



Water Quality Authority

Semi-Annual Status Report

Prepared Pursuant to Ch. 404/Statutes of 2007

September 20, 2017

Board of Directors

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TERMS AND ACRONYMS

§406	San Gabriel Basin Groundwater Quality Management and Remediation Plan
ACT	The California Safe Drinking Water Act (Health & Safety Code §§ 116275 <i>et seq.</i>)
ARARs	Applicable or Relevant and Appropriate Requirements
ARMWC	Adams Ranch Mutual Water Company
Basin	Main San Gabriel Basin
Basin Plan	LARWQCB Los Angeles Basin Plan
BATT	Best Available Treatment Technology
BPOU	Baldwin Park Operable Unit
CBMWD	Central Basin Municipal Water District
CD	Consent Decree
CDWC	California Domestic Water Company
CEM	City of El Monte
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CrVI	Chromium VI (Hexavalent Chromium)
CMP	City of Monterey Park
CPUC	California Public Utilities Commission
DDW	State Water Resources Control Board, Division of Drinking Water (formerly California Department of Public Health)
DTSC	Department of Toxic Substances Control
EC	Emergent Chemicals
EMOU	El Monte Operable Unit
ESD	Explanation of Significant Differences
ESPSD	East Side Performing Settling Defendant
FFPA	Federal Funding Program Administration
General Permit	LARWQCB Issued General NPDES Permit No. CAG914001
GSWC	Golden State Water Company
IROD	Interim Record of Decision
IRWMP	Integrated Regional Water Management Plan
LACFCD	Los Angeles County Flood Control District
LARWQCB	Los Angeles Regional Water Quality Control Board
LPVCWD	La Puente Valley County Water District
MCL	Maximum Contaminant Level
MSBWM	Main San Gabriel Basin Watermaster
NCP	National Contingency Plan
NDMA	N-Nitrosodimethylamine
NL	Notification Level
Northrop	Northrop Grumman Systems Corporation
OAL	Office of Administrative Law
OEHHA	Office of Environmental Health Hazard Assessment
OU	Operable Unit
Process Memo 97-005	State Water Resources Control Board, Division of Drinking Water Process Memo 97-005
PRPs	Potentially Responsible Parties
PVOU	Puente Valley Operable Unit
PVOUSC	Puente Valley Operable Unit Steering Committee
QSA	Quantification Settlement Agreement
Restoration Fund	San Gabriel Basin Restoration Fund

RI/FS	Remedial Investigation Feasibility Study
ROD	Record of Decision
SA1	Subarea 1
SEMOU	South El Monte Operable Unit
SGVWC	San Gabriel Valley Water Company
SEMOU Barrier	South El Monte Shallow Extraction Barrier
SWRCB	State Water Resources Control Board
SWS	Suburban Water Systems
TCP	1,2,3-Trichloropropane
TDS	Total Dissolved Solids
Title XVI	San Gabriel Basin Demonstration Project
USBR	United States Bureau of Reclamation
USEPA	The United States Environmental Protection Agency
USGVMWD	Upper San Gabriel Valley Municipal Water District
UTC	United Technologies Corporation
UWMP	Urban Water Management Plan
VCWD	Valley County Water District
VOC	Volatile Organic Compound
Watermaster	Main San Gabriel Basin Watermaster
WQA	San Gabriel Basin Water Quality Authority
WQA Act	San Gabriel Basin Water Quality Authority's Enabling Act
WSGRF	Whitmore Street Groundwater Remediation Facility
WSPSD	West Side Performing Settling Defendant

About WQA

The San Gabriel Basin Water Quality Authority (“WQA”) was formed by a special act of the California Legislature in 1992 (Senate Bill 1679, Russell). The statute gives WQA authority, *inter alia*, to plan for and to coordinate among several agencies with authority affecting cleanup of the San Gabriel Basin (“Basin”). §406 of the statute requires WQA to develop and adopt a basinwide groundwater quality management and remediation plan (referred to as the §406 Plan). The current §406 Plan, as referenced in this report, was adopted on January 18, 2017.

Purpose of Ch. 404 Status Report

In 2007, legislation created Chapter 404, Statutes of 2007 (AB1010, Hernandez) added Section 711 to the WQA statutes. Under this new section, the WQA is required to provide a status report semi-annually on its activities undertaken pursuant to the §406 plan. As such, much of the information provided in this status report is already available in the §406 plan. This report to the State Water Resources Control Board (“SWRCB”) and the Los Angeles Regional Water Quality Control Board (“LARWQCB”) is due September 30, 2017 and is prepared to comply with Section 711 for WQA activities through June 30, 2017.

Overview of Groundwater Contamination in the San Gabriel Basin

The groundwater Basin has the dubious distinction of being one of the most contaminated in the nation. The Basin’s groundwater is contaminated from the ground disposal—dating back to World War II— of synthetic organic compounds used primarily as solvents in industrial and commercial activities.

The seriousness of the groundwater contamination problem became evident when high concentrations of volatile organic compounds (“VOCs”) were discovered in Azusa in 1979 near a major industrial complex. Over the next four years, further investigation revealed widespread VOC contamination significantly impacting the Basin. This discovery led United States Environmental Protection Agency (“USEPA”) to place four portions of the Basin on the National Priorities List under authority of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (“CERCLA”), also known as the Superfund program.

Unfortunately, in 1997, newly detected contaminants, perchlorate and N-Nitrosodimethylamine (“NDMA”) liquid/solid rocket fuel, complicated and delayed progress of cleanup activities. Most notably affected was the largest geographical area of the San Gabriel Valley Superfund site known as the Baldwin Park Operable Unit (“BPOU”). This led USEPA, state and

local agencies to conduct further investigation of the sources and treatment technologies available for remediating groundwater for potable use.

In prior years, several VOC treatment/supply projects were expanded at significant costs to treat perchlorate and other emerging compounds. More recently, many of these multiple treatment train projects were further burdened with increased levels of VOCs. As a result, additional VOC treatment, also known as a secondary barrier, was needed to meet State Water Resources Control Board, Division of Drinking Water (“DDW”) permitting requirements under its 97-005 Process Memo for Extremely Impaired Sources (“Process Memo 97-005”). While the additional treatment is necessary, each step has incrementally increased the costs of capital construction and treatment and remediation resulting in an overall project cost 4 to 5 times the original VOC treatment/supply project. Of all of the operable units (“OUs”) in the basin, South El Monte Operable Unit (“SEMOU”) has been affected the most by the need for additional treatment.

On February 1, 2015, the Office of Environmental Health Hazard Assessment (“OEHHA”) officially lowered its Public Health Goal (“PHG”) for perchlorate to 1 ppb. The action finalizes the draft PHG for perchlorate that was released for public comment and peer reviewed in 2011. The focus has now shifted to DDW who now must consider the lowered PHG and make a decision about lowering the current perchlorate MCL of 6 ppb. A lower perchlorate MCL could require some water purveyors to add additional treatment to their systems. Additionally, the USEPA has announced that they will establish a federal MCL. USEPA will most likely implement an MCL close to the 1 ppb that was suggested by its draft risk assessment released in 2002.

On July 1, 2014 an MCL of 10 ppb for Hexavalent Chromium (“CrVI”) became effective as the only CrVI drinking water standard in the country. In 2015, SB385 was passed by the legislature to establish compliance timeframe and assist water purveyors to coming into compliance with the new regulation. However, in May 2017 the Superior Court of Sacramento County invalidated the MCL noting that the “state failed to properly consider the economic feasibility of complying with the MCL.” As a result, DDW has embarked on creating a new CrVI regulation that is expected to take between 18 and 24 months to complete.

WQA will continue to coordinate activities while reviewing the potential impact of regulatory standards on current and planned treatment projects throughout the Basin.

Goals for Basin Groundwater

The long-term goal of creating a sustainable and reliable source of water supply in the Basin cannot be met unless the Basin's giant underground aquifers can be fully utilized. The contamination of many of these aquifers stymies opportunities for local drinking water and for recharge and storage.

WQA's goals were developed as a result of discussions with federal, state and local agencies, various stakeholders, and comments heard at public workshops and hearings. Each year, the goals are re-evaluated as part of the §406 Plan update and are described in the following paragraphs.

Accelerate Removal of Contaminant Mass in the Basin - Cleanup actions, implemented earlier than CERCLA provides, are needed to address the immediate threats to the local water supplies. This is accomplished by engaging the regulatory processes of other agencies of the State, and, wherever possible, "fast tracking" the activities, to reach the desired outcome sooner than would occur under the applicable regulatory process.

Previously, the WQA focused its accelerated removal activities on projects that could be implemented immediately to remove contaminant mass. In more recent years, the focus has changed due to the ever-growing list of threatened and impaired water supply wells. Faced with this widespread impact, water purveyors, individually and jointly with the WQA and/or other agencies, have undertaken the early implementation of several treatment facilities, thereby initiating clean up well ahead of the mandate from regulatory agencies.

With contamination rapidly migrating towards critical water supplies, the WQA now primarily focuses on projects to accelerate and advance cleanup activities while providing a clean water supply or protecting a nearby water source. More of these types of early actions are necessary to either:

- (1) remove contaminant mass to immediately prevent further degradation of downgradient aquifers,
- (2) contain the spread of contamination to protect critical water supplies,
- (3) restore critical water supplies, or
- (4) combine the aforementioned.

Although early actions are implemented before a regulatory mandate, there is always extensive coordination with USEPA and the LARWQCB to link the early action to the eventual mandate. By working closely with USEPA, the WQA and other local stakeholders can affect USEPA's decision-making and identify certain high priority cleanup projects that are consistent with USEPA's objectives.

Although USEPA cannot formally endorse and mandate cleanup until a rigorous process is completed, WQA can facilitate and assist in the implementation of the required action well before the mandate. Waiting on mandated actions has already had severe impacts in many parts of the Basin.

Prevent Migration of Contamination into Critical Groundwater Supplies

- In many parts of the Basin, the contamination continues to spread towards, and threaten groundwater supply wells. Given that so many supply wells have already been shut down, the current situation presents a significant and ongoing threat to the Basin's water supply. Therefore, priority is given to implementing cleanup projects that will prevent the loss of water supplies.

In order to meet this goal, remediation measures must be implemented quickly to prevent contaminants from entering clean drinking water supplies. Further, these actions must also prevent contaminants from entering drinking water supplies with existing treatment not built or suited to treat the threatening contaminant(s). The goal to contain the contamination is supported with actions that specifically address threats to groundwater pumping centers. Loss of major production centers will continue to impair the water supply unless these types of threats are immediately addressed in a cleanup plan. In furtherance of this goal WQA has allocated funding to assist purveyors in discrete well destruction activities to ensure that non-producing well do not act as a conduit for contamination migration.

The Main San Gabriel Basin Watermaster ("MSGBW") has existing rules and regulations which govern the location and production of water wells for water quality purposes. The WQA works with the MSGBW and its existing rules and regulations to help contain and control the migration of contaminants within the Basin.

Integrate Cleanup with Water Supply - With so much of the local water supply impaired, it is essential that water treated from the cleanup projects be put to its highest and best use. Putting the treated water back into the supply system enhances the overall water supply situation in the Basin and helps many water purveyors mitigate the threat to their water supply. The desired objectives can be achieved by maximizing the use of existing facilities that have either been shut down or have been impaired. When new facilities are needed, these should be integrated into the supply of the appropriate water purveyor.

If cleanup facilities are built without the consideration of the local supply, then many water purveyors will be forced to build redundant treatment facilities on impaired wells or import increasingly scarce surface supplies from other areas. Currently, water purveyors only use surface water sources when they are readily available or when groundwater sources become

impaired or unavailable; otherwise the predominant source of supply is from the local groundwater.

Although cleanup projects that put treated water to beneficial use will provide localized benefits, there are, of course, broad benefits that impact the regional water supply situation in California. Decreasing supplies from the Colorado River and the State Water Project, as a result of recent court decisions, make it critical to protect and develop groundwater resources so that both groundwater and surface waters of the State can be managed more effectively. Critical to this statewide need is the full utilization and restoration of the Basin groundwater.

Minimize Economic Impact to the Public - The issue of who pays for the cleanup is often the biggest obstacle in initiating the necessary cleanup programs. Although Potentially Responsible Parties (“PRPs”) may be held completely liable for the costs of a response action under the CERCLA mandate, actions normally do not occur until a lengthy process is completed. Equally detrimental is the fact that there is no assurance that water purveyors will be able to fully recover and collect all costs associated with protecting and fulfilling immediate water supply concerns through CERCLA cost recovery actions. Therefore, many water purveyors may still need to fund, at least partially, the construction of treatment facilities or the acquisition of alternative water supplies even after some or all of the solvent PRPs have fulfilled their obligations resulting from a CERCLA cost recovery action.

Adding to the economic complexity of the situation is the fact that USEPA conducts its own detailed financial evaluation of PRPs and may settle for a reduced amount. And even then, many businesses cannot fully absorb the financial liability without hurting their businesses. In the meantime, the contamination continues to spread, impacting more water supply sources and, by extension, the basic reliability of plentiful water to support the economic basis and vitality of the Basin.

The WQA has pursued and continues to aggressively pursue sources of funding from responsible parties and the federal/state government. Despite these efforts, organizations like WQA and some of the local water purveyors have had to pool their own resources to immediately initiate many of the required response actions. This has required a financial commitment on behalf of the local public (at least initially). Early actions financed outside of the CERCLA process have been necessary to assure that many of the critical projects are implemented quickly. In addition, cleanup projects such as those prescribed by WQA are designed from a local perspective to address groundwater cleanup in conjunction with the water supply. However, costs borne by the public for this effort would have to be absorbed or recovered through litigation.

To accommodate potentially conflicting goals between accelerating cleanup and minimizing impact to water rate payers, WQA has identified high priority response actions that can be implemented ahead of USEPA's mandate using available financial resources, including federal reimbursement funding, and in some cases, financial participation from PRPs. If a required project lacks sufficient funding, a commitment by the affected water purveyors and/or WQA through its assessment, along with other potential local sources, will be required. Where WQA is required to use its own assessment to quickly assist in the development of a project, WQA always considers cost recovery actions to minimize costs borne by the public. To that end, WQA has already filed two costs recovery actions and may consider other cost recovery actions against those responsible entities that chose not to participate in the sponsored early remedial actions.

Coordination with Other Agencies

The WQA was created to fulfill a need to coordinate response actions to the contamination in the Basin. The WQA continues to call for the involved federal, state, and local agencies to unite with all stakeholders to work more effectively and efficiently. Stakeholders include but are not limited to:

<i>Federal</i>
<i>-U.S. Environmental Protection Agency -U.S. Bureau of Reclamation</i>
<i>State</i>
<i>-Department of Toxic Substances Control -State Water Resources Control Board -Los Angeles Regional Water Quality Control Board -SWRCB Division of Drinking Water</i>
<i>Local</i>
<i>-WQA and its three member water districts -Main San Gabriel Basin Watermaster -Cities affected by Basin groundwater contamination -San Gabriel Valley Water Association -Water purveyors in the Basin -Responsible Parties</i>

The WQA engages the existing rules, regulations and standards of these agencies, to coordinate and promote the reasonable and beneficial use of water produced and treated under mandate from the USEPA. WQA

recognizes that a number of voluntary or consensual arrangements ultimately will be required to implement the objective to integrate water cleanup operations and water supply operations in the Basin. In addition to engaging existing regulatory authority held by other agencies, WQA encourages the needed voluntary or consensual arrangements through the exercise of authority under the WQA Act, including its authority to seek recovery of WQA's costs to respond to and cleanup groundwater contamination in the Basin.

