHASES, IN-LIEU STORAGE,
AND OTHER TRANSFERS OF GROUNDWATER CREDITS
COLUMNS (1) THROUGH (6) - FROM ULARA WATERMASTER REPORTS
COLUMN (2) = 20% OF COL. (1)
PUMPED GROUNDWATER INCLUDES CITY, VALHALLA, LOCKHEED, DISNEY, MENASCO, HOME DEPOT
BEGINNING 2007-08, 1% IS DEDUCTED FROM THE STORED WATER AT THE END OF EACH YEAR.
SHADED AREAS OF TABLE ARE PROJECTED VALUES .

APPENDIX C

CITY OF GLENDALE

PUMPING AND SPREADING PLAN

2010-2015 Water Years

City of Glendale Water & Power

Your Trusted Community Utility

ENGINEERING

May 4, 2011

Mr. Richard C. Slade
ULARA Watermaster
Upper Los Angeles River Area
12750 Ventura Boulevard, Suite 202
Studio City, CA 91604

Subject: **Annual Pumping & Spreading Plan for City of Glendale**

Dear Mr. Slade,

Enclosed please find the annual Pumping and Spreading Plan for the City of Glendale for the Water Years 2010-2015. Glendale, as you know, does not have any spreading facilities. If you have any questions, please contact Mr. Leo Chan of my staff at (818) 548-3905.

Very truly yours,

Pat Hayes, P.E.
Principal Civil Engineer

PAH:lc
Enclosures

cc: Gregory R. Reed (LADWP)
Anthony Hicke (Richard C. Slade & Associates LLC)
Peter Kavounas (GWP)
Raja Takidin (GWP)

CITY OF GLENDALE

GROUNDWATER PUMPING AND SPREADING PLAN

WATER YEARS 2010-2015

Prepared By

GLENDALE *WATER & POWER*

APRIL 2011

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Introduction

This report discusses current water supplies to the City of Glendale and projections in local water resources available to meet future water demands and to reduce Glendale dependency on imported water. This information is needed by the ULARA Watermaster and a wide group of individuals and organizations including Glendale's City Manager and Council Members, regulatory agencies and others interested in Glendale's water resources future.

Executive Summary

Glendale receives its groundwater supply from San Fernando Basin and Verdugo Basin. Table 1 illustrates the actual and projected pumping activities in the two basins between 2010 and 2015. Glendale currently does not have any spreading facility.

TABLE 1
ACTUAL & PROJECTED PUMPING ACTIVITIES IN WATER YEAR 2010 – 2015
(Acre Feet per Year)

Source	2010	2011	2012	2013	2014	2015
San Fernando Basin						
Glendale OU	7,543	7,300	7,300	7,300	7,300	7,300
Forest Lawn Memorial Park	400	400	400	400	400	400
Grayson Power Plant	2	20	20	20	20	20
SF BASIN TOTAL	7,945	7,720	7,720	7,720	7,720	7,720
Verdugo Basin	2,005	3,831	3,856	3,856	3,856	3,856

Existing Water Sources and Supplies

The City of Glendale ("City") currently has four sources of water available to meet demands: groundwater from the San Fernando Basin and Verdugo Basin, imported water from the Metropolitan Water District ("Metropolitan") and recycled water from the Los Angeles/Glendale Water Reclamation Plant ("LAGWRP"). Each of these sources is described below. The entry points into the City water system for the various supplies are shown in Figure 1. Over the past forty (40) years, there have been changes in the mix of supplies used to meet water demands in the City. In the future, minor changes are projected in water supplies. These changes and sources are discussed below.

1. San Fernando Basin

The City's water right to San Fernando Basin supplies is defined by the judgment entitled "The City of Los Angeles vs. the City of San Fernando, et al." (1979) hereinafter referred to as the "Judgment"). The Judgment consists of a return flow credit, which is a type of water right based on the assumption that a percentage of water used in the City is returned to the groundwater basin. The City has a right to accumulate its return flow credits annually if its water rights are not used. In the water year of 2010-11, the City has a storage credit of 53,822 acre feet ("AF") within the basin. In addition, the Judgment contains rights for physical solution water. This is a right to produce water in excess of return flow credit and the accumulated credits, subject to a payment obligation to the City of Los Angeles based primarily on the cost of Metropolitan alternative supplies. This option to produce physical solution water in excess of the return flow credit and the accumulated credits is a significant factor in relation to the water production at the Glendale Water Treatment Plant ("GWTP"). The GWTP is part of a U.S. Environmental Protection Agency (EPA) Superfund clean-up project in Glendale. The project consists of a 5,000 gallon per minute (gpm) facility and eight wells that supply the plant. Further discussion regarding the GWTP can be found in the Section: Past Water Use and Trend on page 10 in this report. The various San Fernando Basin supplies are:

> Return Flow Credit – Glendale is entitled to a return flow credit of twenty (20.0) percent of all City-delivered water, including recycled water, in the San Fernando Basin and its tributary hill and mountain area. A location map is shown in Figure 2 (Source: 2008-09 Water Year ULARA Watermaster Report). This credit ranges from about 5,000 acre feet per year (AFY) to 5,400 AFY depending on actual water use. This is the City's primary water right in the San Fernando Basin.
>
> Physical Solution Water – The City has an agreement to extract water over and above the return flow credit and accumulated credits, and it is chargeable against the rights of the City of Los Angeles upon payment of specified charges generally tied to Metropolitan's water rates. The City's physical solution right is 5,500 AFY.
>
> Pumping for Groundwater Cleanup – Section 2.5 of the Upper Los Angeles River Area's ("ULARA") Policies and Procedures, dated July, 1993, provides for the extraction of basin water for SUPERFUND activities, subject to payment of specified charges similar to physical solution water. This right became a significant factor with the completion of the GWTP in 2000.
>
> Carry-over extractions – In addition to current extractions of return flow water and stored water, Glendale may, in any one year, extract from the San Fernando Basin an amount not to exceed 10 percent of its last annual credit for import return water, subject to an obligation to replace such over-extraction by reduced extraction during the next water year. This provides important year-to-year flexibility in meeting water demands.

San Fernando Basin production has been limited in the past and was eventually eliminated for a time because of volatile organic compounds ("VOC") contamination of the groundwater. The entire San Fernando Valley is part of a U. S. Environmental Protection Agency ("EPA") Superfund cleanup program. Over the past ten years, many water treatment plants had been constructed in the San Fernando Valley to remove VOC from the groundwater. EPA had focused on the construction of cleanup facilities in the City. The GWTP and eight extraction wells have been constructed to pump, treat and deliver water to the City via its Grandview Pumping Station. Significant production from the basin and delivery to the City started in January 2002.

The cleanup facilities consist of seven shallow extraction wells and one deep well; the 5,000 gpm Glendale Water Treatment Plant to remove the VOC; piping to convey the untreated water from the wells to the water treatment plant; a system to convey water from the treatment plant to the City's potable distribution system; a facility to blend the treated groundwater with water from Metropolitan, and a disinfection facility. A general layout of these facilities is shown in Figure 3.

In 2000, major agreements were signed between City of Glendale and Glendale Respondents Group (GRG), which represents forty-plus industries identified by the EPA as potentially responsible for the groundwater contamination, and the EPA. GRG retained CDM Consulting Engineers, Inc. to design, construct and operate the water treatment facilities required by the agreements. The State Department of Public Health ("DPH") issued a permit for the City to operate the facilities in July 2000. The City started taking small quantities of water from this facility on July 23, 2001. The delivery of the water was initially limited because of the City's concern with taking water with higher chromium 6 levels than in the current water supply, even though such water met all water quality standards. In January 2002, the Glendale City Council authorized the City to start delivering 5,000 gpm from the treatment facility into the City's potable water system with a target to minimize the concentration of chromium 6 in the water. This source is expected to provide about 7,300 AFY to the City, which will meet about twenty-two percent (22%) of projected near-term water demands. There is additional groundwater production of 400 AFY by Forest Lawn Memorial Park for irrigation purposes, and about 20 AFY for use on the cooling tower and jet engine at the Glendale Grayson Power Plant, for a total of approximately 7,720 AFY.

As noted above, the City can pump and treat more groundwater in times of imported water shortages based on accumulated pumping credits. The City, as of October 1, 2010, has 53,822 AF in accumulated pumping credits in the San Fernando Basin. In order to achieve 7,720 AF of San Fernando Basin production per year, Glendale must utilize its return flow credit of 5,500 AF per year and 2,220 AF per year of its accumulated pumping credits. Additional usage of accumulated groundwater credits could be used to meet unexpected demands or in cases of emergency. The usage of additional amounts of accumulated groundwater pumping credits was not considered in the supply-demand analysis of this Water Supply Evaluation, but rather would be in addition to the amounts of available water supplies detailed in that analysis. That these additional amounts of groundwater were not included in the supply-demand analysis further ensures that there are sufficient supplies to meet Plan demands.

2. Verdugo Basin

Historically, groundwater supplies from the Verdugo Basin contributed a small portion to the City's water supplies via five wells and an underground water infiltration system. The Judgment gave Glendale the right to extract 3,856 AFY from the Verdugo Basin. Crescenta Valley Water District also has water rights and is the only other entity allowed to extract water from the Verdugo Basin.

Use of these supplies has been limited in the past due to water quality problems, groundwater levels, and limited extraction capacity. In order to increase the use of these supplies, the City completed construction of the Verdugo Park Water Treatment Plant ("VPWTP") in 1996. This facility has a capacity of 1,150 gpm and treats water from the two low capacity wells, referred to as Verdugo Wells A & B, and from the water supplies in the Verdugo Pickup System, a subsurface horizontal infiltration system. Actual flows from these sources range between 300-400 gpm. The three existing wells referred to as Glorietta Wells 3, 4 and 6 and VPWTP produce about 2,600 AFY and account for about eight percent (8%) of Glendale's total water supply. This alone will not fully utilize the City's entire water rights to the Verdugo Basin supplies. In 2011, the City has completed the rehabilitation of the Foothill Well and is drilling a new production well in the Montrose area of the Basin to increase its extraction capacity so that it can utilize its full adjudicated water right from the Verdugo Basin, to the extent possible given the basin's hydrology. This is further discussed in detail later in this report. The location of the VPWTP and existing wells are shown on Figure 1.

3. Metropolitan Water District of Southern California

The City relies on Metropolitan water supply to meet a majority of its current water supply requirements. For the five fiscal years ended June 30, 2007, water deliveries from Metropolitan averaged 7,534 million gallons per day (approximately 23,643 acre feet per year), which constituted between sixty to seventy percent (60%-70%) of the City's total water supply. The City expects to continue reliance on Metropolitan sales of water to meet most of its future water supply requirements.

The following information regarding Metropolitan has been obtained from Metropolitan and sources that the City believes to be reliable, but the City takes no responsibility for the accuracy or completeness hereof. Additional information about Metropolitan may be obtained on Metropolitan's website at www.mwdh2o.com. No information contained on such website is incorporated herein by reference.

3.1. History and Background

The Metropolitan Water District of Southern California is a public agency organized in 1928 by a vote of the electorates of thirteen (13) southern California cities which included the City of Glendale, under authority of the Metropolitan Water District Act (California Statutes 1927, Chapter 429, as reenacted in 1969 as Chapter 209, as amended, herein referred to as the "Metropolitan Act"). The Metropolitan Act authorizes Metropolitan to levy property taxes within its service area; establish water rates; impose charges for water standby and service availability; incur general obligation bonded indebtedness and issue revenue bonds, notes and short-term revenue certificates; execute contracts; and exercise the power of eminent domain for the purpose of acquiring property. In addition, Metropolitan's Board of Directors ("Metropolitan's Board") is authorized to establish terms and conditions under which additional areas may be annexed to Metropolitan's service area.

Metropolitan's primary purpose is to provide a supplemental supply of water for domestic and municipal uses at wholesale rates to its member public agencies. The City is one of the 26 Metropolitan member public agencies. If additional water is available, such water may be sold for other beneficial uses. Metropolitan serves its member agencies as a water wholesaler and has no retail customers.

Metropolitan's charges for water sales and availability are fixed by Metropolitan's Board and are not subject to regulation by the California Public Utilities Commission or any other state or federal agency. Metropolitan imports water from two principal sources: northern California via the Edmund G. Brown California Aqueduct (the "California Aqueduct") of the State Water Project owned by the State of California and the Colorado River via the Colorado River Aqueduct owned by Metropolitan. Water deliveries through the Colorado River Aqueduct began in the early 1940's. This imported water supplemented the local water supplies of the original 13 southern California member cities. In 1972, to meet growing water demands in its service area, Metropolitan started receiving additional water supplies from the California

Aqueduct. Metropolitan owns and operates the Colorado River Aqueduct and has a long-term contract for water from the State Water Project.

The locations of the California Aqueduct and Colorado River Aqueduct are shown in Figure 4. Metropolitan's service area also includes the southern California coastal plain. It extends about 200 miles along the Pacific Ocean from the City of Oxnard on the north to the international boundary with Mexico border on the south, and it reaches seventy (70) miles inland from the coast. Metropolitan is currently composed of twenty-six (26) member agencies, including fourteen (14) cities, eleven (11) municipal water districts, and one (1) county water authority. Glendale is one of the eleven municipal water districts served by Metropolitan.

3.2. State Water Project

One of Metropolitan's two major sources of water is the State Water Project, which is owned by the State and operated by the State Department of Water Resources ("DWR"). The State Water Project transports water from San Francisco Bay/Sacramento-San Joaquin River Delta ("Bay-Delta") south via the California Aqueduct to Metropolitan. The total length of the California Aqueduct is approximately 444 miles. Metropolitan has a long-term contract (the "State Water Contract") with the DWR. Water received from the State Water Project by Metropolitan from 2001 through 2006 varied from a low of 1,126,981 acre feet in calendar year 2001 to a high of 1,801,000 acre feet in 2004. Recent court decisions restrict deliveries from the State Water Project beginning in 2008, as described below. Record dry conditions in Metropolitan's service area in 2006-2007, below average rainfall in the northern Sierra watershed for the State Water Project and a multi-year drought in the Colorado River Basin have further affected water deliveries by Metropolitan. Metropolitan participates in groundwater banking programs, including the Arvin-Edison Water Storage Program and the Semitropic Water Storage Program.

3.3. Colorado River Aqueduct

Metropolitan has a legal entitlement to receive water from the Colorado River under a permanent service contract with the Secretary of the Interior. Water from the Colorado River or its tributaries is also available to other users in California, as well as users in the states of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, resulting in both competition and the need for cooperation among these holders of Colorado River entitlements. The Colorado River Aqueduct, which is owned and operated by Metropolitan, transports water from the Colorado River approximately 242 miles to its terminus at Lake Mathews in Riverside County.

Historically, Metropolitan had been able to take full advantage of the availability of surplus water and apportioned but unused water. However, other users increased their use of water from the Colorado River beginning in 1998. Although use of water is expected to fluctuate annually, this trend is projected to continue in the future. In addition, a severe drought in the Colorado River Basin has reduced water supplies.

Metropolitan has taken steps to augment its share of Colorado River water through agreements with other agencies that have rights to use such water. Under a 1988 water conservation agreement between Metropolitan and the Imperial Irrigation District ("IID"), IID has constructed and is operating a number of conservation projects that are currently conserving approximately 100,000 AFY. In 2007, the conserved water increased the amount of water available to Metropolitan by 85,000 acre feet.

With Arizona's and Nevada's increasing use of their respective apportionments and the uncertainty of continued surpluses on the Colorado River, in 1997 the Colorado River Board of California, in consultation with Metropolitan, IID, Palo Verde Irrigation District, the Coachella Valley Water District, DWR and the San Diego County Water Authority, embarked on the development of a plan for reducing California's use of Colorado River water to its basic apportionment of 4.4 million acre feet when use of that basic apportionment is necessary.

3.4. Future Water Supply Reliability

Metropolitan faces a number of challenges in providing a reliable and high quality water supply for southern California. These include, among others: (1) the growing population within the service area; (2) the increased competition for low-cost water supplies; (3) variable weather conditions; and (4) increased environmental regulations for clean and safe drinking water. These challenges increased in 2007, with court decisions that restrict deliveries from the State Water Project beginning in 2008, as described above. In response to these challenges, Metropolitan and its member agencies have implemented the following actions:

- The 1994 Bay-Delta Accord, signed by federal and State agencies as well as urban agricultural and environmental water interests, improves near-term State Water Project reliability and lays the foundation for the process to develop comprehensive long-term solutions to the problems in the Bay-Delta system.
- An agreement known as the "Monterey Agreement," which restructured the State Water Contract, providing Metropolitan with significant water management and financial benefits, including up to 220,000 acre feet of additional storage.
- Groundwater Storage Programs within Metropolitan's service area, which provide additional storage of imported water in the southern California groundwater basins for regional benefit. These programs allow Metropolitan to store imported water during wet years to provide dry year supplies. Programs approved to date provide nearly 422,000 acre feet of groundwater storage that is expected to yield a dry-year supply of approximately 115,263 acre feet for each of three consecutive years.
- Water Transfer and Storage Agreements, executed for the Central Valley provide additional storage of imported water in groundwater basins and the transfer of available water for delivery through the California Aqueduct. These programs provide Metropolitan with a total storage capacity of over 900,000 acre feet and dry-year supply yield of over 300,000 acre feet per year.
- Financial Incentive Programs, which result in increased local investments in conservation, reclamation, and groundwater projects throughout the service area for increased drought protection and reduced costs for Metropolitan's treatment and conveyance facilities. From the programs' inception through June 2007, over $450 million in incentives have been provided for the production and conservation of 2.3 million acre feet of water. To increase conservation efforts locally, Metropolitan increased its conservation subsidy from $154 to $195 per acre-foot for certain programs.
- Diamond Valley Lake, an 810,000 acre-foot surface reservoir completed in March 2000, provides the region with at least 400,000 acre feet of drought storage, with the remaining storage held for emergency protection.
- An IRP, which was initially developed in 1996 by Metropolitan, its member agencies, subagencies, and groundwater basin managers to (1) ensure a reliable and high quality

water supply over the next twenty-five (25) years; (2) coordinate the planning activities among southern California's water providers; (3) avoid redundant investments; and (4) provide a flexible and balanced planning framework.

Metropolitan reports that it will make additional resource and infrastructure improvements similar to those identified in its IRP in order to maintain reliability and high water quality as demands grow. Metropolitan's current practices of diversifying water supplies and securing supply reserves allow Metropolitan and its member agencies to adjust to changes in demands and supplies and maintain a high degree of reliability. Metropolitan's diversified storage capacity, divided among reservoirs, conjunctive use and other groundwater storage programs within Metropolitan's service area and by delivery through the State Water Project or Colorado River Aqueduct, has increased to 3.6 million acre feet of storage capacity.

Approximately 674,000 acre feet of stored water is emergency storage that is reserved for use in the event of supply interruptions from earthquakes or similar emergencies, as well as extended drought. Stored water is drawn down when needed to meet demands for water and refilled when supplies of imported water in excess of demands are available. Historically excess supplies to replenish storage have been available in about seven of every ten years. However, Metropolitan's ability to replenish water storage is likely to be limited by Bay-Delta pumping restrictions under the ruling in NRDC v. Kempthorne. As of July 30, 2007, Metropolitan had 2.59 million acre feet of water in storage.

3.5. Drought and Resources Management Plans

Possible causes of water supply deficits are droughts, failures of major water transmission facilities and other adverse events. Metropolitan's current approach to managing water shortages has evolved from its experiences during the droughts of 1976-77 and 1987-92 into the Water Surplus and Drought Management Plan ("WSDM Plan").

The WSDM Plan, which was adopted by Metropolitan's Board in April 1999, establishes broad resource management strategies to meet full service demands over the ten years from 1999-2008 and provides principles for imported supply allocation if the need should arise. The WSDM Plan splits resource actions into two major categories: surplus actions and shortage actions. The WSDM Plan considers the region to be in surplus only after Metropolitan has met all demands for water, including replenishment deliveries. The surplus actions store surplus water, first inside then outside the region. The shortage actions of the WSDM Plan are split into three subcategories: shortage, severe shortage and extreme shortage. The WSDM Plan provides that under shortage conditions, Metropolitan will make withdrawals from storage based on location and ability to access, interrupt groundwater replenishment deliveries and cut agricultural water deliveries. Under severe shortage conditions, Metropolitan will call for extraordinary drought conservation, which may include reductions in municipal and industrial water use and mandatory water allocations or rationing.

Metropolitan's current measures to address potential water supply shortages and interruptions include calling for extraordinary conservation, cutting groundwater replenishment and agricultural water deliveries, maximizing groundwater production, acquiring additional supplies and drawing from dry-year storage. In August 2007, Metropolitan launched a significant water conservation outreach and public education effort for voluntary water conservation, promotion of water-saving rebates and incentives and education of the public about the uncertainties of future water supplies. Metropolitan suspended groundwater replenishment deliveries on May 1, 2007, and had notified member agencies that it will cut deliveries under its Interim Agricultural Water Program by thirty percent (30%) on January 1, 2008. In addition, Metropolitan was pursuing water transfers, including negotiations for the purchase of 200,000 acre feet of previously-stored State Water Project supplies in the San Bernardino groundwater basin and negotiations with water agencies in the Sacramento and San Joaquin Valleys for transfers in 2008. Metropolitan called for additional voluntary fallowing in Metropolitan's agricultural land management program within the Palo Verde Irrigation District and is working with the State of Arizona to withdraw water previously stored in its groundwater basin.

Metropolitan staff, working with member agency staff, prepared a water allocation plan based on the principles contained in the WSDM Plan. The allocation plan was to provide a formula for equitable distribution of available supplies in case of extreme water shortages within Metropolitan's service area. Metropolitan's member agencies and retail water suppliers in Metropolitan's service area also may implement water conservation and allocation programs.

3.6. Metropolitan's Services to Glendale

Glendale receives Metropolitan water through three (3) service connections as shown on Figure 1. The service connection number and capacity are summarized in Table 2 below. In total, Metropolitan has a total delivery capacity of seventy-eight (78) cubic feet-per-second (cfs). During hot summer days, it is common for Glendale to utilize the full capacity of the facilities. Any significant increase in demands on Metropolitan could require another service connection.

TABLE 2
METROPOLITAN CONNECTIONS AND CAPACITY

Service Connection Number	Capacity (cfs)
G-1	48
G-2	10
G-3	20

Over the years, Metropolitan has provided high level of reliability in meeting Glendale's supplemental water supply needs. It is believed that the reliability of water supply to the City will continue in the future as a result of the many water resource programs under way and the proposed future programs now being considered based on Metropolitan's WSDM and IRP . This source will always be a major factor in meeting the water needs of the City. The City closely follows the planning activities at Metropolitan to assure that it has adequate supplies to meet the needs of its member agencies.

4. Recycled Water

The City of Glendale has been delivering recycled water from the LAGWRP since the late 1970's. This is a twenty (20) million gallon-per-day (MGD) facility owned by the Cities of Los Angeles and Glendale. Based on a 1970 contract between the Cities of Los Angeles and Glendale, Glendale is entitled to fifty percent (50%) of any effluent produced at the plant, which is more than sufficient to for all recycled water use within City of Glendale. Treated wastewater that is not used in either the Glendale or Los Angeles system is discharged to the Los Angeles River and eventually reaches the ocean.