Recent examples of agency coordination include:

- Spearheading the development of a new general discharge permit with the LARWQCB to assure continued operations of water treatment facilities.
- Overseeing the operation of remedy projects in the SEMOU through a cooperative agreement with USEPA
- Participation in BPOU and SEMOU Principals' meetings
- Facilitating permits with the LARWQCB and the Los Angeles County Flood Control District ("LACFCD") to resolve discharge issues associated with cleanup activities that effect multiple operable units
- Participation in quarterly technical meetings sponsored by the USEPA to discuss remedial activities in the SEMOU, the El Monte Operable Unit ("EMOU") and the Puente Valley Operable Unit ("PVOU")
- Participation in public outreach meetings in the EMOU.
- Assisting the USEPA and DTSC in developing a long-term plan to guarantee the continued operation of the WNOU remedy and to ensure that the remedy is performing as required by the WNOU IROD.
- Facilitating the development of an alternative end use feasibility study for the PVOU Intermediate Zone remedy with the Puente Basin Water Agency, USEPA, MSGBW and Northrop.
- Stakeholder in the advisory group overseeing the transition of the drinking water program from the California Department of Public Health to the SWRCB, now known as the Division of Drinking Water

WQA's coordination efforts are broad-based, recognizing that migrating groundwater contamination threatens the drinking water supplies in adjacent communities. Recent examples include:

- Participating in the Leadership Committee for the Greater L.A. County Integrated Regional Water Management program. This program facilitates a new regional approach to watershed management by establishing collaborative efforts across the watersheds and functions that may have not been done otherwise.

- Participating in various committees of the Association of California Water Agencies
- Participating in meetings with the San Gabriel Valley Water Association
- Participating in the Coalition for Environmental Protection, Restoration & Development Conference

Recognizing that actions elsewhere in the state or country can positively or negatively affect its cleanup efforts, during 2007 the WQA joined in an amicus brief regarding *United States vs. Atlantic Research Corporation*. This case could have jeopardized funding under the CERCLA. The WQA undertook a leadership role with the amicus brief to try and preserve contribution claims against responsible parties for early projects. Fortunately, this case was decided in favor of the position supported by the amicus brief.

Public Outreach and Information

The WQA has succeeded over a number of years in building public support for cleaning up contaminated groundwater in the Basin. The public information program seeks to foster understanding of the WQA's mission, projects and accomplishments and plans, and to encourage public participation in the cleanup process. The WQA's ongoing efforts are undertaken to ensure that all stakeholders, including the general public, understand projects that involve the WQA and have ample opportunity to contribute ideas and opinions.

Because the Basin is a Superfund site, the processes used must always meet requirements under the National Contingency Plan ("NCP"), including its public participation component. In addition, whenever needed or requested, WQA works closely with water purveyors to help them meet the extensive public outreach requirements set forth in the DDW Process Memo 97-005. However, absent regulatory requirements, the WQA continues to be committed to informing the public of all of its activities.

The program employs a variety of methods to reach everyone from specialized audiences, such as the local water community and legislators in Sacramento and Washington, to the general public in the Basin and beyond.

Website - The WQA web site is regularly updated and provides instant access to news releases, publications, agendas, minutes of meetings, and reports on projects. In addition to WQA-specific issues, the web site links to local, state and federal water agencies and organizations. It also gives access to the names of officials who can be contacted for further information. A new and

improved website was launched in June, 2007. In March of 2008, WQA launched an e-mail notification page which lets subscribers know when new information is posted to the website, including Board and committee agendas. In June of 2011, WQA redesigned its webpage once again and expanded its role in social media outlets by creating an active Facebook page with additional updates through Twitter and YouTube. Furthermore, the website was redesigned again in 2016. This latest update included improvements to the subscription system and site optimization for mobile users.

Communication with Government Officials - The WQA keeps the local offices of federal and state legislators informed of any developments and the progress of cleanup issues in the Basin through office visits, tours of treatment facilities and invitations to participate in the WQA legislative committee. The WQA hosts the Legislative Water Forum Luncheon, inviting elected officials to update the Basin water community on state legislation. Speakers in the series to date have included United States Senators Barbara Boxer and Dianne Feinstein, former Congressman David Dreier, former Congresswoman and former U.S. Secretary of Labor Hilda Solis (now L.A. County Supervisor), Congresswoman Lucille Roybal-Allard, former State Attorney and State Treasurer General Bill Lockyer, former California Secretary of State Bruce McPherson (now Santa Cruz County Supervisor) and former California Board of Equalization Member Judy Chu (now Congresswoman).

In 2006, the WQA developed a DVD presentation that features Senator Dianne Feinstein and former Congressman David Dreier. The DVD has been used in Sacramento and Washington, D.C to educate legislators, bureaucrats and other stakeholders about the strategic importance of the Basin. Senator Feinstein and Congressman Dreier implore the state and the state legislators to become full participants in the cleanup of the Basin.

The WQA continues to conduct briefings and tours with local, state and federal officeholders. Past briefings and/or tours were conducted for Congresswoman Grace Napolitano, former California Public Utilities Commission (“CPUC”) President Michael Peevey CPUC Commissioners Catherine Sandoval and Carla Peterman, former CPUC Commissioner Diane Grunick, State Water Resources Control Board Chair Felicia Marcus, SWRCB member Francis Spivey-Weber, State Senator Ed Hernandez, Assemblymembers Anthony Rendon, Ed Chau and Ian Calderon, and former Assemblymembers Mike Eng and Curt Hagman. Also included were several legislative staff as well as meetings with several members of the Administration, including representatives of the California Environmental Protection Agency and the Governor’s Office.

Media communications - The public information program uses a variety of written publications to carry its message. These may include annual reports, brochures, bulletins for specific projects and periodic news inserts in the *Los Angeles Times*, *San Gabriel Valley Tribune*, *Pasadena Star News* and the

Whittier Daily News. The inserts are distributed throughout the Basin, through home and business delivery and general sales.

The WQA works with major news outlets, such as the Los Angeles News Group, *Los Angeles Times*, and foreign language publications, such as *La Opinion* and the *Chinese Daily News*. It also provides information to other local newspapers, city and chambers of commerce newsletters and publications directed at water and environmental interests, the business press and the electronic media. It distributes press releases, contacts and meets with reporters and editors to inform them of activities, responds to press inquiries and takes other steps to encourage media interest.

In 2007, KCET's *Life & Times* program produced a segment on the Basin. The segment focused on the status of the cleanup, the impact of the contamination on the City of Monterey Park's ("CMP's") water supply, the potential impact on ratepayers, and the need for more state involvement. A DVD of the segment is also used to educate local stakeholders on the cleanup of the Basin.

In 2013, WQA began publishing an annual report. The full color annual publication also serves as an executive summary of the §406 Plan.

Additionally, in 2013 the WQA's Executive Director was featured in one part of the 4-part video series on water by Senator Ed Hernandez. The "Water Wise" series was aired on local Charter Communications channels throughout California.

WQA Board - The WQA Board, through a variety of means, including public meetings and workshops, also interacts with the public to provide information and to solicit input.

In addition to regular Board meetings, Board members participate in several committees, including the Administrative/Finance Committee, the Engineering Committee and the Legislative/Public Information Committee.

As an example of the Board's outreach activities, in May 2011, the WQA Board held a one day conference to gather input on WQA's performance. In addition to staff presentations, several stakeholders gave presentations to illustrate their perspectives on how to improve WQA. This provided valuable input for the Board and staff to consider.

In 2012, the WQA became a founding partner of the annual San Gabriel Valley Water Forum. Along with the Upper San Gabriel Valley Municipal Water District, the San Gabriel Valley Municipal Water District and the Three Valleys Municipal Water District, the WQA provides financial and organizational support for the event. This annual one-day forum offers information for a broad public audience that includes students, educators, public officials and water professionals. The

topics covered include all facets of water history, water policy, water rights, and groundwater cleanup in the San Gabriel Valley.

In June of 2014, WQA participated in the mini-water forum held in the city of Monterey Park. The focus of the mini-forum was to reach out to the Asian business community to educate them of water issues of the San Gabriel Valley.

Funding From Potentially Responsible Parties and Other Sources

The WQA is committed to accelerating cleanup, integrating cleanup with water supply, preventing migration, and minimizing the financial impact to the public through its annual assessment. In order to meet these goals, adequate funds, primarily from PRPs, state and/or federal programs, are necessary for implementation. While the WQA recognizes that PRPs must fulfill their CERCLA liabilities, it is often a very slow process - a process that jeopardizes the groundwater and increases the cost of implementing projects.

Although USEPA has urged PRPs to consider affected water supplies and to coordinate their cleanup efforts with the water purveyors, USEPA enforcement under the CERCLA process does not allow USEPA to require such considerations and efforts. It is for these reasons that WQA aggressively seeks funds from PRPs before, during and after project implementation, either voluntarily, through mandated CERCLA actions or through litigation measures. If funds cannot be generated from PRPs to begin an identified early action project, WQA will work with individual purveyors, the MSGBW and/or other local agencies to develop funding for the project using federal and/or state funds, WQA member agency funds, including individual purveyors, and only if necessary, its own assessment.

A summary of funding sources and amounts is included as Table 1. In addition, Table 1 shows an estimated funding gap which is updated semi-annually to reflect changing conditions. The current funding gap is \$530 million which is down \$34 million over the last reporting period. This change reflects updated information received from each project.

Potentially Responsible Parties - The WQA is committed to securing PRP funding for any given project. In the absence of sufficient PRP funds, WQA and others may combine resources to fund a project. In this event, WQA may choose to initiate cost recovery actions, as it did previously in the BPOU, in which WQA brought two separate legal actions against PRPs to recover costs incurred from the La Puente Valley County Water District ("LPVCWD") Treatment Plant and the Big Dalton Well Treatment Facility.

In 2002, WQA along with three affected purveyors (“water entities”) jointly settled with 13 of the more than 60 PRPs in the SEMOU. Thereafter, the water entities initiated litigation against the remaining PRPs in a concerted effort to recover escalating costs and ensuring funds for future operations of the cleanup projects built with WQA participation.

In November 2007, the USEPA filed two Consent Decrees (“CDs”), for a total of \$12.5 million as a result of settlements between WQA, affected purveyors, several PRPs, USEPA and DTSC. The added funds helped to continue operating about eight water purification facilities in the SEMOU. In July 2008, WQA completed USEPA’s grant application to gain access to the funds recovered in one of the CDs. The second CD was appealed by recalcitrant PRPs not included in the CD. On June 2, 2010, the Ninth Circuit Court of Appeals remanded the case back to the district court for further hearings. As a result of the delays associated with the challenges to the CDs the USEPA obtained \$2.2 million in gap funding from its Superfund program in July 2010 to help offset a portion of the water entity Interim Record Of Decision (IROD) costs. The second CD was ultimately entered in 2011 upon conclusion of the appeals process.

Additionally, while the second CD was being appealed negotiations continued with the remaining PRPs resulting in the subsequent approval of seven additional CDs. Settlements to date from all nine entered CDs total \$35.3 million.

Federal Government - As a result of ongoing efforts by WQA and other local agencies, two federal programs, the San Gabriel Basin Restoration Fund and the San Gabriel Basin Demonstration Project under Title XVI, have been authorized by Congress specifically for the Basin. Both programs are administered through the USBR and are used, to the maximum extent possible, to accelerate cleanup and to provide incentives for PRPs to address affected water suppliers, while implementing cleanup actions in the Basin under CERCLA.

San Gabriel Basin Restoration Fund - In December of 2000, through the leadership of Congressman David Dreier, Congress authorized the San Gabriel Basin Restoration Fund (“Restoration Fund”). The authorization provides \$85 million for groundwater cleanup, \$10 million for the CBMWD to clean up the Central Basin and \$75 million for the WQA to clean up the Basin. This program requires a 35% non-federal match to obtain a maximum reimbursement of 65% from federal sources. These funds are available for design, construction and operation for up to 10 years following construction. To date, the CBMWD has received its full \$10 million appropriation and WQA has received \$70.5 million of its \$75 million appropriation.

In recognition of the cleanup progress, and the need for additional funding to meet an estimated \$570 million funding gap, Congressman Dreier along with his colleagues in the San Gabriel Congressional Delegation introduced H.R. 123 in January 2007 to raise the authorization on the Restoration Fund by \$50 million. The additional authorization would increase the total cap to \$135 million.

H.R. 123 passed the House on December 12, 2007 and was referred for approval to the United States Senate. On June 16, 2008, H.R. 123 was placed on the Senate Legislative Calendar. Unfortunately by the close of 2008, H.R. 123 was not heard or voted on in the United States Senate.

In January 2009, Congressman Dreier reintroduced the H.R. 123 language as H.R. 102 in the new Congressional session. In addition, Senator Harry Reid introduced S. 22 in the U.S. Senate and it also included the language of H.R. 102. S. 22 passed the U.S. Senate and awaited passage in the U.S. House of Representatives.

However, in March 2009, Congress passed the large Omnibus Land Bill H.R. 146. H.R. 146 included the language from Congressman Dreier's H.R. 102 and effectively raised the total cap of the Restoration Fund to \$146.2 million. This total includes an additional \$50 million for the San Gabriel Basin and an additional \$11.2 million for the Central Basin over the original \$85 million authorization.

In 2011, Congresswoman Judy Chu introduced H.R. 3132 to provide an additional five years that projects can receive operational funding from the Restoration Fund. This bill was reintroduced in the new 2013 Congress, but did not receive enough votes for passage.

In March 2014, WQA received a request from Senator Feinstein's office to submit an appropriations request for fiscal year 2015 for \$10 million of Restoration Funds. This was significant because it is the first time in 5 years that WQA has received such a request. Unfortunately, due to the continuing earmark stalemate in Congress, the appropriation request failed to gain full approval. Nevertheless, WQA continually strives to secure federal appropriations at every opportunity.

Title XVI - In 1992, Congress authorized the San Gabriel Basin Demonstration Project to implement conjunctive use projects in the Basin. By implementing cleanup projects that provide a reliable source of water and reduce the need for outside sources of water, many of the Basin's cleanup projects are eligible for this program. This program requires a 75% non-federal match to reimburse the project up to a maximum of 25% from federal sources. Funds from this program may be used for design and construction only.

In 2004, Congresswoman Grace Napolitano authored H.R. 1284 which was passed and signed into law. The legislation raised the cap on the Title XVI program by \$6.5 million. The total authorization for the Title XVI program is now \$44.5 million.

New Water Supply Coalition/Tax Credit Bond Legislation - The WQA is a member of the New Water Supply Coalition (“Coalition”). The Coalition is composed of water districts located from California to Florida. The Coalition seeks to fund water infrastructure projects throughout the United States by using Tax Credit Bonds. In 2007, the Coalition was successful in having Congressman Xavier Becerra and Congressman Jon Porter introduce H.R. 3452, the Clean Renewable Water Supply Bond Act (“CREWS Bonds”). CREWS Bonds would provide a potential source of funding for the WQA’s cleanup projects. The CREWS Bond program would allow the WQA to float Tax Credit Bonds that would provide the holder of the bond with a tax credit to offset their tax liability. Unfortunately, the legislation was not enacted prior to the end of the 110th Congress.

In 2009, Representatives Xavier Becerra and Ginny Brown-Waite reintroduced the Clean Renewable Water Supply Bond Act, H.R. 4132 along with original cosponsors Representatives Lucille Roybal-Allard (D-CA), Adam Putnam (R-FL), and Laura Richardson (D-CA). The Coalition was ultimately able to secure 22 co-sponsors. A companion bill, S. 1371, was also introduced in the Senate by Bill Nelson (D-FL). Unfortunately, neither bill was enacted by the 111th Congress and no further action is anticipated on this program.

State Government - The WQA has been working tirelessly to educate State agencies, the Administration, and Legislators and their staff on the merits of financial participation in the near term and the potential impacts of lack of participation on State and local agencies in the future. The WQA continues to emphasize that stemming the flow and mitigating the spread of contamination is more cost effective and reduces the impact on both the State and local ratepayers.

As described in the previous federal funding sections regarding the Restoration Fund and Title XVI funds, a non-federal match is required in order to release the federal funds. While WQA will continue to work with PRPs to help meet that match, additional funds are still needed to release available federal dollars.

The WQA has actively worked with the current Administration and other stakeholders in Sacramento to identify State-partnership funding opportunities. The WQA regularly updates Cal EPA, the DDW, the Governor’s Office, as well as incoming members of the Legislature, on the funding needs and challenges associated with cleanup of the San Gabriel Basin.

AB 2823, introduced in 2008 by Assemblymember Eng, proposed establishing a San Gabriel Basin State Restoration Fund, similar to the Federal San Gabriel Restoration Fund. It passed the Assembly on a 73/2 vote and unanimously passed the Senate Environmental Quality Committee. However, it was held in the Senate Appropriations Committee due to concerns about cost pressures on the State.