Currently, Glendale has forty nine (49) recycled water users. These include a landfill, two golf courses, two memorial parks, six schools, seven recreation parks, and other irrigation areas. Also, three (3) high-rise buildings, Glendale Police Headquarter, the Disney Complex on Flower Street, and the new buildings at Glendale Community College are dual-plumbed to use recycled water for sanitary flushing purposes when facilities are in place to provide the water (Figure 6). In 2010, one new user (Fairmont Street Extension Project) were added to the recycled water system. In year 2011, six (6) more new recycled water users are expected to be added for irrigation and/or dual-plumbing, some of which have already been completed. Figure 7 provides a general idea of the scope of the expansion program. The amount of potable water purchased from Metropolitan is expected to have a corresponding reduction.

In the 1990's Glendale Water Department began to require all new high-rise buildings (4-story or higher) to install dual-plumbing system within the Glendale Downtown area. Recycled water customers are solely responsible for funding and installing the connectors from the recycled water pipeline in the public streets to the customer's property, and for all on-site facilities to distribute recycled water to the ultimate use. The main recycled water distribution pipelines and existing recycled water facilities are shown in more detail in Figure 5.

5. Summary of Local Supplies

The current use of local groundwater resources available to the City is substantially less than its rights because of water quality and extraction problems. A general summary of the City's rights to local water resources compared to the amount currently being used is shown on Table 3.

TABLE 3
LOCAL WATER PROJECTS AND USE (AFY)

Potential Source	Right	Current Use	Future Use
San Fernando Basin	5,000 - 5,400	7,760 AFY	7,300
Verdugo Basin	3,856	2,600 AFY	3,856
Recycled Water	10,000	1,800 AFY	2,740

Note : Glendale Physical Solution Water Right and Use is not included

Past Water Use and Trends

In the past, the water quality problems in the San Fernando Basin and groundwater levels in the Verdugo Basin have impacted the ability of Glendale to produce water from these Basins. Glendale has only recently been able to better utilize its rights to the San Fernando Basin water supplies accumulated for many years. The EPA has designated several locations in the San Fernando Basin as Superfund sites and required construction of cleanup treatment facilities by the industry group responsible for the contamination. The Glendale cleanup project is the last in a series of EPA-required cleanup facilities and is now complete. The project consists of eight (8) production wells and a water treatment facility.

The GWTP was built to treat VOC. In December 2000, Glendale started operating the treatment plant. But because of the chromium 6 issue, only a small quantity was initially pumped and delivered. Full operation started on January 6, 2002. In October 2006 the results of pilot studies by Malcolm Pirnie was presented to an expert panel that identified two promising technologies: weak-base anion exchange; and reduction-coagulation-filtration. Treatment facilities using the two technologies were constructed and placed in services for further study in March and April 2010. The study proved that the two technologies were able to reduce chromium 5 to below 5 part-per-billion (ppb) successfully.

Glendale currently has five (5) active production wells and a pick-up system (infiltration galleries) in the Verdugo Basin, along with the VPWTP. The lower water levels have reduced supplies for this source, and accordingly, the City has reduced its projections of supply from this source as well.

Historically, the City used groundwater to meet a varying portion of its water demand. In the 1940s and 1950s essentially all of the City's water needs were obtained from the San Fernando and the Verdugo Basins with limited supplies from Metropolitan. In the 1960's, production from the San Fernando Basin reached a peak of about 17,000 AFY. The Grandview well water collection system in the San Fernando Basin and the Grandview Pumping Plant originally pumped a peak capacity of about 24,000 gpm (34.6 MGD) from San Fernando Basin directly into Glendale's potable water system.

In the mid-1970s, Glendale limited production from the San Fernando Basin to about 12,000 AFY as part of a court decree arising from a Water Rights lawsuit by the City of Los Angeles. In 1975, the California Supreme Court issued the Judgment in City of Los Angeles vs. City of San Fernando which further limited Glendale's production right. The current right is about 5,500 AFY based on a Return Flow Credit right from water use in Glendale, with certain additional rights as described above.

Other limitations to groundwater use occurred in the late 1970s, when production from the Verdugo pick-up system in the Verdugo Basin was discontinued because of water quality problems.

In late 1979, Assembly Bill 1803 required that all water agencies using groundwater must conduct tests for the presence of certain industrial solvents. The tests indicated that VOC such as trichlorethylene and perchloroethylene were present in the San Fernando Basin groundwater supplies in concentrations exceeding State Department of Health Services' maximum contaminant levels. Both chemicals were used extensively in the past as degreasers in manufacturing industries.

At that time, the presence and hazards to the water supplies were identified. As a result, Glendale had to further limit its use of San Fernando Basin supplies. From 1980 to 1992, Glendale reduced production; and from 1992 to 2000, Glendale totally suspended production from the basin because of the presence of VOC. During the twenty year period of reduced production, Glendale continued to accumulate the groundwater storage credits that could be used in the future. Glendale's storage account balance was 53,822 AF as of October 1, 2010.

Glendale's Ability To Meet Demands

Reliability of water supplies is a key goal in the operation of Glendale's water distribution system. Glendale is currently importing approximately seventy percent of its water supply from Metropolitan. Consequently, the reliability of Metropolitan water supplies to meet Glendale water needs as well as the needs of its other twenty-five member agencies becomes exceptionally crucial. For Glendale, Metropolitan is the supplier of "last resort" in meeting the needs of our citizens.

Future Goals

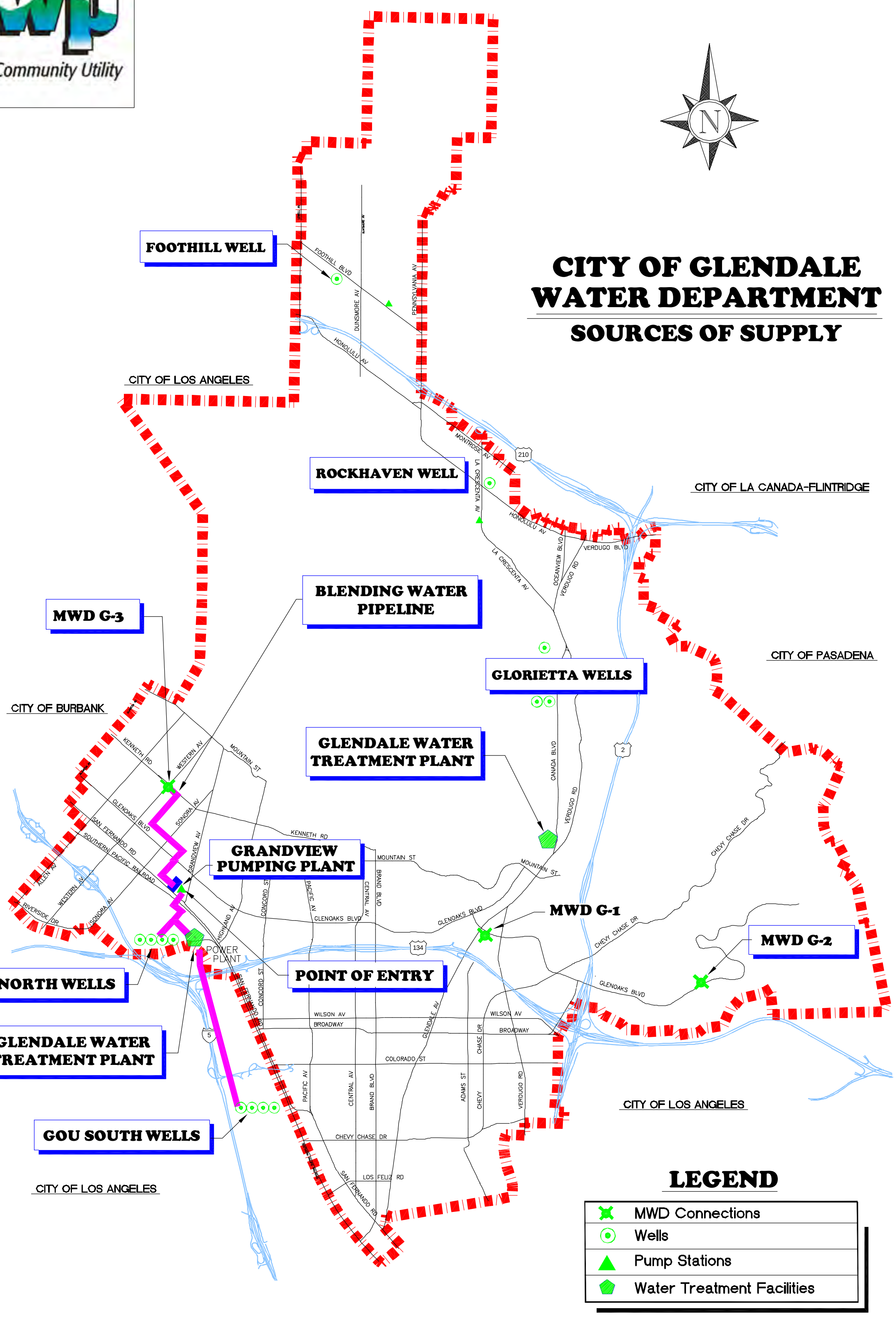
The City has been expanding the use of its local water supplies with operation of the GWTP and increase groundwater extraction of Verdugo Basin. However, because of the chromium 6 related issues, the reliability of the GWTP water supply cannot be guaranteed into the future until a chromium-removal treatment is put into operation. Glendale worked with the Cities of Los Angeles and Burbank, with the help of EPA and American Water Works Research Foundation, to evaluate treatment technologies for chromium 6. In October 2006 the results of pilot studies by Malcolm Pirnie was presented to an expert panel that identified two promising technologies: weak-base anion exchange (WBA) and reduction-coagulation-filtration (RCF). Funding from EPA, California Prop 50, and local industry allowed for the construction of the facilities. The WBA project provides wellhead treatment and was placed into operation in March 2010. The RCF facility is adjacent to the GWTP and was placed into operation April 2010. The two projects have successfully reduced chromium 6 to below 5 ppb. RCF has shown potential for reduction to less than 1ppb. A micro-filtration study has been proposed to further explore this potential in September 2010.

The City's Water Department has immediate plans to increase groundwater production in the Verdugo Basin by rehabilitating an existing well and constructing one new well within the basin. The Foothill Well Rehabilitation Project was completed in January 2011 and currently pending final approval from the California Department of Public Health. The new Rockhaven Well is under design and is expected to be in service in early 2012. The City also encourages the recycled water use by adding new users and expanding the marketing efforts in the City and to neighboring agencies. The City is committed to aggressively advocate the use of recycled water for irrigation & toilet flushing, which will help increased the conservation of potable water and reduced the dependency on imported supplies.

In water year 2009-21010, the City has achieved and excceded the goal of previous year to import only fifty-eight percent (58%) of the total water used from the Metropolitan. It is the goal of the City's Water Department to maintain the City's water purchase from Metropolitan at sixty-five percent (65%) or less of the total water use in the next five years.

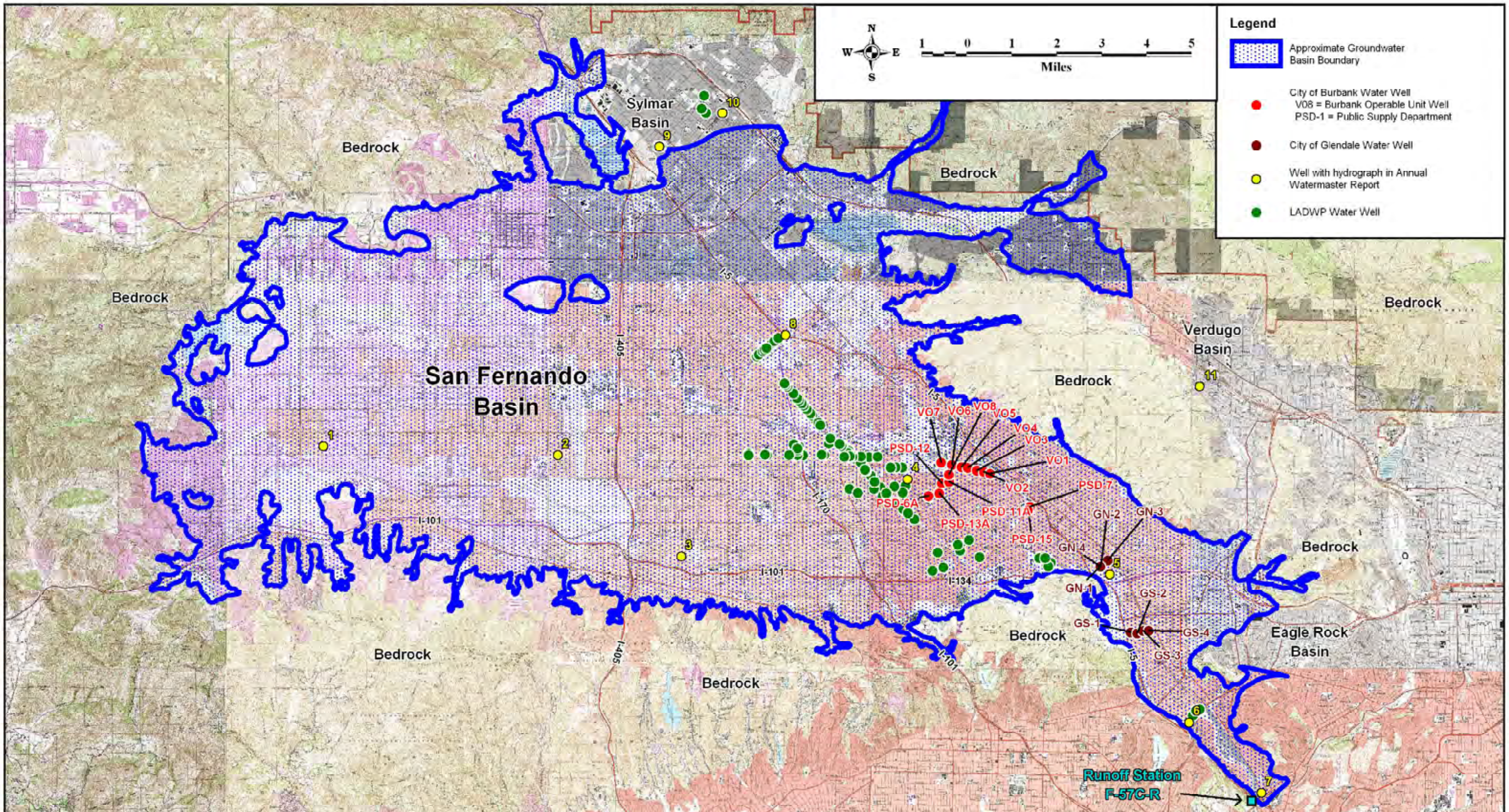
FIGURES

FIGURE 1



Updated on May 4, 2011

FIGURE 2



2008-2009 Water Year ULARA Wastermaster Report	Upper Los Angeles River Area: San Fernando Groundwater Basin Map	PLATE 1A

FIGURE 3

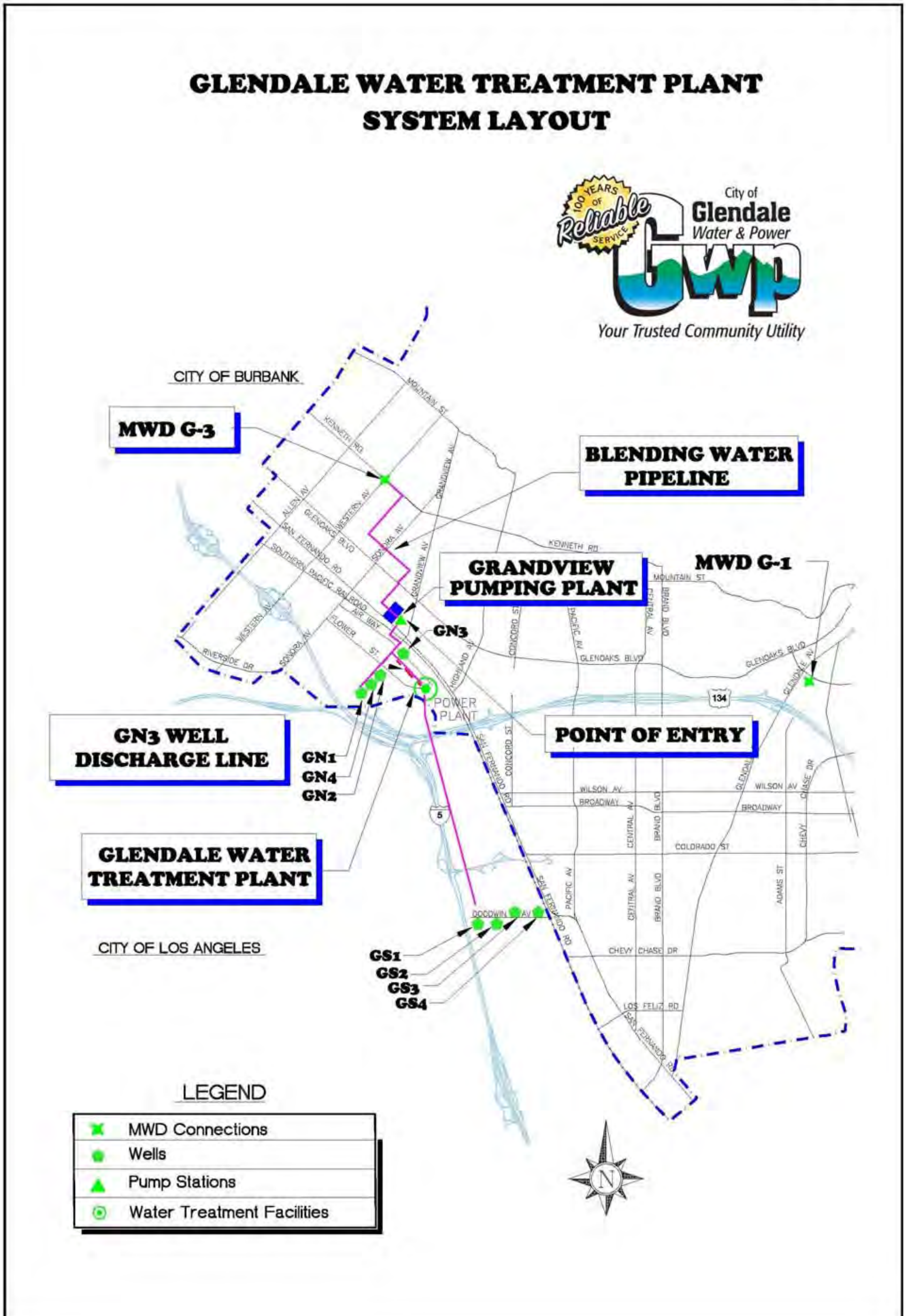

GLENDALE WATER TREATMENT PLANT
SYSTEM LAYOUT
City of
Glendale
Water & Power
Your Trusted Community Utility
CITY OF BURBANK
MWD G-3
BLENDING WATER PIPELINE
GRANDVIEW PUMPING PLANT
MWD G-1
GN3
POWER PLANT
GN3 WELL DISCHARGE LINE
POINT OF ENTRY
GN1
GN4
GN2
GLENDALE WATER TREATMENT PLANT
CITY OF LOS ANGELES
GS1
GS2
GS3
GS4
MOUNTAIN ST
KENNETH RD
GRANDVIEW AV
GLENDALE AV
GLENOAKS BLVD
CONCORD ST
PACIFIC AV
CENTRAL AV
BRAND BLVD
SAN FERNANDO RD
WILSON AV
BROADWAY
COLORADO ST
CHEVY CHASE DR
LOS FELIZ RD
ADAMS ST
GOODWIN AV
FLOWER ST
AIR WAY
RIVERSIDE DR
SONORA AV
WESTERN AV
ALLEN AV
HIGHLAND AV
134
5
LEGEND
MWD Connections
Wells
Pump Stations
Water Treatment Facilities