In 2013 WQA sponsored three bills in the state legislature. AB1043 was introduced by Assemblymember Ed Chau and would modify the language in Prop 84 so that agencies receiving Prop 84 funding would be allowed to keep settlement funds received from polluters for additional cleanup. AB687 was introduced by Assemblymember Roger Hernandez and would allow groundwater cleanup projects to receive preferred energy pricing through the state's direct access energy program. Finally, SB429 was introduced by Senator Ed Hernandez to extend the sunset date of the WQA to June 30, 2030. SB429 was signed into law by the Governor on September 6, 2013.

Clean Up and Abatement Account Funding from the SWRCB - In September, 2007, the SWRCB awarded a grant of \$1.42 million to the WQA from its Clean Up and Abatement Account (CAA) to provide funding for the removal of 1,4-dioxane and other VOCs at WQA's Whitmore Street Groundwater Remediation Facility ("WSGRF"). Under the USEPA Record of Decision, no PRPs are liable for the cleanup costs of 1,4-dioxane. The funding covered the costs of construction and five years of operation for six extraction wells that remove contaminants and protect many down gradient drinking water wells. WQA received the fully executed and signed grant agreement from the SWRCB on June 30, 2008. The Whitmore Street Groundwater Remediation Facility was completed and dedicated in 2008. (See Appendix A - SEMOU Shallow Zone Extraction for the status of this project.)

In December 2012, the SWRCB granted WQA an additional \$950,646 in CAA funding to operate the WSGRF through September 2018. During this time WQA will continue to work with the USEPA and DTSC to find alternative sources of funding for this project.

State Bond Funds - In 2000, California voters passed Proposition 13, which authorized the sale of \$1.9 billion for the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Bond Act. This bond included an authorization of \$7 million in funding assistance for groundwater cleanup programs. Although the original intent of the language was to provide grant funds, the DTSC interpreted the funding language to mean "loans" and established procedures in 2001 for low interest 20-year loans. WQA applied for the full \$7 million on behalf of the Valley County Water District ("VCWD") Subarea 1 ("SA1") project and was awarded the entire amount.

In November, 2002, California voters passed a \$3.44 billion bond, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, also known as Proposition 50. Very little of the funds in this bond are available for groundwater cleanup and protection activities and those funds that are available are limited to construction costs only. The WQA partnered with the San Gabriel Valley Water Company (“SGVWC”) and submitted a grant request for Proposition 50 funding to DDW, but the project was not ranked high enough to receive funding.

The WQA is actively engaged in the Integrated Regional Water Management Plan (“IRWMP”) for the San Gabriel Basin and the Greater Los Angeles area. Funding to implement projects within IRWMPs may be forthcoming in future years from Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, which provides \$5.3 billion for water, parks, habitat and natural resources projects and programs.

Proposition 84 also provides \$60 million to the DDW for groundwater cleanup projects that provide drinking water. But the language in the initiative limited these funds to capital costs only, excluding treatment and remediation costs which are the actual costs of clean up. The costs to extract the contaminated water and treat it comprise the bulk of the current funding gap in the Basin of approximately \$530 million.

In 2008, the Proposition 84 appropriations bill SB 2XX was passed by the Legislature and signed by the Governor. It included language appropriating \$10 million for groundwater contamination projects which meet certain criteria, two of which include being located at Superfund sites and being able to leverage other funds. In October 2009, the WQA submitted Notices of Intent to apply for five cleanup projects in the Basin per the implementation guidelines released by DDW in the prior weeks. Unfortunately, the expedited grant schedule did not allow enough time for the project proponents to complete CEQA before the final application was due to DDW on January 7, 2010. Therefore, the projects were not considered for this round funding. However, in 2011 DDW solicited applications for a second round of funding and WQA submitted six projects. On April 20, 2012 DDW announced awards for five of the projects totaling approximately \$10 million.

In November 2009, the State Legislature passed several water bills including SB 7X2, an \$11.1 billion water bond, titled The Safe, Clean and Reliable Drinking water Supply Act of 2010, which was subsequently signed by Governor Schwarzenegger, for inclusion on the November, 2010 ballot for voter consideration. However, in August 2010, the Legislature passed and the Governor signed a bill delaying the bond measure to the November, 2012 ballot. And the measure was delayed once again in 2012 when the Legislature and Governor approved moving it to November 2014.

Through the united efforts of the San Gabriel Valley State Legislative Caucus SB 7X2 includes language that is favorable to the WQA's efforts to secure future funding for projects in the Basin. However, due to drafting errors, SB 7X2 again included language that limited the funds to capital projects. The Legislature's leadership assured the Caucus of their support to remedy the deficiencies.

To that end, AB 153 was introduced by the leadership of the San Gabriel Valley Legislative Caucus (Hernandez, Eng, and Huff), to correct the drafting errors in the water bond. The section of the water bond that allocates \$100 million for projects to address groundwater contamination would cover the costs of projects, programs, and activities necessary to clean up the ground water. This language will also permit the bond funds to be used for actual treatment and remediation. AB 153 required a two thirds vote of both the Senate and the Assembly to pass (any amendment to this water bond requires a two thirds vote). On August 31, 2010, the bill passed its final vote and was sent to Governor Schwarzenegger for signature.

In 2014 the public was finally able to vote on and approve the water bond as Proposition 1, a substantially smaller \$7.525 billion water bond that had undergone significant modification by the legislature once again. Proposition 1 makes \$720 million available for grants and loans for projects to prevent or clean up the contamination of groundwater that serves or has served as a drinking water source. In addition, the Proposition 1 language specifically makes \$80 million available for grants for "treatment and remediation activities" that prevent or reduce the contamination of groundwater that serves as a source of drinking water.

However, despite support from the Assembly Speaker's Office, the SWRCB Department of Finance, the Office of Administrative Law and the San Gabriel Valley Legislative Caucus, the State Attorney General's Office offered an unpublished opinion via the State Treasurer's Office that the \$80M in Proposition 1 cannot be used for "treatment and remediation activities" as the WQA, the Legislature and the voters intended because it may conflict with state bond law. WQA is now pursuing other alternatives including additional legislation to clarify that the use of the funds is not in conflict with state bond law. WQA continues working closely with the SWRCB and the San Gabriel Valley State Legislative Caucus to access this funding.

The WQA will continue to seek to ensure that any proposed State water bonds include significant funding and appropriate language for groundwater remediation projects. Working with other water entities in the Basin, the WQA will lead efforts to formulate a comprehensive approach to water infrastructure in the Basin. The WQA will look to any future proposed bond packages for much needed funding for cleanup projects in the Basin.

Water Quality Authority - WQA imposes an annual pumping rights assessment for capital and operational costs of \$10.00 per acre-foot which generates \$1.98 million annually. These funds are utilized only when available federal and/or state funding is insufficient, in addition to PRP funds. If PRPs do not voluntarily provide funds to a project, then the WQA, on a project-by-project basis, considers the use of assessment funds to underwrite the project costs with or without other local dollars. However, the WQA is committed to recovering its costs from non-participating PRPs at a later date so that the cost to the local consumer will ultimately be minimized.

Water Purveyors/Cities/Member Agencies/Other Local Water Agencies-

The WQA requires impacted water purveyors to fund or secure funds other than WQA's assessment representing a minimum of 25% of capital costs. In the event projects cannot be otherwise fully funded using any or all of the above funding sources, WQA will work with an affected city, member water agency and/or other local water agencies to develop potential funding sources. The WQA will pursue the recovery of these funds on behalf of the participating agency, if necessary.

Status of Non-Operable Unit Specific Plans

Within the Basin the majority of contamination is located within the boundaries of the six identified operable units. However isolated pockets of contamination exist throughout the Basin. Inside the known operable units, USEPA has established a methodical process that includes the review of the extent of contamination, development of cleanup options and selection of the most appropriate cleanup plan. Contamination outside the known operable units has no such process for cleanup activities to take place. Affected purveyors must assess the need for treatment or try to secure other sources of water. WQA endorses the construction of treatment facilities that are consistent with WQA's Administrative Procedure No. 38, discussed later in this report, and will assist in any means possible.

Currently there are four treatment facilities operating outside the boundaries of known operable units. Three of the treatment facilities are currently treating VOC's by carbon adsorption technology:

- City of Arcadia's Longden Wells treatment facility began operation in January of 1985. It has treated approximately 70,219.4 acre-feet and removed approximately 739.9 pounds of contamination as of June 30, 2017. There is no current estimate on how long the treatment facility will need to operate.
- City of Monrovia's Myrtle Well field treatment facility began operation in March of 1996. It has treated approximately 62,714.61 acre-feet and removed approximately 1,048.30 pounds of contamination as of June 30, 2017. There is no current estimate on how long the treatment facility will need to operate.

- San Gabriel Valley Water Company's Well 11B treatment facility began operation March of 1991. It has treated approximately 44,883.7 acre-feet and removed approximately 319.7 pounds of contamination as of December 31, 2016. There is no current estimate on how long the treatment facility will need to operate.

The remaining treatment project utilizes ion exchange technology for the removal of a combination of nitrates and perchlorate:

- Golden State Water Company's Highway treatment facility began operation in May of 2005. It has treated approximately 18,363.08 acre-feet and removed approximately 341.8 pounds of contamination as of June 30, 2017. There is no current estimate on how long the treatment facility will need to operate.

There are numerous wells that are vulnerable to contamination in the Basin with the bulk located within known operable units. Some of the water purveyors that may need treatment in the future and are located outside of known operable units include but not limited to City of Arcadia, City of Glendora, Valencia Heights Water Company and the City of Whittier.

Operable Unit Specific Plans

After more than 20 years of studies and investigations, USEPA's CERCLA activities have progressed to a point where the configuration of the required remedies, in conjunction with local needs, can be determined in most areas. In general, these remedies include multiple groundwater extraction and treatment facilities designed to remove and contain the spread of contamination.

Appendix A presents the WQA's specific plans for the individual OUs including key components and OU specific issues. Table 1 identifies the project costs of each OU within the Basin boundaries.

Projected activities of the next reporting period

During the next reporting period WQA will continue to play an integral role in protecting the groundwater supplies of the Basin by actively participating in all operable unit remedies to ensure that the necessary facilities are constructed and treatment and remediation continues to occur in a manner that provides the greatest benefit to the residents of the Basin.

BPOU - Additional modifications necessary to operate the BPOU remedy projects in the most cost effective way possible will continue. Once all modifications are complete the BPOU projects combine to provide up to 25,900 gpm of potable supply. WQA will continue to participate in decisions that affect project treatment and remediation activities as a member of the project committee, including the ongoing re-negotiation of a 15-year project agreement with the Cooperating Respondents.

SEMOU – The WQA is reviewing an option to increase treatment capacity at its Whitmore Street Groundwater Remediation Facility via a Proposition 1 grant from the SWRCB. This will help to ensure continued operations of extraction wells and the centralized treatment facility, thereby protecting down-gradient water supply wells from further contamination. The six extraction wells and treatment facility began full-time treatment and remediation of the contaminant plume in January 2008. In addition, WQA will continue to work with USEPA and DTSC to find an alternative source of funding for this project.

EMOU - WQA will continue to participate in the remedial activities including but not limited to remedial design, project oversight and federal reimbursement activities associated with the EMOU. In 2012, the westside workparty finished construction of the shallow zone remedy and will continue operation as required by the USEPA. In late 2015, the eastside workparty's shallow zone remedy became operational and a 97-005 amended water supply permit application was submitted to DDW on July 21, 2016. It is anticipated that DDW will approve the permit during the next reporting period. In addition WQA will encourage that the end use of the treated water be put for beneficial use whenever possible.

PVOU - WQA will continue to participate in the remedial activities including but not limited to remedial design, project oversight and federal reimbursement activities associated with the PVOU remedy. WQA will be assisting the workparties in developing an enhanced alternative end use discharge plan that will have a regional benefit to the San Gabriel Valley water supply.

Area 3 - It is anticipated that the City of Alhambra will continue to operate its Phase I and Phase II treatment facilities. In addition, WQA will assist USEPA and LARWQCB whenever possible to further characterize contamination within the Area 3 boundaries.

WNOU – WQA will continue to assist the DTSC in its oversight of the WNOU remedy to guarantee the continued operation and to ensure that the remedy is performing as required by the WNOU IROD.

Non-Operable Unit Projects – All non-operable unit projects mentioned above are anticipated to remain in service and continue to mitigate contaminate migration.

Priorities for Project Funding

WQA utilizes a number of tools to prioritize projects for funding. To be eligible for funding consideration, proposed projects must meet all of the following conditions:

- Project must be located within the jurisdictional boundaries of the WQA*
- Applicant(s) must demonstrate, through WQA's Procedure No. 38 process, (described in the following section) that the project in the area of the proposed groundwater remediation project removes contamination, and protects and/or prevents groundwater contamination from spreading into clean areas*
- Applicant(s) must demonstrate that the project water will be put to beneficial use, with priority given to those projects which include an affected water purveyor and provides potable water, if applicable*
- Project must conform and further the objectives of the WQA §406 Plan or the intent thereof*
- Project must be consistent with the legislative intent of the statute(s) authorizing or appropriating the public funds used for project funding reimbursement*
- Project cannot have been used in calculating the 35% credit provision in the Restoration Funds*
- Project cannot have begun operating prior to July 1, 1999 (this provision may be waived by the WQA Board)*
- Start of project construction for a new project must be anticipated within 18 months of executed agreement between WQA and applicant(s)*
- Applicant(s) must provide a plan that commits 100% of the required funds in WQA's account in advance of each payment owed on the project and prior to each reimbursement request.*

San Gabriel Basin WQA Policy and Procedures Manual - Administrative Procedure 38 - WQA evaluates projects submitted to determine whether the projects are "necessary" and "consistent" with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). For cost recovery purposes, remediation projects are considered "necessary" if there is evidence of a release of hazardous substances, the project is designed to mitigate the impact of such releases and the project is needed to meet regulatory requirements for remediation and/or water supply. The determination of necessity shall be based on data of sufficient quality and quantity to satisfy the WQA. Remediation

projects are considered “consistent” with the NCP if the remediation project is in substantial compliance with the applicable requirements of the NCP and results in a CERCLA-quality clean-up. Specific potentially applicable NCP requirements are addressed below.

Criteria to which a proposed project shall be measured, but not required, are as follows:

- Project conforms and furthers the objectives of WQA’s §406 Plan or the intent thereof
- Ranking on priority list if multiple requests are competing for available funds
- Project is “necessary” and “consistent” with the NCP
- Requesting party to pay no less than 25% of capital costs
- Funding for operation and maintenance secured from funds other than WQA assessment
- Implementation of construction anticipated within one year of executed agreement

Projects are scored according to the questions and corresponding scores listed in Table 2. Once scored, the projects are then ranked according to the criteria in Table 3. The higher scores represent a higher ranked priority position within each category for available funding.

Contractor Selection

Competitive bids are typically used for contractor selection when project funding sources include WQA assessments, local water funds, or funding from the State or Federal government. Projects with federal dollars follow the federal contracting guidelines regarding competitive bids. Sole source awards may occur, consistent with either federal guidelines, or the criteria established by the individual water purveyor.

Criteria used to quantitatively evaluate projects for effectiveness

During the initial stages of a potential treatment project extensive studies are conducted to ensure the project is located in the appropriate area to achieve:

- *an effective contaminant capture and containment zone*
- *the halting of contamination migration into adjacent clean water supplies*

- *meeting the water supply objectives of the affected water purveyor*

WQA plays a key role during this evaluation process to ensure that each project provides the greatest protection to the water supply of the residents of the Basin while minimizing any economic impact. WQA has developed the following criteria to evaluate projects for effectiveness:

- *How much contaminant mass is removed from the Basin?*
- *How much of the treated water is used for beneficial purposes?*
- *How many downgradient wells are being protected?*
- *Does the project integrate cleanup with water supply?*

WQA also considers that overall impact of the combined cleanup projects. Figure 9 demonstrates the number of treatment plants coming online has grown steadily since WQA's inception in 1993. The total pounds of contaminants removed and acre-feet of water treated are shown in Figure 10.

APPENDIX A

Appendix A – Operable Unit Area Plans

BALDWIN PARK OPERABLE UNIT

Of the five areas of contamination in the Basin, the BPOU is considered the most significant because of the geographic size and degree of contamination. For this reason USEPA prioritized this area for investigation back in the late 1980's. By 1994, there was a general consensus on the technical approach including a financial arrangement whereby sales from the water produced by the treatment plant would be used to offset the costs of the project. However, just as designs were being prepared, the discovery of new contaminants prompted a complete reevaluation of cleanup plans.

In 1997, perchlorate, a contaminant derived from solid rocket fuel, was discovered in many of the active production wells within the OU. This discovery had widespread impacts, primarily because traditional treatment methods were ineffective in removing perchlorate from the groundwater. The new discovery not only disrupted the design of the CERCLA remedy, but also shut down many of the existing treatment plants that had been operating for water supply purposes. In one case, a water purveyor's (LPVCWD) complete water supply was shut down due to excessive concentrations of perchlorate that could not be removed by treatment facilities currently in place. This forced the water purveyor to buy alternative groundwater supply from neighboring water purveyors and supplemental imported water costing five times the cost of groundwater before the discovery of perchlorate.

Based on the discovery of perchlorate, USEPA chose to update its ROD and issue a plan update. This update was similar to the original ROD except that the containment requirement in the southern portion of the OU unit was shifted further downgradient to address the new contaminants and the larger VOC plume resulting from several years of movement since the original ROD was issued. USEPA's plan required that about 22,000 gpm of contaminated groundwater be extracted and treated. The update did not, however, specify how the water was to be used.

In 1998, although USEPA had recently accepted a "good faith offer" from a portion of the BPOU PRPs to conduct the required cleanup, the specifics of the offer suggested that the PRPs intended to construct cleanup facilities without addressing the local water supply needs. The promise of the good faith offer was to extract water from the specified locations, treat the water at centralized facilities using emerging (unapproved) treatment technology and then discharge the water into nearby surface water channels. This approach was met with strong resistance that could have resulted in further delays and continuance of the existing water supply crisis. In addition, USEPA's approach focused on overall containment of the plume and did not include projects that were outside

of USEPA's primary objectives that would have beneficial effects on both cleanup and water supply.

In response to this situation, WQA prescribes a cleanup plan developed by the MSGBW (Figure 2) that integrates cleanup and water supply objectives. The first phase of this plan focused on the southern portion of the plume where the priority is highest to contain the plume, protect critical water supplies and restore critical water supplies.

In 1999, due to the critical need for immediate action, WQA, MSGBW and the Upper San Gabriel Valley Municipal Water District ("USGVMWD") joined resources and began implementation of the plan by constructing the first facility to treat both perchlorate and NDMA for drinking water at the LPVCWD well site. Following the success of the LPVCWD project, WQA prescribed additional early actions that build on the LPVCWD project development model.

In 2002, eight of the 20 BPOU PRPs entered into a comprehensive project agreement with WQA, MSGBW and local purveyors to fund the prescribed remedy described in this section.

To achieve rapid implementation in the BPOU, only treatment processes that are approved as Best Available Treatment Technologies ("BATT") by DDW shall be used to meet drinking water requirements. This requirement is necessary to assure that lengthy approval processes normally associated with emerging technologies are eliminated. Use of BATTs will be necessary to accelerate removal of contaminant mass from the Basin and to restore impacted potable water supplies. However, wherever practical, other technologies may be considered if significant and exceptional benefits are shown to outweigh the need for urgency.

In addition, as new technologies become available, the WQA prescribes that cost effective studies and pilot programs are pursued in order to maximize the potential savings in cleanup costs over the life of the projects. For example, multiple projects are using an ion exchange technology that may be outdated and costly. New resin technology has been introduced that could provide alternatives to the existing technology, and studies have been undertaken to assess the benefits of switching over if the lifetime benefits appear to be substantial.

In the cases where existing technology remains in place, careful optimization will be performed regularly on the equipment in order to achieve the best effective operation and the lowest operating cost possible.

Southern Remedy - In conjunction with the LPVCWD treatment project constructed in 2000, a new treatment facility located at the SGVWC Plant B6 treatment facility near the southern extension of the plume was prescribed for

immediate implementation. The project also included the construction of four new extraction wells (B25A, B25B, B26A and B26B) and transmission pipelines connecting the extraction wells to the Plant B6 treatment facility.

The project finished construction in 2004 and received its 97-005 amended water supply permit from the DDW in June 2005. The water extracted from this facility is needed by SGVWC to replace production capacity lost when contamination forced the closure of the then operating water treatment facilities that lacked the ability to remove the newly discovered contaminants, perchlorate and NDMA. The project has the ancillary benefit of protecting downgradient water supply wells by halting the southeastern migration of contaminant mass.

In 2009, efficiency studies have led to changing out the existing ion exchange treatment technologies at LPVCWD's treatment facility and SGVWC's Plant B6 treatment facility from a regenerable resin technology to a more efficient single-pass resin technology. As a result of changing from a regenerable resin ion exchange technology to a single-pass technology SGVWC will lose the ancillary benefit of some nominal nitrate treatment. Therefore, DDW is requiring SGVWC to construct additional nitrate treatment at its Plant B6 to ensure continued operation of the treatment facility. The new nitrate treatment will utilize a regenerable ion exchange treatment system but will be designed specifically for nitrate removal.

The next component of the remedy prescribed for the southern area is a new treatment facility that is located at the SGVWC Plant B5. The project finished construction and began testing in 2007. In April 2008, the Plant B5 treatment facility received its amended water supply permit from DDW. The Plant B5 treatment facility will treat water from an existing well (B5B), from a new extraction well drilled on site (B5E) and from an existing City of Industry well located in the San Fidel Well Field. The Plant B5 facility is necessary to meet water supply demand and to serve as a final containment point to prevent the further degradation of clean aquifers resulting from the migrating BPOU contamination plume.

This plan prescribes immediate implementation and long term operation of the southern remedies for the BPOU including all of the necessary facilities to achieve full containment of the BPOU plume at the downgradient edge. In June 2008, the last component of the BPOU remedy became operational. These facilities will accelerate removal of contaminant mass in the Basin, prevent migration of contamination into critical groundwater water supplies, and through the integration of cleanup with water supply objectives, mitigate the existing water supply crisis in the area.

As of June 30, 2017, the southern remedy projects have treated approximately 263,839.68 acre-feet of contaminated groundwater and have removed approximately 35,594.6 lbs. of VOCs, perchlorate, NDMA and 1,4-Dioxane.

Northern Remedy - In 2005 construction was completed on a new treatment facility at the VCWD Arrow/Lante wellfield. The new treatment facility known as SA1 treatment facility will consist of all necessary treatment technology and two new extraction wells (SA1-1 and SA1-2) that were constructed east of the treatment facility which will deliver raw water to the facility via new transmission pipelines. The plan also includes a treated water pipeline to deliver all of the treated water to SWS. In 2007, VCWD discovered TCP in its SA1 extraction wells and was forced to construct additional Liquid Phase Granular Activated Carbon (“LPGAC”) treatment at SA1 to combat the new found contamination.

Similarly to LPVCWD and SGVWC in 2008, VCWD initiated the process to replace the ion-exchange regenerable treatment system with single pass ion-exchange treatment equipment. Design and construction of the single pass ion-exchange system was completed in 2009.

In 2014, VCWD approved the nitrate management plan which will provide ancillary nitrate blend capabilities to ensure compliance with drinking water standards.

In 2015, VCWD will begin construction of a new extraction well that will replace existing extraction wells SA1-1 and SA1-2. The new extraction well along with existing well SA1-3 will provide enough capacity to achieve the revised extraction rate of 6,000 gpm.

As of June 30, 2017, the northern remedy project has treated approximately 70,733.64 acre-feet of contaminated groundwater and has removed approximately 41,206.8 lbs. of VOCs, perchlorate, NDMA and 1,4-Dioxane.

Other Remedies - California Domestic Water Company’s (“CDWC”) Well No. 14 was affected by contamination emanating from the BPOU, including perchlorate and NDMA. CDWC expanded its existing VOC and NDMA treatment systems by including a perchlorate treatment system. The project is also designed to protect CDWC’s downgradient wells. Construction was completed in June of 2002.

Recently DDW informed CDWC that blending for VOCs would no longer be allowed and treatment for VOC removal will be mandatory. In addition, DDW stated that Well No. 10 will not be allowed to operate as a blending source for perchlorate if upstream perchlorate levels are shown to be increasing. Therefore, CDWC intends to construct dedicated VOC and perchlorate treatment systems for its Well No. 10.

As of June 30, 2017, the CDWC project has treated approximately 340,696.76 acre-feet of contaminated groundwater and has removed approximately 16,166.6 lbs. of VOCs, perchlorate and NDMA.

After losing its Plant 139 and Plant 140 wellfields to the BPOU contamination, SWS constructed new production wells at its Plant 121, Plant 142 and Plant 151 properties. The interim project also included the construction of pipelines that will allow for better operational flexibility and provide additional supply to its affected service area.

In addition to operating the SA1 treatment facility as part of the BPOU remedy, VCWD also has two additional treatment facilities that it owns and operates for its immediate water supply. In 1990, VCWD constructed the Maine East and West treatment facility and in 2004 the Nixon East and West treatment facility.

As of June 30, 2017, the VCWD's Maine and Nixon treatment facilities have treated approximately 97,884.18 acre-feet of contaminated groundwater and have removed approximately 2,104.4 lbs. of contamination.

Finally, WQA endorses the construction of the Covina Irrigation Company's ("CICs") Baldwin Pumping Plant. In 2014, WQA assisted CIC in receiving a DDW grant for the construction of the treatment facility.

SOUTH EL MONTE OPERABLE UNIT

The SEMOU is generally characterized by shallow groundwater contamination that is mostly contained in the upper 100 feet of the aquifer; however some contamination in the northwest and southern portions of the OU has migrated below 100 feet into the intermediate zone aquifers currently used for potable supplies. Contamination in the SEMOU is predominately VOCs with perchlorate concentrations in certain wells exceeding the State MCL of 6 ppb. Furthermore, cleanup has been complicated by the presence of low concentrations of 1,4-Dioxane in the OU.

The contamination in the SEMOU presents significant threats to local water supplies. One threat is to the aquifers and groundwater supply centers in the northwest portion of the OU and to the northwest of the OU itself. The other is directed towards the Whittier Narrows Dam and the Central Basin to the south. The threat to the northwest has already impacted several critical water supply wells, primarily those owned by the CMP, SGVWC and Golden State Water Company ("GSWC"). These water purveyors have had to implement treatment facilities in order to resolve their water supply crises. The other predominant threat is from contamination in the shallow aquifers near the source areas that provide a continuous source of contamination that has traveled as far south as the Whittier Narrows Dam. Continued migration of the contamination past the Whittier Narrows Dam threatens many production wells and the sensitive recharge areas within the Central Basin. Immediate action is clearly needed to address these imminent threats.

To address the VOC groundwater contamination in the SEMOU, USEPA released its Interim ROD (“IROD”) in September 2000. The IROD specifies extraction from the intermediate zone at or near CMP’s existing well No. 5, CMP’s existing well No. 12, SGVWC’s existing Plant No. 8 wellfield, and GSWC’s existing San Gabriel (SG1 & SG2) wellfield. USEPA’s plan also includes a new extraction well (CMP No. 15) northeast of CMP No. 12. USEPA’s goal is to contain the flow of contaminants and prevent exposure to downgradient pumping centers operated by CMP, SGVWC, and other purveyors. Although USEPA recommends the use of existing water supply facilities, the PRPs are not mandated to use these facilities in their response, nor are they obligated to integrate water supply with the required remedy. After the discovery of perchlorate in several SEMOU water supply wells and 1,4-Dioxane in the shallow zone of the SEMOU, USEPA considered issuing either an IROD Amendment or an Explanation of Significant Differences (ESD) to require treatment for emerging chemicals (“ECs”). In 2005 USEPA issued an ESD for the SEMOU to include treatment of perchlorate in the intermediate zone and reserved the right to include treatment for 1,4-Dioxane and other ECs at a later date.

With the exception of perchlorate treatment, WQA’s prescribed actions for the SEMOU have, for the most part, been put into place and are consistent with USEPA’s proposed plan. They address specific concerns that (1) action needed to take place immediately to halt further migration into critical water supplies, (2) complications in the negotiations with the PRPs would delay USEPA’s implementation schedule, and (3) PRPs may choose to fulfill their CERCLA responsibility to USEPA without addressing the need to restore water supplies. Specifically, the prescribed actions referenced below have and will address both the immediate threat and water supply crisis prevalent in the northwest portion of the OU and the long-term threat to Central Basin to the south.

To date, USEPA has lodged nine CDs embodying settlements with 72 PRPs for costs associated with implementation of the SEMOU remedy. The funds recovered by USEPA will be used to reimburse affected water purveyors for future treatment and remediation costs associated with the continued operation of remedy wells and treatment facilities as described in the SEMOU remedy through a cooperative agreement between USEPA and WQA.

Intermediate Zone Remedy - To address the threat presented in the northwest portion of the OU, WQA’s prescribed action (Figure 3) includes the existing VOC and perchlorate blending treatment facility at CMP No. 5 along with the existing VOC treatment facilities at CMP No. 12, SGVWC Plant 8 and GSWC SG1 & SG2. Additionally, the plan specifies that water from CMP remediation Well No. 15 be treated at the existing treatment facility at CMP No. 12.

This plan promotes the beneficial use of the treated water by the appropriate water purveyors. To that end, WQA entered into funding contracts in the year 2000 with CMP, GSWC and SGVWC to construct VOC treatment projects ahead of enforcement action by USEPA.

SGVWC's Plant No. 8 VOC treatment facility was completed in October 2000 and is currently operating. Rising levels of VOCs in the wells at Plant 8 caused the DDW to require SGVWC to install a secondary barrier treatment system. Construction of a LPGAC secondary barrier treatment system to polish the air stripper effluent was completed in 2005. As part of the amended water supply permit issued to SGVWC by DDW to operate the Plant No. 8 VOC treatment facility, a sentinel well, SEMW09 had to be installed upgradient and within two years travel time of the Plant No. 8 wells. The primary purpose of the sentinel well is to provide an "early warning" of emerging contaminants that might affect the operation of the Plant No. 8 VOC treatment facility. A 2005 sample of SEMW09 detected 1,4-Dioxane below 1 ppb however, all subsequent sampling events for 1,4-Dioxane have been non-detect.

SGVWC's recent analyses of onsite production Well 8D revealed and continued to confirm the presence of perchlorate and 1,4-Dioxane at concentrations just below the DDW MCL and NL, respectively. Because the current Plant No. 8 VOC treatment facility is not capable of removing perchlorate or 1,4-Dioxane, SGVWC has designed and plans to construct a 5,000 gpm, single pass ion exchange treatment facility for the removal of perchlorate when levels reach 50% of the MCL. Design for advanced oxidation ultraviolet ("UV") light treatment facility for the removal of 1,4-Dioxane will take place when levels in Well 8D exceed the NL of concentrations of 1,4-Dioxane are detected in one of the remaining Plant No. 8 wells. The addition of the ion exchange and UV light treatment facility will ensure continued operation of the Plant No. 8 VOC treatment facility and continued remediation of the SEMOU groundwater.

Both CMP's and GSWC's VOC treatment facilities for Well No. 12 and SG1 & SG2, respectively, were completed. However, the wells for both plants were subsequently found to be contaminated with perchlorate and immediately shut down. In 2004, CMP completed construction of a perchlorate treatment plant for Well No. 12. In addition to the VOC treatment, GSWC currently operates an interim perchlorate treatment facility for Well SG1. However based on two years of non-detects for perchlorate contamination, GSWC and CMP have deactivated their perchlorate treatment systems. In 2012, GSWC returned Well SG2 into service to restore plant capacity. CMP has constructed additional piping to bypass its perchlorate treatment equipment while maintaining it in a state of readiness if future perchlorate treatment is needed. Both projects are endorsed as they are designed to restore lost water supply and protect existing downgradient production wells.

CMP has completed the construction of Well No. 15 and the pipeline to Well No. 12. Additionally, CMP has proposed to construct additional UV light treatment at the Delta site. The additional treatment is necessary to ensure proper remediation of VOC contamination and to prevent a shutdown of water production due to any future 1,4-Dioxane contamination. Construction of the additional treatment and a pipeline connection is anticipated to begin in late 2017.