FIGURE 4

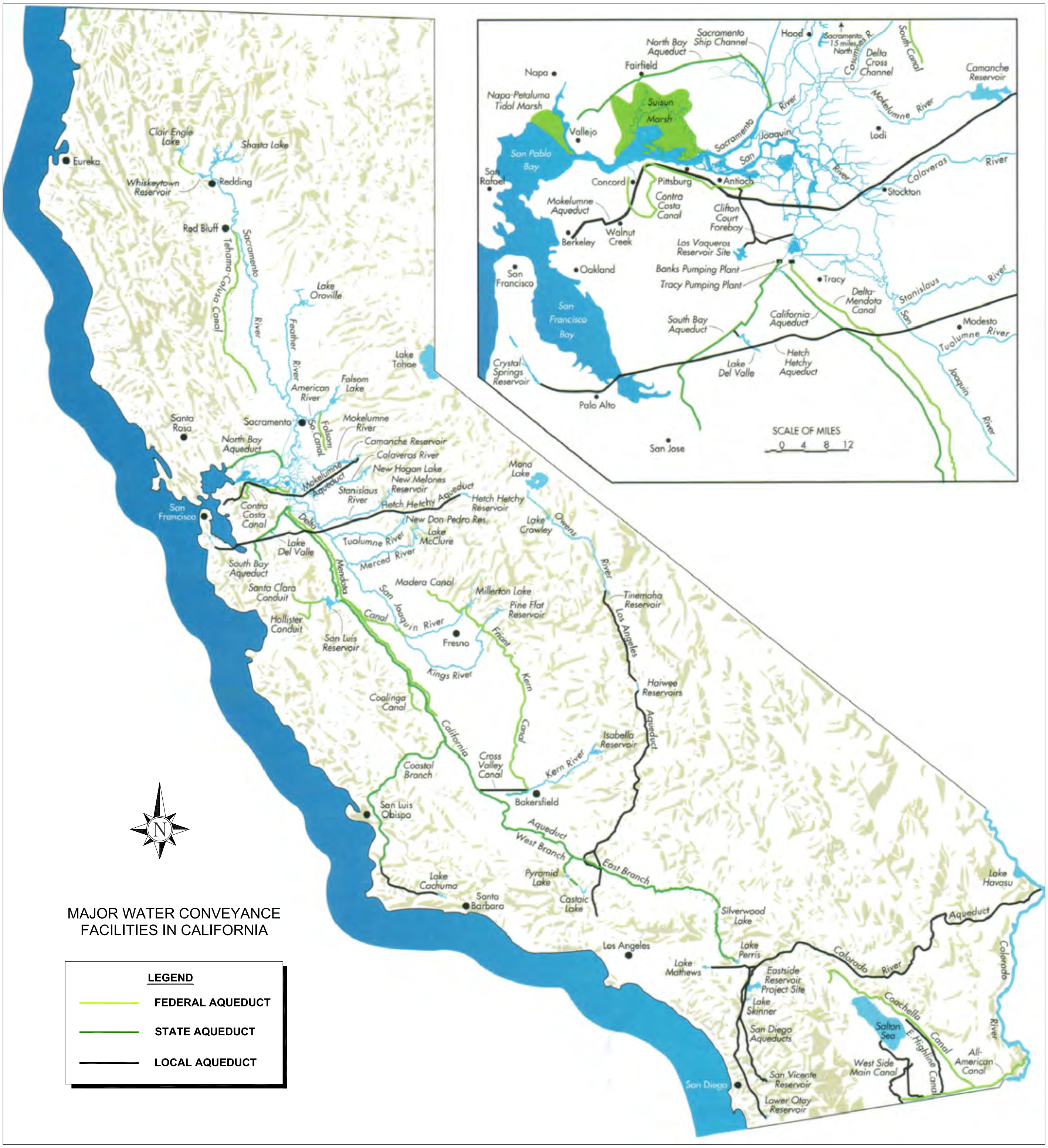

MAJOR WATER CONVEYANCE FACILITIES IN CALIFORNIA
LEGEND
FEDERAL AQUEDUCT
STATE AQUEDUCT
LOCAL AQUEDUCT
Eureka
Clair Engle Lake
Shasta Lake
Whiskeytown Reservoir
Redding
Red Bluff
Tehama-Colusa Canal
Sacramento River
Lake Oroville
Feather River
Lake Tahoe
Folsom Lake
American River
Santa Rosa
Sacramento
Folsom So. Canal
Mokelumne River
North Bay Aqueduct
Camanche Reservoir
Calaveras River
New Hogan Lake
New Melones Reservoir
Stanislaus River
Mokelumne Aqueduct
Hetch Hetchy Aqueduct
Hetch Hetchy Reservoir
Mono Lake
San Francisco
Contra Costa Canal
Delta
New Don Pedro Res.
Lake McClure
Lake Crowley
Owens River
Tuolumne River
Merced River
Lake Del Valle
South Bay Aqueduct
Mendota
Madera Canal
Millerton Lake
Pine Flat Reservoir
Santa Clara Conduit
Hollister Conduit
San Luis Reservoir
San Joaquin River
Canal
Fresno
Friant
Kern
Canal
Kings River
Tinemaha Reservoir
Los Angeles
Haiwee Reservoirs
Aqueduct
Coalinga Canal
California
Isabella Reservoir
Kern River
Coastal Branch
Cross Valley Canal
Bakersfield
San Luis Obispo
Aqueduct
West Branch
East Branch
Pyramid Lake
Castaic Lake
Lake Cachuma
Santa Barbara
Silverwood Lake
Lake Havasu
Aqueduct
Los Angeles
Lake Perris
Lake Mathews
Colorado River
Eastside Reservoir Project Site
Lake Skinner
San Diego Aqueducts
Coachella Canal
Salton Sea
E. Highline Canal
Colorado River
All-American Canal
West Side Main Canal
San Vicente Reservoir
San Diego
Lower Otay Reservoir
Sacramento Ship Channel
North Bay Aqueduct
Hood
Sacramento 15 miles North
Cosumnes R.
South Canal
Delta Cross Channel
Fairfield
Napa
Camanche Reservoir
Napa-Petaluma Tidal Marsh
Suisun Marsh
Mokelumne River
Vallejo
San Pablo Bay
Sacramento River
San Joaquin River
Lodi
San Rafael
Concord
Pittsburg
Antioch
Calaveras River
Stockton
Mokelumne Aqueduct
Contra Costa Canal
Clifton Court Forebay
Berkeley
Walnut Creek
Los Vaqueros Reservoir Site
Oakland
Banks Pumping Plant
Tracy Pumping Plant
Tracy
San Francisco
San Francisco Bay
Delta-Mendota Canal
Stanislaus River
San Joaquin River
South Bay Aqueduct
California Aqueduct
Modesto
Tualumne River
Hetch Hetchy Aqueduct
Lake Del Valle
Crystal Springs Reservoir
Palo Alto
San Jose
SCALE OF MILES
0 4 8 12

FIGURE 5

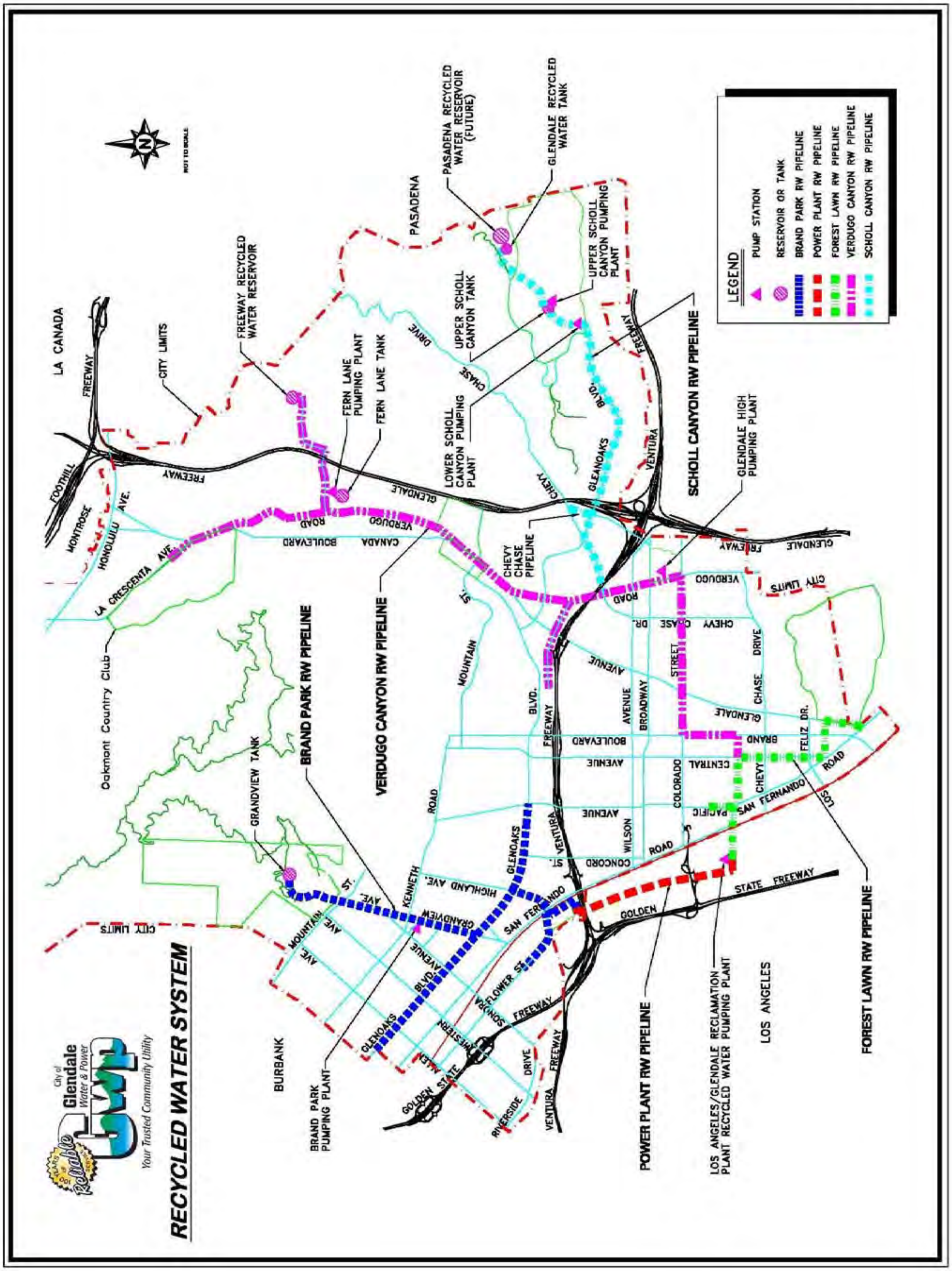

RECYCLED WATER SYSTEM
City of Glendale Water & Power
Your Trusted Community Utility
LEGEND
PUMP STATION
RESERVOIR OR TANK
BRAND PARK RW PIPELINE
POWER PLANT RW PIPELINE
FOREST LAWN RW PIPELINE
VERDUGO CANYON RW PIPELINE
SCHOLL CANYON RW PIPELINE
NOT TO SCALE
LA CANADA
PASADENA
BURBANK
LOS ANGELES
CITY LIMITS
FREEWAY RECYCLED WATER RESERVOIR
FERN LANE PUMPING PLANT
FERN LANE TANK
UPPER SCHOLL CANYON TANK
LOWER SCHOLL CANYON PUMPING PLANT
UPPER SCHOLL CANYON PUMPING PLANT
PASADENA RECYCLED WATER RESERVOIR (FUTURE)
GLENDALE RECYCLED WATER TANK
SCHOLL CANYON RW PIPELINE
GLENDALE HIGH PUMPING PLANT
CHEVY CHASE PIPELINE
VERDUGO CANYON RW PIPELINE
BRAND PARK RW PIPELINE
Oakmont Country Club
GRANDVIEW TANK
BRAND PARK PUMPING PLANT
POWER PLANT RW PIPELINE
LOS ANGELES/GLENDALE RECLAMATION PLANT RECYCLED WATER PUMPING PLANT
FOREST LAWN RW PIPELINE

FIGURE 6

CITY OF GLENDALE

Recycled Water Account Information

NO.	PROJECT NAME	ADDRESS	NO. OF METER	DELIVERY DATE	TYPE OF USE
		FOREST LAWN PROJECT (A - 1)			
1	City of Glendale	1600 S Brand Boulevard	1	1995	Irrigation
2	Forest Lawn Memorial Park	1712 S Glendale Avenue	1	1992	Irrigation
2	Forest Lawn Memorial Park	3690 San Fernando Road	1	1992	Irrigation
3	Silver Crest Homes	316 W Windsor Road	1	2000	Irrigation
4	Cerritos Elementary School	120 E Cerritos Avenue	1	2006	Irrigation
4	Cerritos Elementary School	1715 S Glendale Avenue	1	2006	Irrigation
5	Cerritos School Park	3690 San Fernando Road	1	2007	Irrigation
6	Edison Elementary & Pacific Park	501 Riverdale Drive	1	Mar-07	Irrigation
7	Americana at Brand LLC	233 S Brand Boulevard	1	Apr-09	Irrigation
		POWER PLANT PROJECT (A - 2)			
8	CalTrans	943 W Doran Street	1	1978	Irrigation
9	Grayson Power Plant	800 Air Way	1	1978	Cooling Towers
10	Public Works	non metered	0		Irrigation
11	Glendale Water & Power - UOC	800 Air Way	1	2010	
		BRAND PARK PROJECT (A - 3)			
12	Glenoaks Median (9 meters)	2008 W Glenoaks Boulevard	1	1996	Irrigation
12	Glenoaks Median (9 meters)	1830 W Glenoaks Boulevard (at Irving)	1	1996	Irrigation
12	Glenoaks Median (9 meters)	1108 W Glenoaks Boulevard	1	1996	Irrigation
12	Glenoaks Median (9 meters)	978 W Glenoaks Boulevard	1	1996	Irrigation
12	Glenoaks Median (9 meters)	720 W Glenoaks Boulevard	1	1996	Irrigation
12	Glenoaks Median (9 meters)	618 W Glenoaks Boulevard	1	1996	Irrigation
12	Glenoaks Median (9 meters)	532 W Glenoaks Boulevard	1	1996	Irrigation
12	Glenoaks Median (9 meters)	1628 W Glenoaks Boulevard	1	1996	Irrigation
12	Glenoaks Median (9 meters)	1400 W Glenoaks Boulevard	1	1996	Irrigation
13	Brand Park	1700 W Mountain Street	1	1997	Irrigation
14	Pelanconi Park	905 Cleveland Road	2	1996	Irrigation
15	Grandview Memorial Park	1341 Glenwood Road	2	2001	Irrigation
16	Disney Complex (Dual Plumbed-Future)	1101 Flower Street	1	2007	Irrigation
16	Disney Complex (Dual Plumbed-Future)	1201 Flower Street	1	2007	Irrigation
17	San Fernando Landscape Project	5775 San Fernando Road	1	Jan-09	Irrigation
18	Fairmont Street Extension Project	907 Flower Street	1	Mar-10	Irrigation
		VERDUGO SCHOLL PROJECT (B)			
19	Colorado Blvd - Parkway Irrigation	815 E Colorado Street	1	1997	Irrigation
19	Colorado Blvd - Parkway Irrigation	1311 E Colorado Street	1	1997	Irrigation
19	Colorado Blvd - Parkway Irrigation	1401 E Colorado Street	1	1997	Irrigation
20	CalTrans	1970 E Glenoaks Blvd (E/S,W/S I2)	2	1995	Irrigation
20	Caltrans	406 N Verdugo Rd (at Chevy Chase Dr)	1	1995	Irrigation
20	Caltrans	709 Howard Street (at Monterey Road)	1	1995	Irrigation
20	Caltrans	2000 E Chevy Chase Drive (at Harvey)	1	1995	Irrigation
21	741 S. Brand Median	741 S Brand Boulevard (Median)	1	1995	Irrigation
22	Montecito Park	2978 N Verdugo Road (at Sparr)	1	1995	Irrigation
23	N. Verdugo Rd Median/La Cresenta Ave	3220 N Verdugo Road/Median/ La Crescenta Avenue *OPP	1	1996	Irrigation
24	Verdugo Rd/Canada (North Median)	3021 N Verdugo/Canada Median	1	1996	Irrigation
25	Verdugo Rd/Canada South Overpass	Verdugo/Canada (South) Overpass	1	1995	Irrigation
26	Parque Vaquero	1285 N Verdugo Road	1	1998	Irrigation
27	701 N. Glendale Ave - Median @ Monterey Rd	701 N Glendale Avenue (Median)	1	1995	Irrigation
28	Civic Auditorium	1401 N Verdugo Road	1	1996	Irrigation
29	Sports Complex	2200 Fern Lane	1	1998	Irrigation
30	Adult Recreation Center	201 E Colorado Street	1	1995	Irrigation
31	Glenoaks Park	2531 E Glenoaks Boulevard	1	1995	Irrigation