As of June 30, 2017, the intermediate zones remedy projects have treated approximately 152,044.57 acre-feet of contaminated groundwater and have removed approximately 20,065.7 lbs. of VOCs and perchlorate.

Other Intermediate Zone Remedies - In addition to the extraction and containment projects identified in the SEMOU IROD, purveyors in the SEMOU had to construct treatment facilities at several of their wells to ensure a safe and reliable water supply in the event that the IROD projects are temporarily removed from service. Although these projects are not identified as SEMOU remedy projects by USEPA they do contribute to the remedy by removing mass contamination within the groundwater thus improving the regional groundwater basin as a whole.

In 2004, CMP constructed a VOC treatment facility at its Delta Plant to treat VOC contamination that was recently discovered in CMP Well Nos. 1, 3, 10 and Fern. Although not included in USEPA's remedy, the project is consistent with USEPA's IROD.

In 2005, SGVWC constructed a VOC treatment facility at its Plant G4 located within the SEMOU. Although not included in USEPA's remedy, the project is consistent with USEPA's IROD.

In 2016, GSWC constructed a VOC treatment facility at its Garvey Plant located within the SEMOU. Although not included in USEPA's remedy, the project is consistent with USEPA's IROD.

These actions, as prescribed by this plan, will accelerate removal of contaminant mass and help to prevent migration of contamination into critical water supplies. In addition, integrating the cleanup action with the surrounding water supply will mitigate the current water supply crisis caused by the presence of the contamination.

As of June 30, 2017, other intermediate zone projects have treated approximately 31,912.61 acre-feet of contaminated groundwater and have removed approximately 1,737.8 lbs. of VOCs.

Shallow Zone Extraction - Part of WQA's prescribed response to address the threat to Central Basin was the South El Monte Shallow Extraction Barrier

("South El Monte Barrier"). The South El Monte Barrier was constructed under a voluntary partnership including WQA, several of the local businesses and the City of South El Monte. The objective of the response action was to halt the flow of contaminants near the primary source areas within the SEMOU.

The project consisted of two extraction wells, treatment facilities and discharge pipes which allow the treated water to infiltrate back into the aquifer downgradient of the extraction. The project was originally constructed to remove VOCs and later modified with ozone/peroxide treatment to remove 1,4-Dioxane. Given that there are no water supply wells directly affected in the immediate areas and that water from the shallow aquifer is not normally used for potable use by the purveyors, low priority was given to mandating beneficial use of the water.

In 2004, the WQA discontinued operation of the South El Monte Barrier after it was determined that USEPA's fund-led Whittier Narrows project (see the Whittier Narrows Operable Unit ("WNOU") portion of this plan) would halt the contaminant migration farther downgradient. While this situation was not the preferred alternative, the WQA determined that no water supplies would be affected by discontinuing the project. Additionally, funds made available by discontinuing the South El Monte Barrier were redirected to contain an alternate source of contaminants that was threatening water supplies.

In 2005, the WQA initiated design on a shallow groundwater barrier to be constructed in and around the area of the former J.A. Bozung facility. The WSGRF project will remove a hot spot plume of VOCs and 1,4-Dioxane that threatens downgradient water supplies. The WSGRF started full-time operation in January of 2008 with treatment and remediation estimated to continue through 2017.

As of June 30, 2017, the treatment facility has treated approximately 298.08 acre-feet of contaminated groundwater and has removed approximately 170.4 lbs. of VOCs and 1,4-Dioxane.

EL MONTE OPERABLE UNIT

The EMOU investigation phase has been completed and the remedial objectives have been specified in an USEPA IROD. This OU is generally characterized by shallow groundwater VOC contamination that is mostly contained in the upper 100 feet of the aquifer. Limited amounts of VOC contamination have migrated into the deeper drinking water supplies and the recent discovery of perchlorate in monitoring wells and production wells threatens to complicate cleanup efforts further.

Fortunately, several of the water purveyors have already responded to the spread of contamination by installing wellhead VOC treatment facilities to

restore impaired sources of supply before the discovery of perchlorate. However, although many sources were restored, the impact of the contamination on the local water supply remains severe. The City of El Monte (“CEM”), in particular, lost several wells and experienced a shortage of supply. New sources of supply, either from new cleanup facilities or reactivation of existing supplies are greatly needed to enhance and secure the local water supply situation. WQA has provided assistance by leasing the CEM four surplus LPGAC vessels from past WQA projects.

To provide long-term protection of these supplies, immediate actions were needed to cut off and contain the movement of contaminants in the shallow aquifer. Elimination of the high concentrations of contaminants near the sources is necessary to provide for rapid reduction of mass from the aquifer and establish long-term protection of downgradient water supplies. To address this emergency need, in 1997 WQA prescribed the immediate implementation of two shallow extraction barriers to stop the flow of contamination on the western and eastern portion of the OU.

Anticipating that this type of removal would be required, WQA and many of the PRPs for the EMOU executed agreements to fund the construction of these projects. As part of this early response, WQA sponsored three components (extraction and treatment at the Clayton Manufacturing facility and individual extractions with centralized treatment for Hermetic Seal, and Crown City Plating facilities) which operated for several years. Immediate implementation of the shallow extraction barriers ahead of USEPA’s mandate will complement these other early responses and help to accelerate the removal of mass from the Basin and prevent the further migration of contamination into critical groundwater supplies.

In June 1999, USEPA released its IROD which requires containment of the shallow contaminant plume on the western and eastern sides of the OU and containment of the deep contaminant plume on the northwestern and southeastern edges of the OU. In 2002, USEPA released an ESD that requires the containment of emerging chemicals in addition to VOCs. In 2004, due to unrest within the EMOU PRP group, USEPA entered into a CD effectively dividing the PRPs into two distinct work parties, the West Side Performing Settling Defendants (“WSPSD”) and the East Side Performing Settling Defendants (“ESPSD”).

As a result of the elevated levels of Nitrates and Total Dissolved Solids (“TDS”) in both west and east shallow zone extraction projects, local water purveyors are not interested in integrating the treated water into the local supply. Thus, WQA prescribes that, to the extent possible, the water extracted from the shallow extraction projects be put to beneficial use for one of the following alternatives: (1) potable source through blending, (2) industrial reuse, (3) re-injection to the groundwater basin, or (4) used as a reclaimed water source. If

no beneficial end use is available and all alternatives have been exhausted, the treated water may be discharged to a nearby channel under direction of the LARWCB and pursuant to the MSGBW's rules and regulations.

The WSPSD is discharging to adjacent Eaton Wash under an NPDES permit issued by the LARWQCB and the ESPSD will be re-injecting all shallow zone treated water up-gradient of the extraction wells under an LARWQCB discharge permit.

Together, all of these facilities will serve to contain the migration of the contamination in the intermediate (potable) aquifers and prevent the further spread of contamination into critical groundwater supplies. Requiring the beneficial use of shallow zone treated water will enhance the local water supply and help to mitigate the current water shortage caused by impairment of water supply wells.

In 2016, USEPA required both work parties to work together and develop a comprehensive workplan to address regional CrVI contamination within the EMOU. WQA is supportive of this joint effort and will provide any and all assistance necessary to fully characterize CrVI contamination within the EMOU.

West Side Remedy - The WSPSD is responsible for containment of the western shallow zone contaminant plume (Figure 4) and the containment of the northwestern deep zone plume (Figure 5). Containment of the western shallow plume will be accomplished via six extraction wells and a centralized treatment facility. The treatment facility will be designed to treat not only VOCs but all emergent chemicals ("EC's") to below drinking water standards. Construction of the western shallow zone treatment facility, extraction wells and pipeline was completed in January 2012.

As of June 30, 2017, the WSPSD shallow zone treatment system has treated approximately 301.12 acre-feet of contaminated groundwater and has removed approximately 27.0 lbs. of VOCs, perchlorate, nitrate and hexavalent chromium.

The existing GSWC Encinita Plant treatment facilities, owned and operated by GSWC and partially funded by the WSPSD, along with a VOC treatment facility, previously owned and operated by Adams Ranch Mutual Water Company ("ARMWC"), will help address the deep zone contaminant plume in the northwestern sector. Both deep zone projects received federal reimbursement from WQA.

In 2016, ARMWC was acquired by the California American Water Company which has ceased operation of the VOC treatment facility leaving the GSWC's Encinita Plant as the singular operating deep zone remedy project on the west side of the EMOU.

As of June 30, 2017, the west side deep zone remedy projects have treated approximately 27,083.82 acre-feet of contaminated groundwater and have removed 654.3 lbs. of VOCs.

East Side Remedy - The ESPSD is responsible for containment of the eastern shallow zone contaminant plume (Figure 4) and the containment of the southeastern deep zone contaminant plume (Figure 5). Containment of the eastern shallow plume will be accomplished via five extraction wells, a centralized treatment facility and three re-injection wells. The treatment facility will be designed to treat not only VOCs but all ECs. The east side shallow zone remedy became operational in January 2015.

As of June 30, 2017, the east side shallow zone remedy project has treated approximately 79.14 acre-feet of contaminated groundwater and has removed 18.3 lbs. of VOCs.

In addition, the ESPSD in conjunction with CEM installed three extraction wells in the intermediate zone aquifer in the southeastern sector and constructing a centralized treatment facility to control migration of low levels of VOCs. The treated water will be conveyed into CEM's existing distribution system in the area. WQA has provided the ESPSD federal reimbursements for its projects. The east side deep zone remedy project finished construction and began the required 97-005 amended water supply permit testing.

As of June 30, 2017, the east side deep zone remedy project has treated approximately 1,164.84 acre-feet of contaminated groundwater and has removed 53.1 lbs. of VOCs.

Other Intermediate Zone Remedies - Similar to the SEMOU, affected purveyors in the EMOU had to construct additional treatment facilities. Specifically, the CEM constructed three VOC treatment facilities at wells 2A, 10 and 12 to ensure safe and reliable supply to its customers. Although these projects are not identified as EMOU remedy projects by USEPA they do contribute to the remedy by removing mass contamination within the groundwater thus improving the regional groundwater basin as a whole.

As of June 30, 2017, CEM wells 2, 10 and 12 have treated approximately 31,795.59 acre-feet of contaminated groundwater and have removed 1,218.5 lbs. of VOCs.

WHITTIER NARROWS OPERABLE UNIT

In 1999, USEPA issued an amendment to the ROD for the WNOU which identifies the need for a groundwater extraction barrier approximately ¼ mile north of the Whittier Narrows Dam to halt the flow of contamination traveling towards Central Basin. To form an effective containment barrier, five or six

extraction sites were required to remove and treat a total of about 12,000 gpm extracting from both the shallow and intermediate zone aquifers. Because USEPA was implementing this remedy under its “fund lead” authority, the responsibility for administering the design, construction and operation of the comprehensive cleanup facility was USEPA. In 2002, USEPA finished construction of the comprehensive cleanup facility.

In recognition of the immediate threat to downgradient water supplies in Central Basin and the potential for significant delays associated with a large-scale treatment facility, WQA had prescribed a phased approach (Figure 6) that addressed the most severe threats first with an immediate early action at well EW4-3. WQA prescribed that well EW4-3 be integrated into the comprehensive potable treatment facility proposed by USEPA. WQA implemented the first component of this early action with the construction of a temporary treatment facility located at well EW4-3. Water from well EW4-3 was treated and temporarily discharged into nearby surface drainages until the full-scale remedy could be implemented. USEPA has completed construction of its centralized treatment facility and integrated well EW4-3 into its extraction system.

In 2005, the City of Whittier reached an agreement with USEPA to take most of the water extracted from the intermediate zone aquifer and use it as a potable supply for its customers. Water from the shallow zone is extracted at a reduced rate and is being discharged into Legg Lake.

In 2006, USEPA conducted a five-year review of the WNOU remedy to ensure that it remains protective of human health and the environment. USEPA concluded that the remedy for the WNOU is protective of human health and the environment.

In 2011, USEPA conducted its second five-year review of the WNOU remedy. USEPA concluded that in the shallow zone the extent of contamination has shrunk dramatically since the remedy construction was completed in 2002 and that contamination concentrations have continued to decline consistently over the that five-year period (2006 to 2010). By 2013 there were no shallow zone MCL exceedances in the WNOU indicating that continued shallow zone extraction was not needed to meet the goals of the shallow zone remedy and it was ceased.

As of June 30, 2017, the WNOU shallow zone remedy project has treated approximately 30,065.52 acre-feet of contaminated groundwater and has removed approximately 1,618.90 lbs. of VOCs.

USEPA’s second five-year review also reports that in the intermediate zone the extent of intermediate zone contamination downgradient of the WNOU extraction wells has declined dramatically since remedy extraction began in 2002. These continued concentration declines have occurred despite

intermediate zone extraction averaging less than 3,300 gpm over the last five years. This provides strong evidence that the remedial objectives (hydraulic control of migrating contamination) can be met at a lower extraction rate than the current intermediate zone target extraction rate of 6,000 gpm.

In May of 2013, DTSC assumed operation of the WNOU remedy from USEPA. DTSC subsequently entered into a long term operational agreement with SGVWC in which SGVWC will use the treated intermediate zone in its water supply. Currently SGVWC is operating the treatment facility and discharging the water into Legg Lake while additional infrastructure is being constructed to allow SGVWC to take the treated water into its existing distribution system.

As of June 30, 2017, the WNOU intermediate zone remedy project has treated approximately 49,629.13 acre-feet of contaminated groundwater and has removed approximately 1,783.2 lbs. of VOCs.

PUENTE VALLEY OPERABLE UNIT

In 1998, the USEPA released the Interim ROD for the PVOU that described, in part, USEPA's selected remedy for both shallow and intermediate zone contamination. It stated that the remedial action for the shallow zone shall prevent contaminated groundwater from migrating beyond its current lateral and vertical extent as described in the Remedial Investigation/Feasibility Study ("RI/FS"). The remedial action selected by USEPA for the intermediate zone shall prevent contaminated groundwater from migrating beyond the SGVWC B7 Well Field Area (an area defined by 14 wells in the immediate area of SGVWC's B7 Well Field). Furthermore, perchlorate was recently discovered in the B7 Well Field Area causing USEPA to further evaluate remedy options.

In 2005 USEPA issued an ESD for the PVOU mandating treatment for all ECs in both the shallow and intermediate zones.

In 2009, the PVOU remedial activity was stalled due to conflicting interpretations by two separate divisions of the USEPA, namely the Superfund Division and the Water Division which enforces the Clean Water Act.

As a result, USEPA required additional feasibility studies to be conducted to re-evaluate alternatives for the disposition of the treated water in both the shallow and intermediate zone remedies. USEPA is currently evaluating the feasibility studies.

WQA will continue to help facilitate solutions that will resolve the cleanup stalemate as soon as possible.

Shallow Zone Remedy - In 2005 USEPA entered into a CD with United Technologies Corporation ("UTC") to perform the shallow zone remedy in the

PVOU. The shallow zone remedy will consist of the installation of nine extraction wells, associated pipelines and a centralized treatment facility at the mouth of the valley (Figure 7). In 2008, UTC completed the installation of all extraction wells and is currently securing pipeline access agreement. Since water from the shallow zone is not suitable for potable use due to high Nitrates and TDS, UTC originally planned to discharge the treated water into a neighboring creek under a discharge waiver from the LARWQCB. However, recent changes to regulations have eliminated that discharge option.

In 2011, due to the continued migration of the contaminant plume USEPA requested that the shallow zone remedy be completed in phases. Phase I consists of migration control of the eastern plume via extraction from well S05, treatment for VOCs and ECs and re-injection of the treated water into the shallow zone aquifer.

The Northrop Grumman Systems Corporation (“Northrop”) is responsible for cleanup of the shallow contamination south of Puente Creek emanating from the former Benchmark Technology Facility. The Benchmark facility is understood to be the largest single source of VOC and 1,4-Dioxane contamination in the eastern portion of the shallow aquifer at the mouth of the Puente Valley. This portion of the shallow zone remedial action was part of the remedy in the 1998 ROD. In 2003, the groundwater contamination downgradient of the former Benchmark facility was to be addressed by a facility-specific cleanup through a Cleanup and Abatement Order (“CAO”) administered by the LARWQCB. However, the cleanup was never implemented and in May 2010, lead agency status was transferred to USEPA. Therefore, the groundwater contamination downgradient of the Benchmark facility is again being addressed as part of the shallow zone remedy.