CITY OF GLENDALE

Recycled Water Account Information

NO.	PROJECT NAME	ADDRESS	NO. OF METER	DELIVERY DATE	TYPE OF USE
32	Scholl Canyon Park	2849 E Glenoaks Boulevard	1	1996	Irrigation
33	Scholl Canyon Ballfield	3200 E Glenoaks Boulevard	1	1997	Irrigation
34	Glendale High School	1440 E Broadway	1	1995	Irrigation
35	Wilson Junior High School	1220 Monterey Road	1	1995	Irrigation
36	Glendale Adventist Hospital	1520 E Chevy Chase Drive	1	1997	Irrigation / Cooling Towers
37	Glenoaks Elementary School	2015 E Glenoaks Boulevard	1	1998	Irrigation
38	Glendale Community College	1500 N Verdugo Road	2	1996 & 2004	Irrigation / Toilet Flushing
39	Oakmont Country Club	3100 Country Club Drive	1	1996	Irrigation
40	Central Library	222 E Harvard Street	2	1995	Irrigation
41	Armory	220 E Colorado Street	1	1996	Irrigation
42	Scholl Canyon Golf Course	3800 E Glenoaks Boulevard	1	1998	Irrigation
43	Scholl Canyon Landfill (PW)	3798 E Glenoaks Boulevard	2	1996	Irrigation/ Soil Compaction/ Dust Control
44	Scholl Canyon Landfill (LACSD)	2847 E Glenoaks Boulevard	1	1997	Irrigation/ Soil Compaction/ Dust Control
45	Public Works (Scholl Canyon)	3798 E Glenoaks Boulevard	1	1996	Irrigation
45	Public Works (Scholl Canyon)	3798 E Glenoaks Boulevard	1	1996	Irrigation
46	Fern Lane (Freeway Tank + Median)	1926 Fern Lane	1	1997	Irrigation
47	Glendale Retirement Home	1551 E Chevy Chase Drive	1	Jul-09	Irrigation
48	Monterey Community Garden	870 Monterey Road	1	Aug-09	Irrigation
49	City of Glendale - CCBG	827 Monterery Road	1	Jan-11	Irrigation

FIGURE 7

CITY OF GLENDALE
FUTURE RECYCLED WATER USERS
As of April 2011

	FUTURE RECYCLED WATER USERS	Anticipated	User	Quantity	Type of
	PROJECT	Delivery Date		AFY	Use
	FOREST LAWN PROJECT				
1	Building - 1255 S. Central Ave (Verdugo Job Center)*	Completed	NO	5	Irrigation
2	Glendale Plaza - 655 N Central Avenue*	Completed	NO	10	Flushing Toilets
3	Building - 610 N. Central*	Completed	NO	6	Flushing Toilets
4	Glendale Memorial Hospital (1420 S. Central Ave.)	Planning	NO	15	Irrigation & Cooling Towers
5	328 Mira Loma Ave (44 residential units)	Construction	NO	10	Irrigation
6	Vassar Villas (San Fernando Rd & Glendale Ave)	Construction	NO	5	Irrigation
7	Pacific Park Pool	Design	NO	5	Irrigation
	POWER PLANT PROJECT				
	VERDUGO SCHOLL PROJECT				
8	John Marshall School*	Completed	NO	5	Irrigation
9	Fremont Elementary School*	Planning Stage	NO	5	Irrigation
10	Polygon Homes Housing Tracks (Camino San Rafael)*	Planning Stage	NO	85	Irrigation
11	Chevy Oaks Homes*	Planning Stage	NO	25	Irrigation
12	Chevy Chase Country Club*	Planning Stage	NO	100	Irrigation
13	Building - 111 N. Brand*	Planning Stage	NO	5	Irrigation
14	Building - 295 E. Garfield*	Planning Stage	NO	10	Irrigation
15	Building - 800 N. Brand (Nestle)	Planning Stage	NO	10	Cooling Towers
16	Caltrans Fwy 210	Planning Stage	NO	20	Irrigation
17	Residential Building -720 S. Maryland	Design Stage	NO	5	Irrigation
18	3-Story Multi Use - 415 E. Broadway	Construction	NO	5	Irrigation
19	Doran Garden (Mixed Use) 331 W. Doran	Planning Stage	NO	5	Irrigation
20	Building - 400 N Brand	Completed	NO	10	Flushing Toilets
21	Building - 450 N Brand	Completed	NO	10	Flushing Toilets
22	Police Building - Isabel Street	Completed	NO	5	Flushing Toilets
23	Building - 611 N Brand	Completed	NO	10	Flushing Toilets
24	Building - 207 Goode Ave	Completed	NO	10	Flushing Toilets
25	Fire Station No. 21*	Completed	NO	10	Irrigation
26	Mayor's Bicentennial Park	Planning Stage	NO	5	Irrigation
27	Carr Park	Planning Stage	NO	5	Irrigation
28	Glorietta Pump Station	2002	NO	5	Irrigation
29	Monterey Road Median - WJH	2002	NO	1	Irrigation
30	Deukmejian Wilderness Park	Completed	NO	200	Irrigation
31	Crescenta Valley Park	Planning Stage	No	20	Irrigation
32	Lutheran School of the Foothills	Planning Stage	NO	5	Irrigation
33	Saint James the Less School	Planning Stage	NO	5	Irrigation
34	Dunsmore Park/Elementary	Planning Stage	NO	25	Irrigation
35	Hillside Irrigation (Camino San Rafael)	Planning Stage	NO	20	Irrigation
36	Montrose Community Park	Planning Stage	NO	15	Irrigation
37	Verudugo Hills Hospital	Planning Stage	NO	30	Irrigation
38	222 Glendale Ave (Orange Grove)	Planning Stage	NO	5	Irrigation
39	Cedar Mini Park*	Completed	NO	5	Irrigation
40	Sleepy Hollow HOA	Planning Stage	NO	5	Irrigation
41	Verdugo Woodlands Elementary School	Planning Stage	NO	5	Irrigation
42	Maryland Mini Park	Planning Stage	NO	5	Irrigation

CITY OF GLENDALE

FUTURE RECYCLED WATER USERS

As of April 2011

	FUTURE RECYCLED WATER USERS	Anticipated	User	Quantity	Type of
	PROJECT	***Delivery Date***		***AFY***	***Use***
	BRAND PARK PROJECT				
43	Homestead Studio Suites (1377 W. Glenoaks Blvd)	Completed	NO	5	*Irrigation*
44	Toll Jr High*	Design	NO	10	*Irrigation*
45	Hoover High School*	Design	NO	21	*Irrigation*
46	Keppel High School*	Design	NO	10	*Irrigation*
47	Disney Campus*	Planning Stage	NO	80	*Irrigation / Flushing Toilets*
48	Dreamworks (Flower Street)	Construction	NO	20	*Irrigation*
49	Disney Child Care Center (1500 Flower Street)	Design Stage	NO	10	*Irrigation*
50	Disney Landscape (1401 Flower Street)	Completed	NO	10	*Irrigiation*
51	Grandview Condos	Design Stage	NO	5	*Irrigation*
52	Glendale Narrow Riverwalk Project (Fairmont Project)	Design Stage	NO	10	*Irrigation*
53	Griffith Manor Park	Design Stage	NO	5	*Irrigation*
54	Caltrans I-5	Planning Stage	NO	30	*Irrigation*
55	Public Works - Street Sweeping	Design Stage	NO	20	*Street Sweeping*
56	GWP-UOC - Airway	Design Stage	NO	10	*Irrigation /*
	TOTAL			***998***	

** RW main service not yet available.*

*** Pasadena and Los Angeles Demand not included*

APPENDIX D

CITY OF SAN FERNANDO

PUMPING AND SPREADING PLAN

2010-2015 Water Years

CITY OF SAN FERNANDO

GROUNDWATER PUMPING AND SPREADING PLAN

OCTOBER 1, 2010 TO SEPTEMBER 30, 2015

2010-2011 Water Year

Prepared by:

Public Works Department

Water Division

117 Macneil Street

San Fernando, California 91340

May 2011

TABLE OF CONTENTS

I. INTRODUCTION

The ground water rights of the City of San Fernando were defined by the JUDGMENT in Superior Court Case No. 650079, entitled "The City of Los Angeles, a Municipal Corporation, Plaintiff, vs. City of San Fernando, et. al., Defendants." The Final Judgment was signed on January 26, 1979.

On August 26, 1983, the Watermaster reported to the court pursuant to Section 10.2 of the Judgment that the Sylmar Basin was in condition of overdraft. On October 1, 1984, San Fernando and Los Angeles were assigned equal rights to pump the safe yield of the Basin (6,210 acre-feet) thus, San Fernando and Los Angeles were each allowed to pump approximately 3,105 acre-feet per year. Thereafter, on October 1, 1996, the safe yield of the Basin was determined to be 6,510 acre-feet per year. A stipulation approved by the Court, on December 13, 2006, allows for a temporary increase in the safe yield of the Basin to 6,810 AF/Y beginning October 1, 2006. Therefore, San Fernando and Los Angeles are now allowed to each pump approximately 3,405 acre-feet per year.

In 1993, significant revisions were made to the Upper Los Angeles River Area (ULARA) Policies and Procedures with the addition of Section 2.9, Groundwater Quality Management. This addition has been made by the Watermaster and the Administrative Committee to affirm its commitments to participate in the cleanup and limiting the spread of contamination in the San Fernando Valley. This report is in response to Section 2.9.4, Groundwater Pumping and Spreading Plan.

The Groundwater Pumping and Spreading Plan is based on the water year, October 1 to September 30. The Draft Plan for San Fernando will be submitted in May to the Watermaster for the current water year.

II. WATER DEMAND

The annual total water demand for the last five years and the projected annual water demand for the next five years are shown on Table 2.1.

Water demand during the early 1990's was affected by drought conditions in the Southern California region. However, the City of San Fernando has imposed voluntary conservation since 1977.

Projected water demands for the next five years is expected to slightly decrease or remain the same due to conservation efforts.
The projected water demand may vary significantly due to weather conditions, economic conditions and/or social conditions in the San Fernando area. A variance of ± 10 percent can be expected.

III. WATER SUPPLY

The water supply for the City of San Fernando is composed of locally produced and treated groundwater. Supplemental water is purchased from the Metropolitan Water District of Southern California (MWD). In case of emergency, there is an existing 6-inch water connection to the City of Los Angeles (DWP) water system at 12900 Dronfield Avenue, in Sylmar.

A. MWD: Treated water is purchased from the MWD to supplement ground water supplies. Historic and projected use of MWD water is shown in Table 2.1.

B. Production Wells: The City of San Fernando owns and operates three (3) wells that are on "active status" with the Department of Health Services as indicated below:

1. ***Well 2A***
   Location: 14060 Sayre Street, Sylmar
   Capacity: 2100 GPM

2. ***Well 4A***
   Location: 12900 Dronfield Avenue, Sylmar
   Capacity: 400 GPM

3. ***Well 3***
   Location: 13003 Borden Avenue, Sylmar
   Capacity: 1100 GPM

   This well shown is on "stand-by status" with the Department of Public Health Services and quarterly samples are collected by waste pumping.

4. ***Well 7A***
   Location: 13180 Dronfield Avenue, Sylmar
   Capacity: 800 GPM

   This well was placed on "inactive status" with the Department of Public Health Services and has been physically disconnected from the water system.

C. Quantity (Acre-Feet) of Water Pumped From Each Well (2009-2010)

1.	Well 2A	2,711.69
2.	Well 3	66.86
3.	Well 4A	364.16
4.	Well 7A	000.00
	Total	3,142.71

D. Wells Groundwater Level Data

1.	Well 2A	1080.5 Taken 09/10
2.	Well 3	1075.2 Taken 09/10
3.	Well 4A	1028.1 Taken 09/10
4.	Well 7A	1068.3 Taken 09/10

E. Well Locations

Well 2A - 14060 Sayre Street, Sylmar

Well 3 - 13003 Borden Street, Sylmar

Well 4A - 12900 Dronfield Avenue, Sylmar

Well 7A 13180 Dronfield Avenue, Sylmar

IV JUDGMENT CONSIDERATIONS

A. Native and Imported Return Water

The safe yield of the Sylmar Basin was 6,510 acre-feet and the cities of San Fernando and Los Angeles have equal rights to pump from this basin. After subtracting the overlaying pumping rights of two private parties, San Fernando and Los Angeles were each allowed to pump approximately 3,255 acre-feet per year.

A stipulation approved by the Court December 13, 2006 allows for a temporary increase in the safe yield of the Basin to 6,810 AF/Y beginning October 1, 2006. Therefore, San Fernando and Los Angeles are now allowed to each pump approximately 3,405 acre-feet per year.

B. Stored Water Credit

San Fernando and Los Angeles each have the right to store water in the Sylmar Basin and the right to extract equivalent amounts.
As of September 30, 2010 the City of San Fernando has a stored water credit of 1,117.77 acre-feet accumulated during previous years through the 09-10 water year.

TABLE 2.1
FIVE-YEAR HISTORIC AND PROJECTED WATER DEMAND
PUMPED AND IMPORTED WATER
CITY OF SAN FERNANDO

(Acre – Feet)

FY	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
DEMAND											
WELLS	3,143	2,856	2,894	3,669	3,473	3,143	2,876	2,876	2,876	2,876	2,876
MWD	499	802	901	0	0	51	629	629	629	629	629
TOTAL	3,642	3,658	3,795	3,669	3,473	3,194	3,505	3,505	3,505	3,505	3,505
ACTUAL							**PROJECTED**				

APPENDIX A

WATER QUALITY DATA

SEE ATTACHED WATER QUALITY REPORT, 2010

CITY OF SAN FERNANDO

- WELL NO. 3
- WELL NO. 4A
- WELL NO. 2A
- WELL NO. 7A

APPENDIX B

POLICIES AND PROCEDURES

(By ULARA)

WATERMASTER SERVICE

UPPER LOS ANGELES RIVER AREA

POLICIES AND PROCEDURES

February 1998

APPENDIX E

CRESCENTA VALLEY WATER DISTRICT

PUMPING AND SPREADING PLAN

2010-2015 Water Years

CRESCENTA VALLEY WATER DISTRICT

GROUNDWATER PUMPING & SPREADING PLAN

FOR

WATER YEARS

OCTOBER 1, 2010 TO SEPTEMBER 30, 2015

Prepared by:
David S. Gould, P.E.
District Engineer

Prepared for:
ULARA Watermaster's Office

May 2011

I. INTRODUCTION

The ground water rights of the Crescenta Valley Water District (CVWD) were defined by the JUDGEMENT in Superior Court Case No. 650079, entitled "The City of Los Angeles, a Municipal Corporation, Plaintiff, vs. City of San Fernando, et. al., Defendants". The Final Judgment was signed on January 26, 1979.

In 1993 and in 1998, significant revisions were made to the Upper Los Angeles River Area (ULARA) Policies and Procedures with the addition of sections for Groundwater Quality Management and various new reports and appendices. This addition was made by the Watermaster and the Administrative Committee to affirm their commitment to participate in the clean-up, and limiting the spread of contamination in the San Fernando Valley.

This report as prepared by CVWD is in response to Section 5.4, Groundwater Pumping and Spreading Plan. This report refers to groundwater pumping since there is no groundwater spreading performed by CVWD.

CVWD's Verdugo Basin Groundwater Recharge, Storage and Conjunctive Use Feasibility Study, which was completed in 2005 had recommended methods of stormwater recharge and storage within the basin and this issue will be investigated more in the coming years by CVWD and the City of Glendale.

The Groundwater Pumping Plan is based on the water year, October 1, 2010 to September 30, 2015.

II. WATER DEMAND

The annual total water demand for the last five (5) years and the projected annual water demand for the next five (5) years are shown in Table 2.1.

Water demands between 2005/06 and 2009/10 were affected by a number of factors including annual rainfall, statewide drought, the unstable economy and water conservation efforts within the Crescenta Valley.

Also, demands in the CVWD service area seem to vary significantly due to seasonal conditions, which can be attributed to the residential character of the District and the large percentage of water consumption for outdoor landscaping.

CVWD has observed swings in the amount of rainfall in the Verdugo Basin over the past five (5) years from a low of 7.7 inches in 2006/07 to 27.7 inches in 2009/10, which was 17% above the annual average of 23.6 inches.

The State of California declared a statewide drought in 2008 and Metropolitan Water District of Southern California (MWD) imposed a set of penalty rate charges for over-usage beginning June 2008. The MWD allocation plan remained in effect in 2009/10.

In 2009/10, CVWD's Board of Directors reaffirmed the mandatory water conservation program utilizing a water conservation alert system which was set into place in 2008. The alert system called for rationing on outdoor landscape and usage to two (2) days a week during the summer months which was in response to MWD's 20% reduction of the water allocation plan.

CVWD had previously anticipated an overall annual decrease in water demand of approximately 3% to 5% per year over the next five (5) years due to its water conservation efforts. In 2009/10, CVWD saw a 9.2% decrease in water demand compared to 2008/09, which is attributed to public awareness on water conservation and water rationing.

III. WATER SUPPLY

The water supply for CVWD is composed of locally produced and treated groundwater, imported water from MWD purchased on a wholesale basis from Foothill Municipal Water District (FMWD). In 2009/10, CVWD had an overall ratio of 60% local groundwater and 40% imported water.

CVWD has an emergency water supply interconnection with the City of Glendale. A proposed emergency water supply interconnection with the City of Los Angeles, Department of Water and Power (LADWP) is planned for construction in WY 2010/11.

In 2009/10, CVWD observed a decrease in groundwater production as compared to 2008/09. CVWD's wells produced 2,652 ac-ft, which was 642 ac-ft under the adjudicated rights of 3,294 AFY.

This was due primarily to the following:

- Well 5 being out of service for the entire water year due to high levels of MTBE,
- Well 9 being out of service for four (4) months due to bacteriological problems, and
- Well 11 being out of service for four (4) months due to pump failure.

Well 9 & 11 are currently back in service for the coming year. The MTBE level in Well 5 has decreased and CVWD is planning to place Well 5 back into service during WY 2010/11.

A. PRODUCTION WELLS

CVWD has twelve (12) active wells that are currently in operation. Historic and projected production from these wells is shown in Table 3.1.

In 2009/10, CVWD observed the water levels and water production in its groundwater wells that were in service increased due to the rainfall amount received in the Crescenta Valley in 2008/09. However, the overall well capacity for 2009/10 was 2.74 MGD which was less than 2008/09 at 3.22 MGD or a 14.8% overall decrease in capacity due to three (3) wells being out of service during the course of the year

A.1 Nitrate in Wells

CVWD wells produce water which typically contains nitrate concentrations above the 45 mg/L maximum contaminant level (MCL) set by the EPA and California Department of Public Health (CDPH). The Glenwood Nitrate Removal Plant ion-exchange process is used to treat a portion of the produced well water. Untreated water and water treated at the Glenwood Plant are blended to produce water with less than the nitrate MCL. In 2009/10, the ion-exchange plant was in operation for the majority of the year to maximize the use of local groundwater.

Water production at the Mills Plant is blended with FMWD water to decrease the nitrate levels below the MCL.

A.2 Methyl tertiary-butyl ether (MTBE) in Wells

In 2004, CVWD detected low levels of MTBE in Well 5 during routine sampling. In September 2006, Well 7 was taken out of service because of the discovery of methyl tertiary-butyl ether (MTBE) above the 13 ug/L MCL.

A.2.1 MTBE Levels

In March 2008, a pump test was performed to determine if the decreased MTBE levels in Well 7 were due to a lack of pumping activity or if the MTBE plume had decreased.

The results of the pump tested showed that the MTBE levels in Well 7 remained constant at 2.0 ug/L and that the plume could have moved away from Well 7, but MTBE levels in other nearby wells had not increased.

In April 2008, CVWD asked CPDH for permission to place Well 7 back into service since the MTBE levels had declined to less than 0.50 ug/L and groundwater was needed to replace Well 9, which had been taken out of service for pump repairs. CVWD continued monitoring MTBE levels at Well 7 and the Mills Forebay on a weekly basis to ensure that if MTBE levels began to rise, Well 7 could be shut down.

In July 2008, CVWD observed that the MTBE level in Well 5 was beginning to rise and in early September 2008, Well 5 was taken out of service when the MTBE level reached 14 ppb, which is above the MCL of 13 ppb.

In 2008/09, the MTBE level in Well 5 continued to increase from 18 ug/L in October 2008 to 57 ug/L in September 2009 and Well 5 remained out of service.

In 2009/10, the MTBE level in Well 5 rose to a high of 67 ug/L in October 2009 and then steadily decreased over the course of the water year to a low of 0.25 ug/L in July 2010. CVWD is planning to perform another pump test on Well 5 to determine if the MTBE levels would increase after pumping activity.

A.2.2 Verdugo Basin MTBE Task Force

In October 2006, CVWD requested that the Watermaster's office create the Verdugo Basin MTBE Task Force and CVWD has been working with RWQCB, CDPH, stakeholders, and RP's on remediation and clean up of the MTBE.