Intermediate Zone Remedy - In 2008, Northrop finished construction of the six extraction wells and a portion of the pipeline that were approved by USEPA as part of the intermediate zone remedy at the mouth of the valley (Figure 8). At that time the remedy called for contaminated water to be treated at SGVWC’s existing Plant B7 VOC treatment facility. Treatment would consist of an existing air-stripper, liquid phase granular activated carbon, ion-exchange and advanced oxidation/ultraviolet technologies for the treatment of VOCs and all ECs. In addition, Northrop has reached an agreement in principle with SGVWC to accept the treated water and to provide a blending component with other SGVWC sources. SGVWC has constructed a transmission main from its Plant B6 service area to its Plant B24 to facilitate blending of the PVOU treated water.

In 2013, water quality samples indicated elevated levels of TDS and nitrates that would require a much greater of volume of blend water to be compatible with SGVWC’s distribution system. As a result it was determined that additional treatment consisting of reverse osmosis would be required. As a result SGVWC’s Plant B7 site is not likely to accommodate the additional treatment

because of its size. Northrop immediately began working with the City of Industry to purchase an alternative site that would be large enough for all treatment facilities.

In 2014, Northrop acquired a property from the City of Industry large enough to site both Intermediate Zone and Shallow Zone South treatment facilities. The current conceptual plan is to have LPVCWD operate the Intermediate Zone Remedy and utilize the treated water in its distribution system.

Pursuant to USEPA's request and agreement with Northrop, SGVWC, in October 2016, properly destroyed Well B7C and decommissioned the accompanying treatment system. SGVWC's Well B11B and accompanying treatment system continues to operate in the PVOU.

As of June 30, 2017, Plants B7 and B11 have treated approximately 93,848.32 acre-feet and have removed approximately 5,004.3 lbs. of VOCs.

AREA 3

In 1999, USEPA began RI/FS investigations in the Area 3 ("ATOU"). The purpose of the RI/FS is to determine the nature and extent of soil and groundwater contamination and to identify likely sources. USEPA has completed the installation of additional monitoring wells in order to collect additional data to assess the extent of the contamination and its relationship to suspected source areas. USEPA released the RI in 2010 and is currently evaluating the results to identify cleanup options. Conclusions of the RI will form the basis of an FS to evaluate cleanup alternatives to prevent and eliminate the release of contaminants at the site. USEPA anticipates the release of the FS sometime in mid-2014. The focus of the FS is to develop, screen and evaluate cleanup alternatives. During development of the FS, USEPA continues investigations to address remaining uncertainties identified in the RI.

ATOU VOC contamination has impacted a number of the City of Alhambra's ("Alhambra") wells. In 2001, Alhambra started operation of Phase I of its pump and treat program. Phase I consists of a VOC treatment facility at Well No. 7. In 2008, Alhambra finished most of the construction of Phase II of its pump and treat program. Phase II consists of VOC and Nitrate treatment technologies at Well No. 8 and has the ability to treat contaminated groundwater from Wells Nos. 8, 11, 12. Alhambra finished construction of Phase II in 2008 and it is operational. All water treated from both Phase I and Phase II projects is used by Alhambra in its distribution system (Figure 9). Both phases of the Alhambra's pump and treat program received reimbursement from WQA's federal funding programs. In addition, California American Water Company has informed USEPA of its rising contamination found at its Rosemead and Grand wells located in the southeastern portion of the ATOU.

As of June 30, 2017, Alhambra's treatment facilities have treated approximately 32,209.15 acre-feet of contaminated groundwater and have removed approximately 935.6 lbs. of VOCs and nitrates.

SAN GABRIEL BASIN WATER QUALITY AUTHORITY

CHAPTER 404 STATUS REPORT

**TABLE 1 - SCHEDULE OF FUNDING FROM POTENTIALLY RESPONSIBLE PARTIES AND OTHER SOURCES
AS OF JUNE 30, 2017**

FUNDING FOR CAPITAL AND TREATMENT & REMEDIATION COSTS^{1, 2}							
	SEMOU	BPOU⁴	EMOU⁹	PVOU⁹	ATOU⁵	Other⁶	Total
Responsible Parties	\$ 15,681,766	\$ 648,225,979	\$ 54,417,777	\$ 51,137,192	\$ -	\$ -	\$ 769,462,714
EPA Federal Grants & Settlements with Responsible Parties ³	23,673,725	-	-	-	-	-	23,673,725
Federal Grants - Bureau of Reclamation	13,923,033	48,357,671	10,188,794	5,320,769	3,163,612	1,692,803	82,646,682
State Grants - SWRCB	-	4,629,416	-	-	-	-	4,629,416
State Grants - SWRCB Clean Up & Abatement	2,375,646	-	-	-	-	-	2,375,646
State Grants - DTSC	-	2,853,658	-	-	-	684,499	3,538,157
State Loan - DTSC (Responsible Parties) ⁷	-	6,440,000	-	-	-	-	6,440,000
State Funding - Proposition 84 ⁸	5,250,000	7,897,473	1,500,000	-	-	-	14,647,473
Water Producers	19,713,581	19,028,018	83,000	2,500,000	13,997,626	1,778,546	57,100,771
Watermaster	-	358,319	-	-	-	-	358,319
WQA Sources (Assessments, interest, etc.)	5,315,543	4,328,578	1,608,653	-	-	836,548	12,089,323
Total Funding for Capital and Treatment & Remediation	\$ 85,933,294	\$ 742,119,112	\$ 67,798,224	\$ 58,957,961	\$ 17,161,238	\$ 4,992,397	\$ 976,962,225
ESTIMATED COSTS FOR CAPITAL AND TREATMENT & REMEDIATION^{2, 4, 9}	\$ 171,471,000	\$ 1,018,226,525	\$ 133,086,637	\$ 123,806,135	\$ 34,623,815	\$ 25,381,363	\$ 1,506,595,474
FUNDING GAP	\$ (85,537,706)	\$ (276,107,414)	\$ (65,288,413)	\$ (64,848,174)	\$ (17,462,577)	\$ (20,388,966)	\$ (529,633,249)

ANNOTATIONS

- 1 Funding for Capital Projects and Treatment & Remediation ("T & R") Costs reflects funding obligations per current agreements including funds received to date and future anticipated funds.
- 2 The dollar amounts for future anticipated funds and estimated costs do not include an inflation factor. Although there are currently agreements in place for the funding of future Capital Projects and T & R Costs, the agreements do not specify the timing of the funding contributions, nor is the funding itself guaranteed.
- 3 The U.S. Environmental Protection Agency ("EPA") and the U.S. Department of Justice have lodged Consent Decrees which require Responsible Parties to pay a certain amount. WQA has entered into Cooperative Agreements with EPA for \$15.27M of these funds. EPA also granted \$2.65M of additional Superfund funding to the Cooperative Agreement. EPA is holding an additional \$5.75M from the Consent Decrees which will be added to the cooperative agreement at a future date.
- 4 The BPOU agreement covers Capital Projects as well as T & R Costs for operations through 2027. Treatment costs shown above are projected to be ongoing for an additional 5 to 10 years.
- 5 Area Three Operable Unit (ATOU) does not currently have a source of funding for T & R Costs. Treatment is projected for 15 years.
- 6 Funding for Capital Projects and T & R has been provided for treatment facilities that are located within the San Gabriel Basin boundaries but are operating outside the bounds of known operable units.
- 7 State Loan - DTSC, shown above as a source of funding, is being repaid to the State of California by the BPOU Responsible Parties.
- 8 Funding for Capital Projects includes \$9.40M from the second round of Proposition 84, Section 75025, as well as \$5.25M in a Proposition 84 IRWMP grant.
- 9 Responsible Parties are projected to fund T & R Costs for the EMOU and the PVOU for 8 years as required by the Consent Decrees. Treatment Costs shown above are projected to be ongoing for 30 years, therefore the remaining years are considered unfunded.

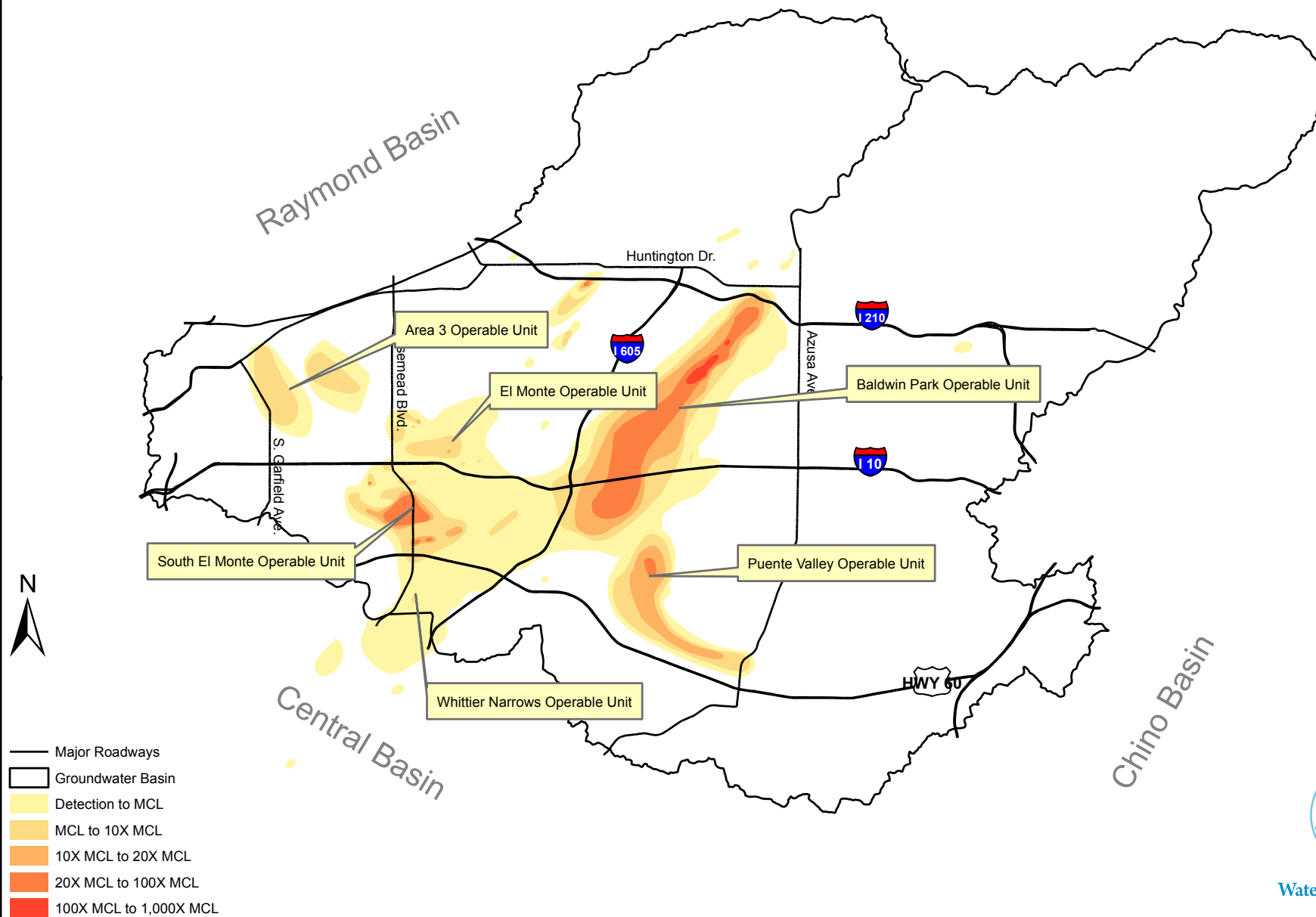
Table 2 – Project Scoring

QUESTION	PTS.	RESPONSE
Is applicant(s) ready to proceed with the groundwater remediation project?	0	Not fully ready to proceed
	10	Yes, ready to proceed
Does the project complement U.S. USEPA's plans? Is it consistent with USEPA's plans and the NCP?	0	Does not complement plan and is not consistent
	5	Complements and is consistent with USEPA plans
	10	Complements and is consistent with USEPA plans and NCP
How effective is project relative to amount of water treated and made available for use? Does the project use technology consistent with BAT?	0	Not effective relative to amount treated & available for use
	5	Somewhat effective and consistent with BAT
	10	Effective relative to amount treated & available for use, consistent with BAT
What are the impacts or potential impacts to the plume within the Main San Gabriel Basin?	0	No
	5	Some impact
	15	Very significant impact
Is project a joint cleanup and water supply project?	0	Not a joint cleanup and supply project
	5	Only a cleanup project
	15	Yes, project is a joint cleanup/supply project
Is project partially or solely funded by affected purveyor(s)?	0	N/A
	5	Yes, partially funded by purveyor(s)
	10	Yes, solely funded by purveyor(s)
Does the project address immediate water supply needs in the MSG Basin?	0	No
	15	Yes
Does the project address a need for migration control?	0	No
	15	Yes
Is project partially or solely funded by PRPs through an executed agreement?	0	No PRP agreement
	5	Yes, partially funded by PRPs with an agreement
	10	Yes, solely funded by PRPs with an agreement

Table 3 – Priority Ranking

CATEGORY	SCORING RANGE	TITLE XVI	RESTORATION FUNDS
Category 1	90-100	0 to 25%	up to 65% capital and/or T&R
Category 2	80-89	0 to 25%	up to 50% capital and/or T&R
Category 3	70-79	based upon availability	up to 40% capital and/or T&R
Category 4	0-69	based upon availability	up to 30% capital and/or T&R

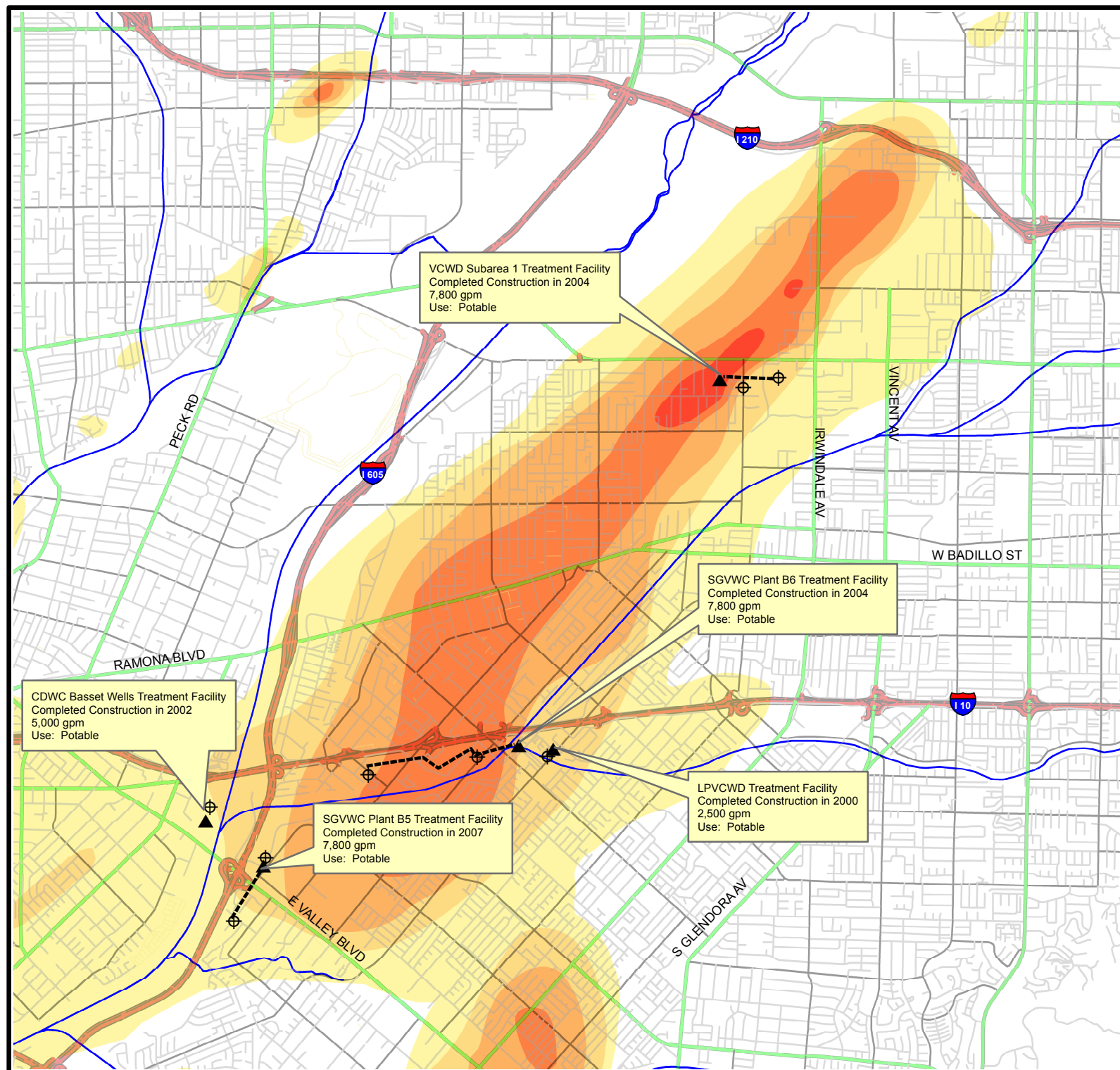
-FIGURE 1- San Gabriel Basin Contamination



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**-Figure 2-
Prescribed Remedy
Baldwin Park
Operable Unit**



- Pipeline
- ⊕ Remedial Extraction Well
- ▲ Treatment Plant

— Washes

2011 VOC Contamination

- Yellow: Detection to MCL
- Light Orange: MCL to 10X MCL
- Orange: 10X MCL to 20X MCL
- Dark Orange: 20X MCL to 100X MCL
- Red: 100X MCL to 1,000X MCL

Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011

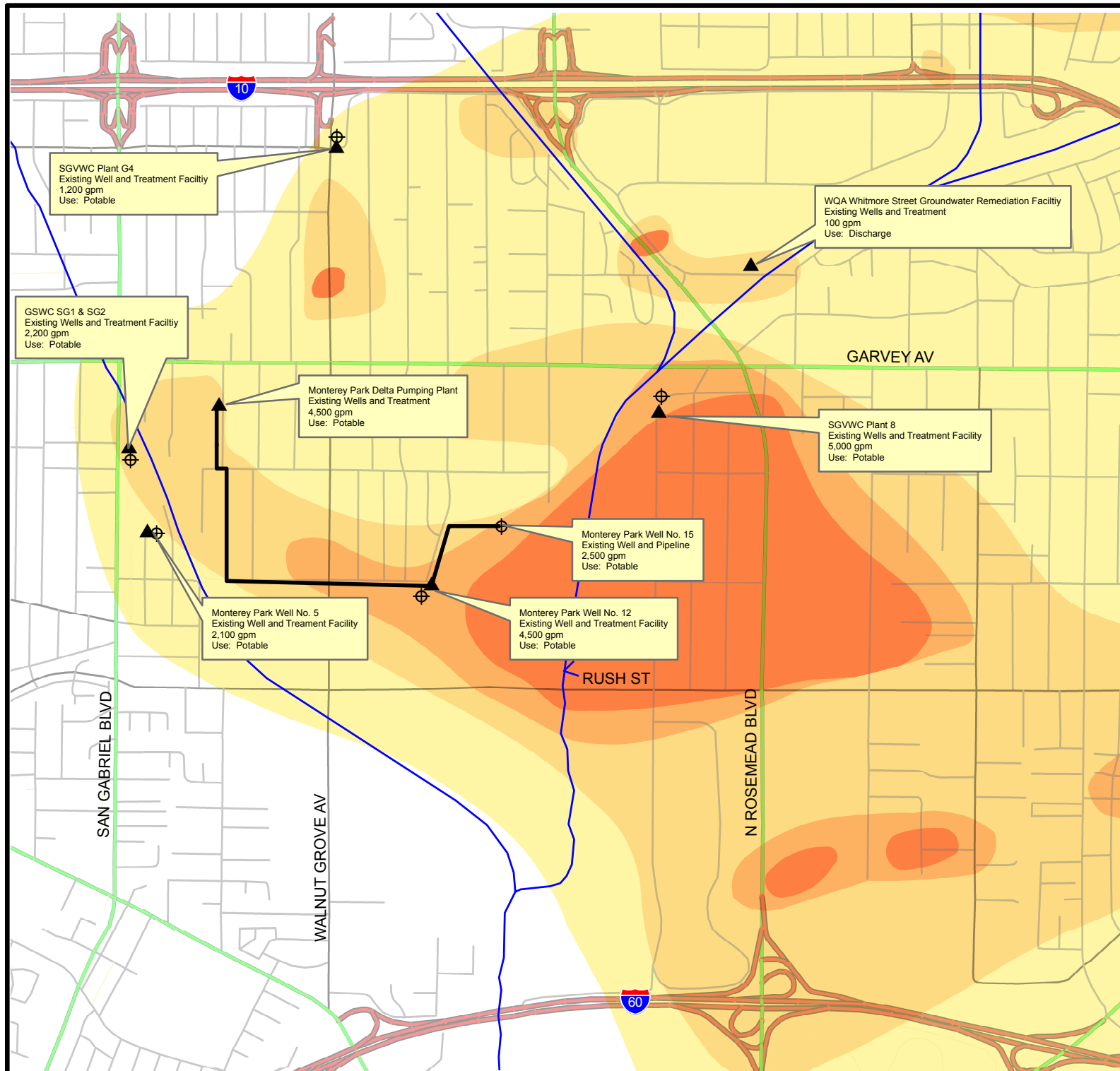
0 0.15 0.3 0.6 0.9 1.2 Miles



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**-Figure 3-
Prescribed Remedy
South El Monte
Operable Unit**



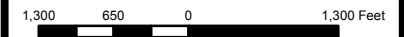
- Pipeline
- Remedial Extraction Well
- Treatment Plant

Washes

2011 VOC Contamination

- Detection to MCL
- MCL to 10X MCL
- 10X MCL to 20X MCL
- 20X MCL to 100X MCL
- 100X MCL to 1,000X MCL

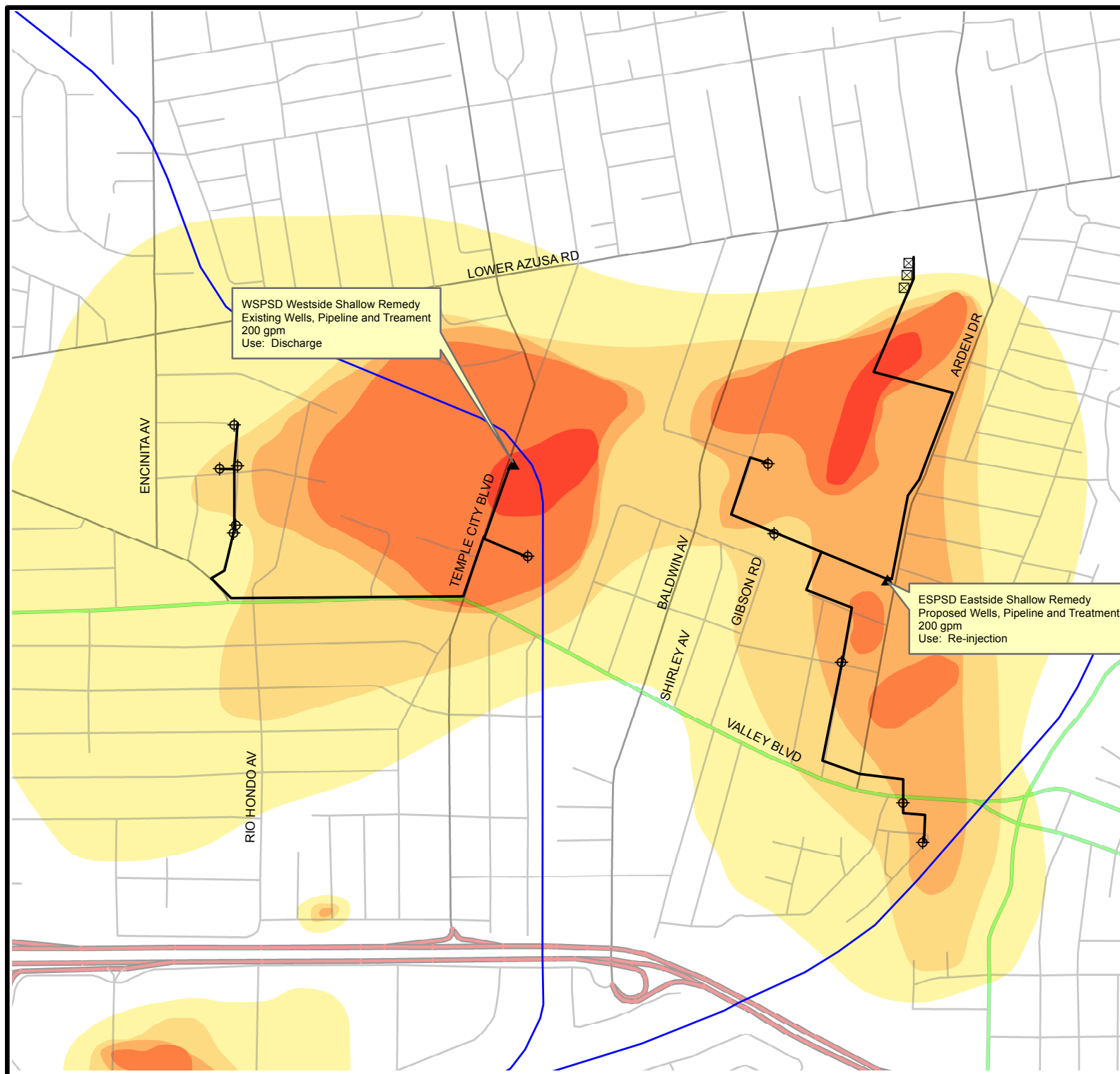
Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011



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**-Figure 4-
Prescribed Remedy
Shallow Zone
El Monte
Operable Unit**



- Pipeline
- ⊕ Remedial Extraction Well
- ▲ Treatment Plant
- ⊠ Injection Well

— Washes

2011 Shallow VOC Contamination

- Yellow: Detection to MCL
- Light Orange: MCL to 10X MCL
- Medium Orange: 10X MCL to 20X MCL
- Dark Orange: 20X MCL to 100X MCL
- Red: 100X MCL to 1,000X MCL

Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011

1,000 500 0 1,000 Feet






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**-Figure 5-
Prescribed Remedy
Intermediate Zone
El Monte
Operable Unit**




-  Pipeline
-  Extraction Well
-  Treatment Plant

**2011 Intermediate Zone
VOC Contamination**

-  Washes
-  Detection to MCL
-  MCL to 10X MCL
-  10X MCL to 20X MCL
-  20X MCL to 100X MCL
-  100X MCL to 1,000X MCL

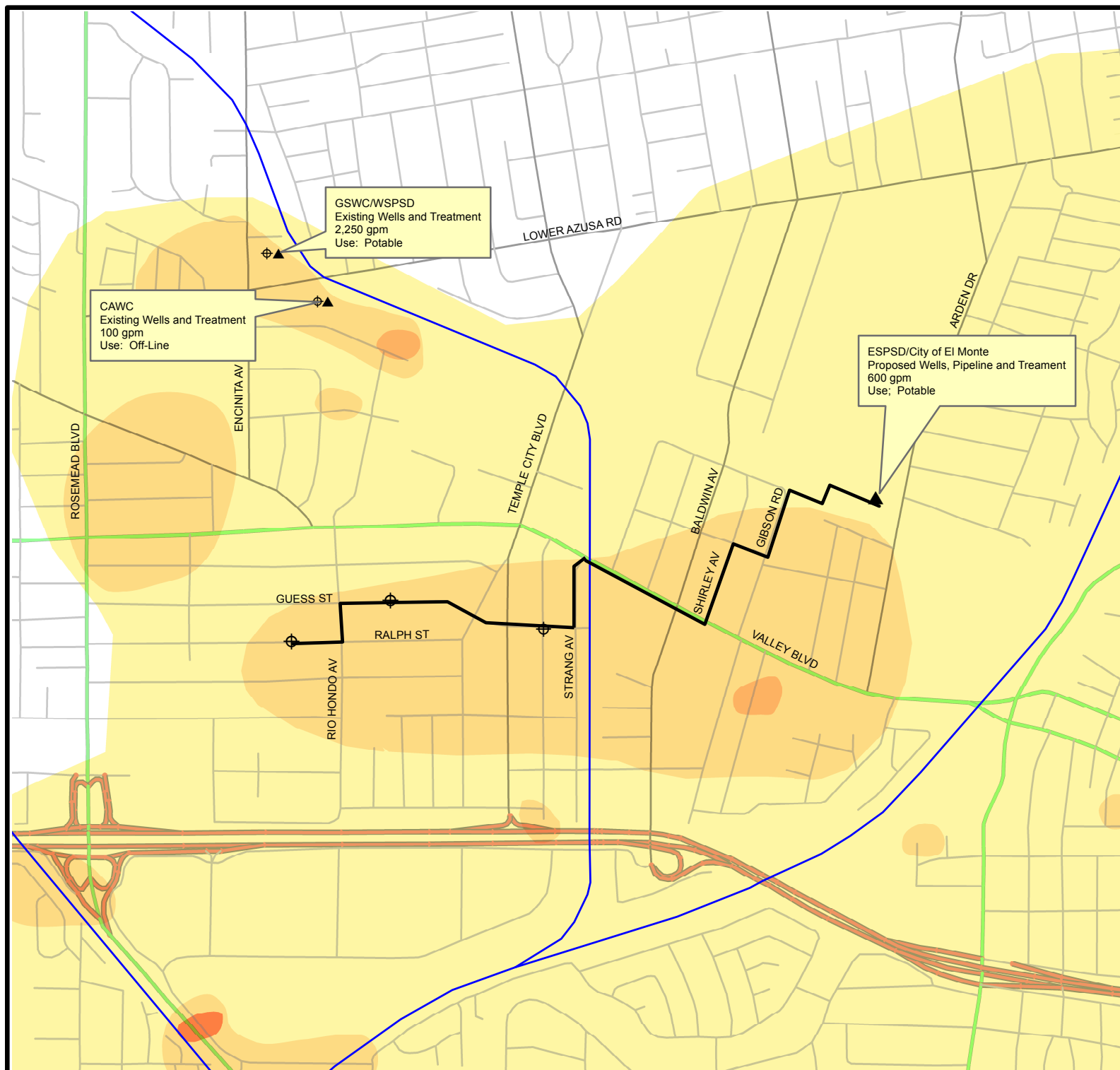
Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011