In 2009/10, the Task Force met three (3) times throughout the year and progress at the nine (9) sites that required remediation is shown in the table below:

Site	Owner	Address	Status
1	Exxon/Mobil Station	3200 Foothill Blvd	Closed
2	76 Station	2384 Foothill Blvd	Remediation
3	Former Arco Station	6454 Foothill Blvd	Remediation
4	Shell Station	3044 Foothill Blvd	Remediation
5	Chevron Station	2817 Honolulu Ave	No Work
6	Shell Service Station	6621 Foothill Blvd	No Work
7	Valero Gas Station	2660 Foothill Blvd	Remediation
8	LA County, DPW - Pickens Yard	4628 Briggs Ave	No Work
9	Crescenta Valley Tow	4456 Cloud Ave	Remediation

A.2.3 GAC Treatment System

In 2009/10, CVWD received a grant from CDPH under the Drinking Water Treatment and Research Fund for funding the installation of a granulated activated carbon (GAC) water treatment system for removal of MTBE at the Well 5 site. CVWD has proceeded with the design of the facility with the goal for Well 5 to be back in service by the end of 2011.

B. WELL REPLACEMENT PROGRAM

The District's active wells range in age from 10 to 81 years old and are mostly beyond their useful life. CVWD does not have plans in the next two (2) years to install new water production wells; however, it is still CVWD's desire in the next 5 – 10 years to replace its older wells.

In the meantime, CVWD is working with the City of Glendale on Glendale's groundwater replacement program.

C. WELL REHABILTATION PROGRAM

CVWD continues performing well rehabilitation on its existing wells to maintain well capacity and extend the life of the wells. In 2009/10 CVWD performed well rehabilitation on Wells 11 & 14. In 2010/11, CVWD is planning to perform well rehabilitation on Wells 8 & 10.

CVWD was planning to place Well #2, which has been out of service since 1976 due to the high nitrate level, back into service. However, the cost for installation of a small ion-exchange system at Well #2 was cost prohibitive and CVWD is continuing to keep this project on hold until funding is available.

D. GLENWOOD NITRATE REMOVAL PLANT

The Glenwood ion-exchange nitrate removal plant was placed into operation in January 1990. The plant was out of operation for extended periods in 1992–93 and again in 1997 when repairs were necessary.

During 2009/10, the plant was in operation during the entire year to maximize the use of groundwater production and this trend will probably continue in 2010/11. CVWD is planning to replace the ion-exchange resin during 2010/11. The historic and projected production from the Glenwood Plant is shown in Table 3.2.

E. PICKENS GRAVITY TUNNEL PRODUCTION

A small portion of the total demand for CVWD is supplied by the Pickens Gravity Tunnel. Historic and projected production from Pickens Tunnel is shown in Table 3.3.

F. FMWD/MWD – IMPORTED WATER

In 2009/10, the amount of imported water purchased from MWD via FMWD was less than previous years due to decreased water demands in response to CVWD's water conservation effort.

In 2010/11, CVWD anticipates additional decreases in the amount of imported water received from FMWD due to CVWD’s water conservation efforts to meet MWD’s allocation plan. Historic and projected use of FMWD water is shown in Table 3.4.

G. CITY OF GLENDALE INTERCONNECTION

In 2004, CVWD completed the installation of a new water supply interconnection with the City of Glendale. This connection allowed CVWD to increase its water supply capacity by 5.0 cfs or 3.2 mgd. An agreement between the City of Glendale, FMWD and CVWD was signed in 2004, where CVWD will pay FMWD for the water and the City of Glendale for the maintenance and operation of bringing the water to CVWD.

CVWD did use the Glendale/CVWD interconnect (GCI) in 2009/10 during a 30-day shutdown by FMWD who was repairing its Alta Canada pipeline. In 2010/11, CVWD is preparing for a 10-day MWD/FMWD shutdown, where the GCI will be utilized.

H. CITY OF LOS ANGELES INTERCONNECTION

In 2005, CVWD received a Proposition 50, Water Security Grant from CDPH to install an emergency water supply connection with the City of Los Angeles. The new connection will provide 2.2 cfs or 1.44 mgd. In addition, the new interconnection and associated facilities will allow CVWD to provide water in low demands to FMWD and its sub-agencies in case of a local disaster or when MWD's Weymouth plant is out of service. In 2009/10, the State of California reinstated the grant funding for this program, but CVWD's project was slated to be funded in December 2010. Therefore, CVWD will resume the project once grant funding is available.

IV. JUDGEMENT CONSIDERATIONS

The allowable adjudicated rights of CVWD from the Verdugo Basin are 3,294 acre-feet per year:

- 1978–79 to 1991/92 - CVWD pumped 1,700 to 2,900 ac-ft/yr from the Verdugo Basin (below the adjudication).

- 1993/94 to 2000/01 - CVWD pumped over its adjudicated right up to 500 ac-ft/yr, which was allowed by the Watermaster's office.
- 2001-02 to 03/04 - CVWD pumped below its adjudication since basin production was declining.
- 2004/05 - CVWD increased in water production due to higher than normal rainfall and was able to pump over the adjudication by 16 ac-ft.
- 2005/06 - CVWD pumped over the adjudication by 59 ac-ft. CVWD and the City of Glendale came to a mutual agreement on compensation for the amount of water pumped over the adjudication for 2004/05 & 2005/06.
- 2006/07 - CVWD planned to maintain well production within the adjudication, however due to operator error, CVWD pumped over the adjudication by 11 ac-ft. CVWD and the City of Glendale are finalizing this issue based on the 2005/06 mutual agreement on compensation.
- 2007/08 - CVWD adjusted its pumping schedule to maintain well production within the adjudication, and CVWD was 15 ac-ft below, which was due to Well 5 being out of service for high MTBE levels.
- 2008/09 – CVWD pumped below its adjudication by 330 ac-ft, which was due to Well 5 being out of service for high MTBE levels and Well 9 being out of service due to bacteriological problems.
- 2009/10 - CVWD pumped below its adjudication by 640 ac-ft, which was due to Well 5 being out of service for high MTBE levels, Well 9 being out of service due to bacteriological problems and Well 11 being out of service due to pump failure.

TABLE 2.1
HISTORIC AND PROJECTED WATER DEMAND
(Acre-Feet)

2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
5,432	5,599	5,344	4,852	4,405	4,532	4,910	4,895	5,135	5,230
ACTUAL					PROJECTED				

TABLE 3.1
HISTORIC AND PROJECTED COMBINED WELL AND TUNNEL GROUNDWATER PRODUCTION
(Acre-Feet)

2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
3,353	3,305	3,281	2,965	2,651	2,825	3,190	3,294	3,294	3,294
ACTUAL					PROJECTED				

TABLE 3.2
HISTORIC AND PROJECTED GLENWOOD NITRATE REMOVAL PLANT PRODUCTION BEFORE BLENDING
(Acre-Feet)

2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
997	664	660	459	410	475	500	500	500	500
ACTUAL					PROJECTED				

NOTES:

(1) The Glenwood Treatment Plant has a capacity of 2.7 MGD of blended water.

(2) The Glenwood Treatment Plant began operation January 1990.

TABLE 3.3
HISTORIC AND PROJECTED PICKENS TUNNEL WATER PRODUCTION
(Acre-Feet)

2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
70	69	64	60	65	65	65	65	65	65
ACTUAL					PROJECTED				

TABLE 3.4
HISTORIC AND PROJECTED USE OF MWD TREATED WATER
(Acre-Feet)

2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
2,080	2,294	2,064	1,888	1,754	1,707	1,720	1,601	1,841	2,031
ACTUAL					PROJECTED				

NOTES:
(1) All values shown above are for treated water.

APPENDIX F

ANNUAL MUNICIPAL EXTRACTIONS IN ULARA

1979-2011

ANNUAL MUNICIPAL EXTRACTIONS IN ULARA
1979-80 through 2009-10
(acre-feet)

Water	San Fernando Basin*				Sylmar Basin			Verdugo Basin			ULARA
Year	Burbank	Glendale	Los Angeles	TOTAL	Los Angeles	San Fernando	TOTAL	CVWD	Glendale	TOTAL	TOTAL
2009-10	10,048	7,935	59,958	77,941	2,544	3,143	5,687	2,645	2,135	4,780	88,408
2008-09	9,966	7,151	52,896	70,013	868	3,473	4,341	2,957	2,087	5,043	79,397
2007-08	6,817	7,411	50,009	64,237	2,997	3,670	6,667	3,270	2,687	5,957	76,861
2006-07	9,780	7,622	76,251	93,653	3,919	2,894	6,813	3,294	2,568	5,862	106,328
2005-06	10,108	7,374	38,042	55,523	2,175	2,857	5,032	3,354	2,390	5,744	66,299
2004-05	6,399	7,792	49,085	63,276	1,110	3,143	4,253	3,310	2,358	5,668	73,197
2003-04	9,660	7,282	68,626	85,568	3,033	3,454	6,487	2,568	2,117	4,685	96,740
2002-03	9,170	8,507	73,676	91,353	3,549	3,357	6,906	2,836	1,613	4,449	102,708
2001-02	10,540	6,838	66,823	84,201	1,240	3,766	5,005	3,266	2,129	5,396	94,602
2000-01	12,547	6,886	65,409	84,843	2,606	3,696	6,301	3,422	2,227	5,649	96,793
1999-00	12,547	1,023	98,016	111,586	2,634	3,807	6,441	3,699	2,727	6,426	124,453
1998-99	10,729	31	123,207	133,966	4,536	3,528	8,064	3,797	2,627	6,424	148,455
1997-98	3,964	28	85,292	89,284	3,642	3,308	6,950	3,747	2,820	6,567	102,802
1996-97	11,171	20	89,935	101,126	2,482	3,259	5,741	3,672	2,674	6,346	113,213
1995-96	8,067	26	72,286	80,379	2,766	2,985	5,752	3,705	2,133	5,838	91,969
1994-95	3,052	53	55,478	58,583	2,311	3,421	5,732	3,708	1,633	5,341	69,656
1993-94	2,773	115	60,480	63,368	2,052	3,398	5,451	3,634	1,402	5,037	73,855
1992-93	1,354	91	34,973	36,419	1,369	2,145	3,514	2,557	990	3,547	43,480
1991-92	39	489	75,684	76,213	3,292	2,826	6,118	2,631	633	3,264	85,596
1990-91	1,278	2,755	67,032	71,065	3,281	2,266	5,546	2,615	1,230	3,845	80,456
1989-90	16	1,500	79,949	81,465	2,626	2,763	5,389	2,903	1,329	4,232	91,086
1988-89	29	1,315	126,630	127,974	3,259	2,199	5,459	2,285	2,064	4,349	137,781
1987-88	30	1,020	104,419	105,470	3,133	777	3,911	2,268	2,096	4,364	113,745
1986-87	29	5,758	85,845	91,632	3,113	3,026	6,139	2,255	2,619	4,874	102,645
1985-86	123	5,819	80,963	86,904	3,075	3,166	6,241	2,075	3,418	5,493	98,639
1984-85	2,863	3,086	95,641	101,591	3,130	3,102	6,232	1,997	3,837	5,834	113,657
1983-84	1,063	1,708	112,840	115,611	3,106	3,907	7,013	2,009	3,551	5,560	128,184
1982-83	2,187	1,028	65,178	68,394	3,048	3,133	6,181	1,759	3,427	5,187	79,761
1981-82	523	952	83,207	84,682	3,486	3,290	6,775	1,876	3,732	5,607	97,065
1980-81	595	1,129	91,067	92,791	4,117	3,380	7,497	2,140	2,122	4,262	104,550
1979-80	677	934	57,304	58,915	3,111	2,991	6,102	1,873	1,434	3,307	68,325
Average	5,101	3,344	75,684	84,130	2,826	3,101	5,927	2,843	2,284	5,127	95,184

*Includes municipal pumping only. Does not include any physical solution pumping in the cities of Burbank, Glendale, or Los Angeles.