1,000 500 0 1,000 Feet

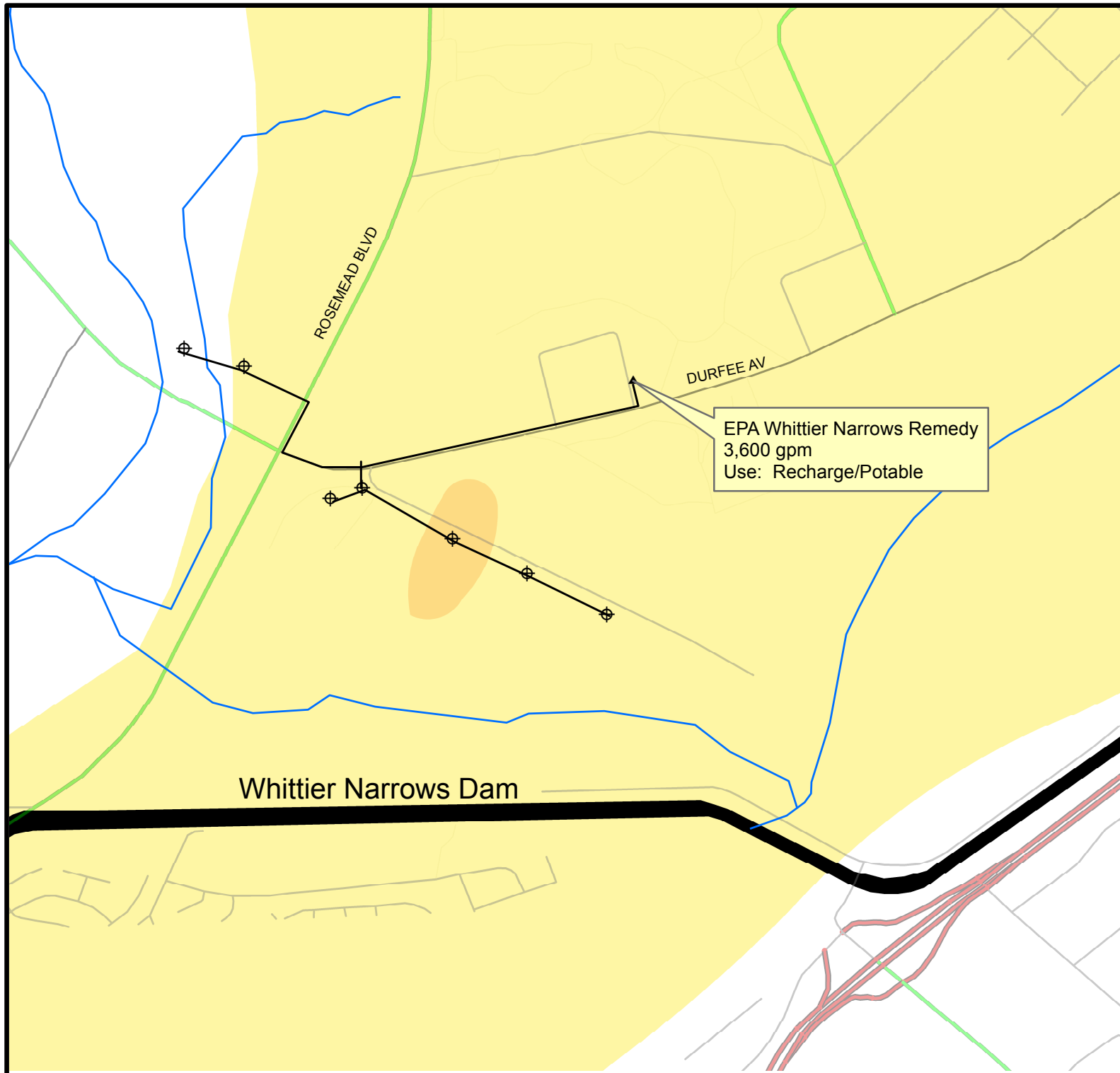



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**-Figure 6-
Prescribed Remedy
Whittier Narrows
Operable Unit**



- Pipeline
- ⊕ Remedial Extraction Well
- ▲ Treatment Plant

— Washes

■ Dams

2011 VOC Contamination

- Detection to MCL
- MCL to 10X MCL
- 10X MCL to 20X MCL
- 20X MCL to 100X MCL
- 100X MCL to 1,000X MCL

Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011

800 400 0 800 Feet



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**-Figure 7-
Prescribed Remedy
Shallow Zone
Puente Valley
Operable Unit**

Phase I PVOU SZ Remedy
350 gpm
Use: Re-injection



- Shallow Zone Remedy Pipeline
- ⊙ SZ Remedial Extraction Well
- ▲ Treatment Plant

**2011 VOC Contamination
Shallow Zone**

- Washes
- Yellow Detection to MCL
- Orange MCL to 10 X MCL
- Dark Orange 10 X MCL to 20 X MCL
- Red 20 X MCL to 100 X MCL
- Dark Red 100 X MCL to 1,000 X MCL
- Red > 1,000 X MCL

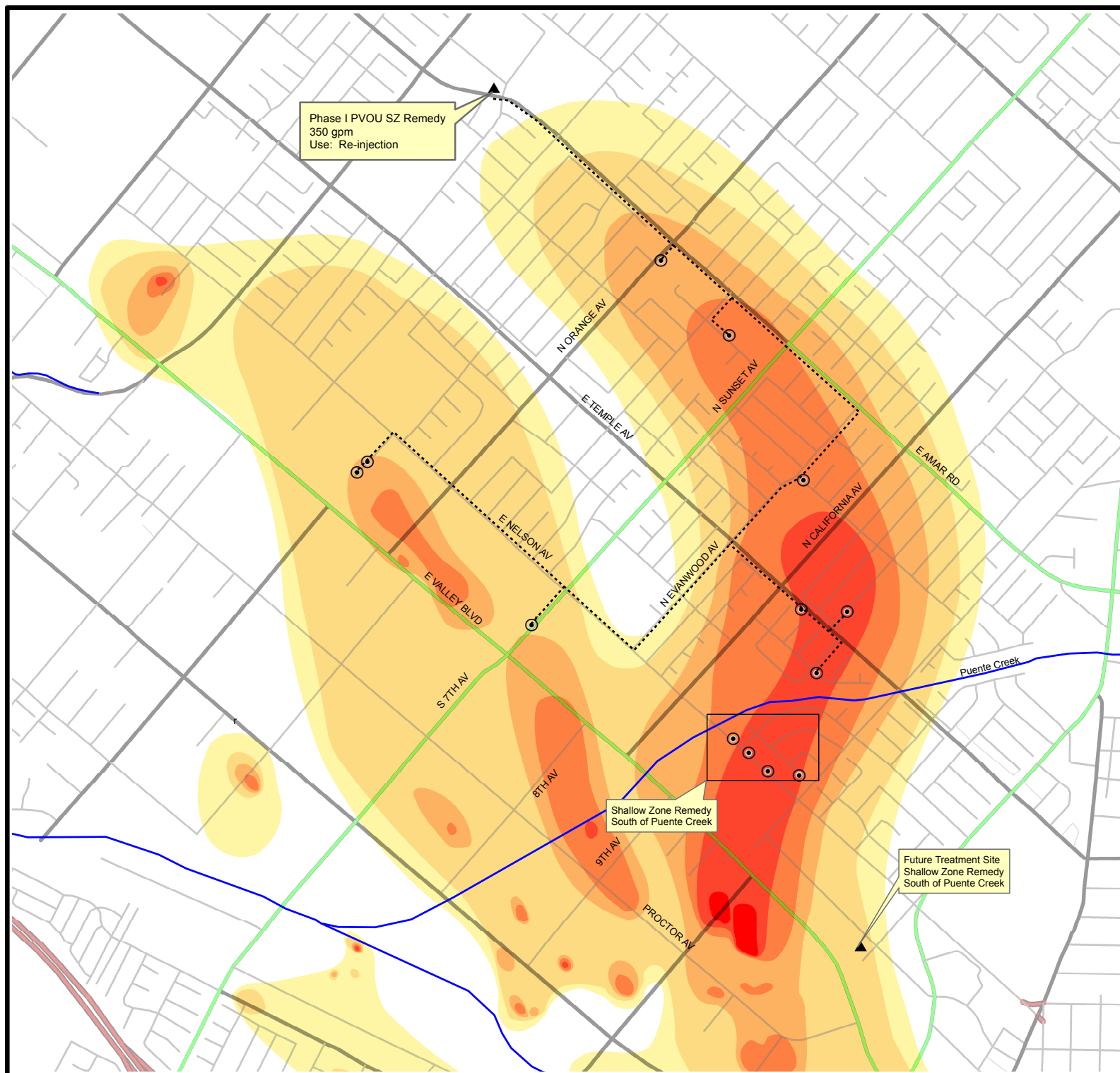
Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011

1,100 550 0 1,100 Feet






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**-Figure 8-
Prescribed Remedy
Intermediate Zone
Puente Valley
Operable Unit**



-  Intermediate Zone Remedy Pipeline
-  IZ Remedial Extraction Well
-  Treatment Plant

**2011 VOC Contamination
Intermediate Zone**

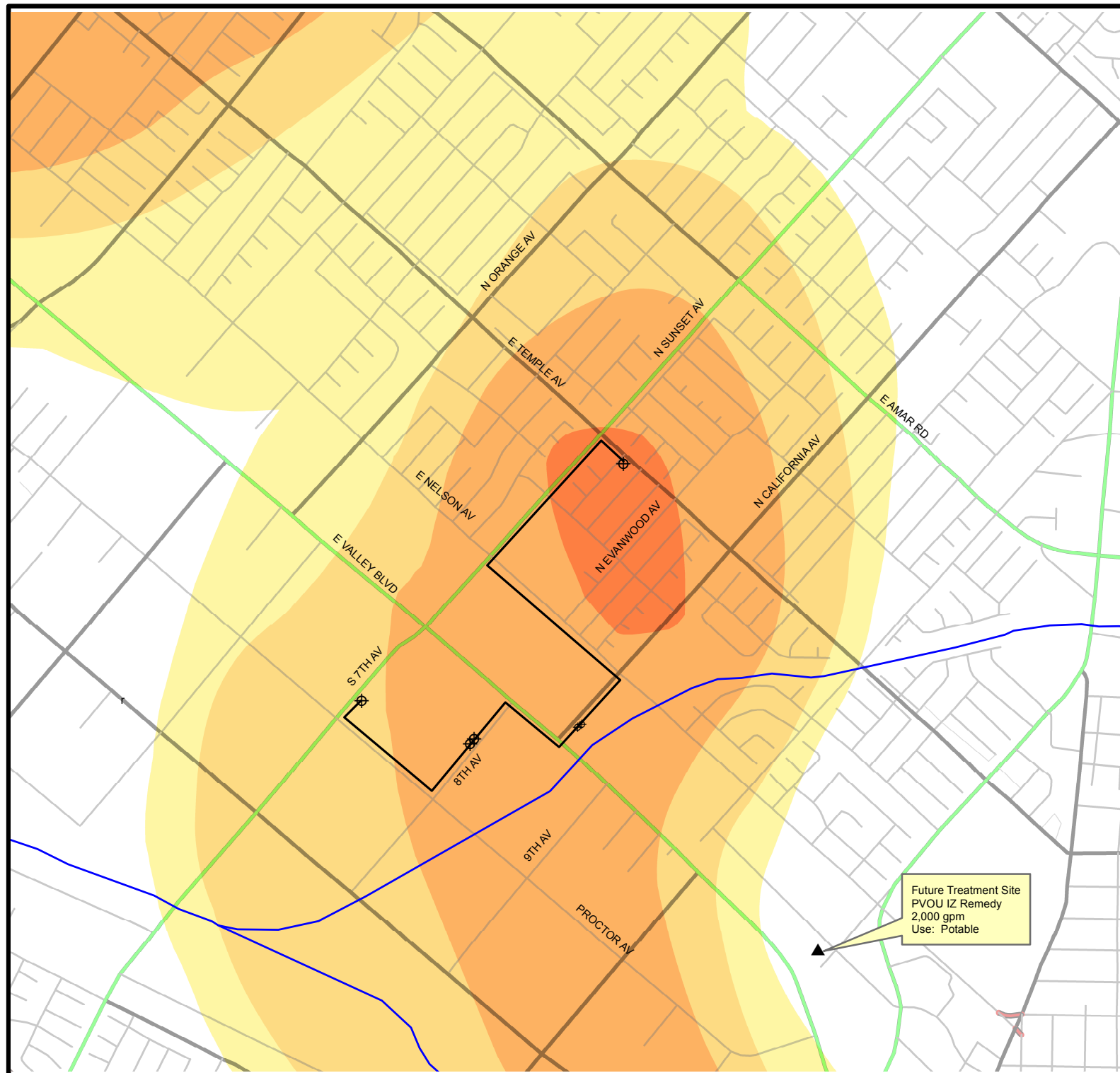
-  Washes
-  Detection to MCL
-  MCL to 10X MCL
-  10X MCL to 20X MCL
-  20X MCL to 100X MCL
-  100X MCL to 1,000X MCL

Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011

1,000 500 0 1,000 Feet




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**-Figure 9-
Prescribed Remedy
Area 3
Operable Unit**



- ★ EPA Installed Monitoring Well
- ▲ Treatment Plant

2011 VOC Contamination

- Detection to MCL
- MCL to 10 X MCL
- 10 X MCL to 20 X MCL
- 20 X MCL to 100 X MCL
- 100 X MCL to 1000 X MCL
- > 1000 X MCL

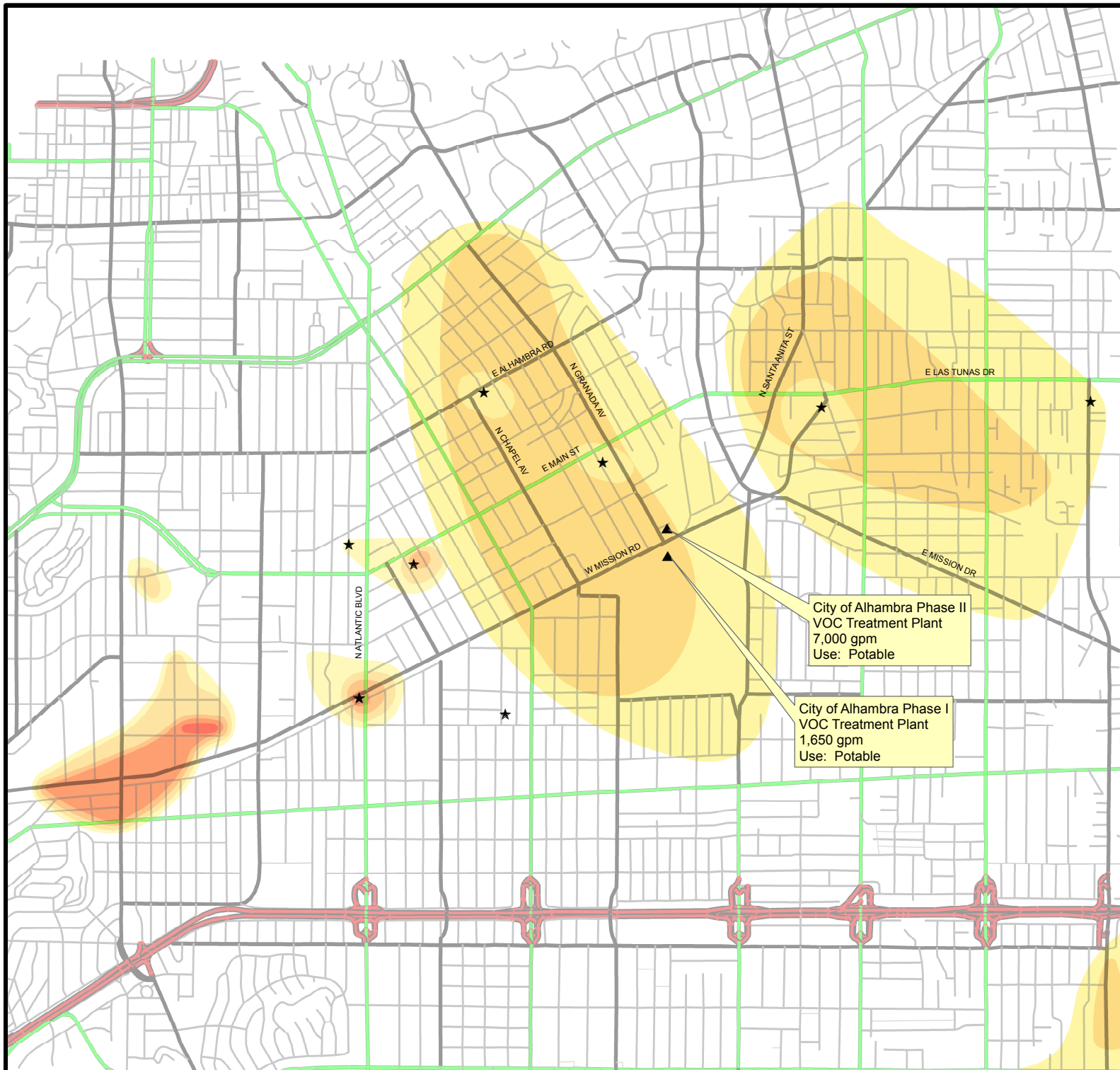
Source:
Ecology and Environment, Inc.
San Gabriel Basin Database GIS
Prepared for EPA 2011

2,100 1,050 0 2,100 Feet



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-FIGURE 10- Superfund vs. Nonsuperfund Projects

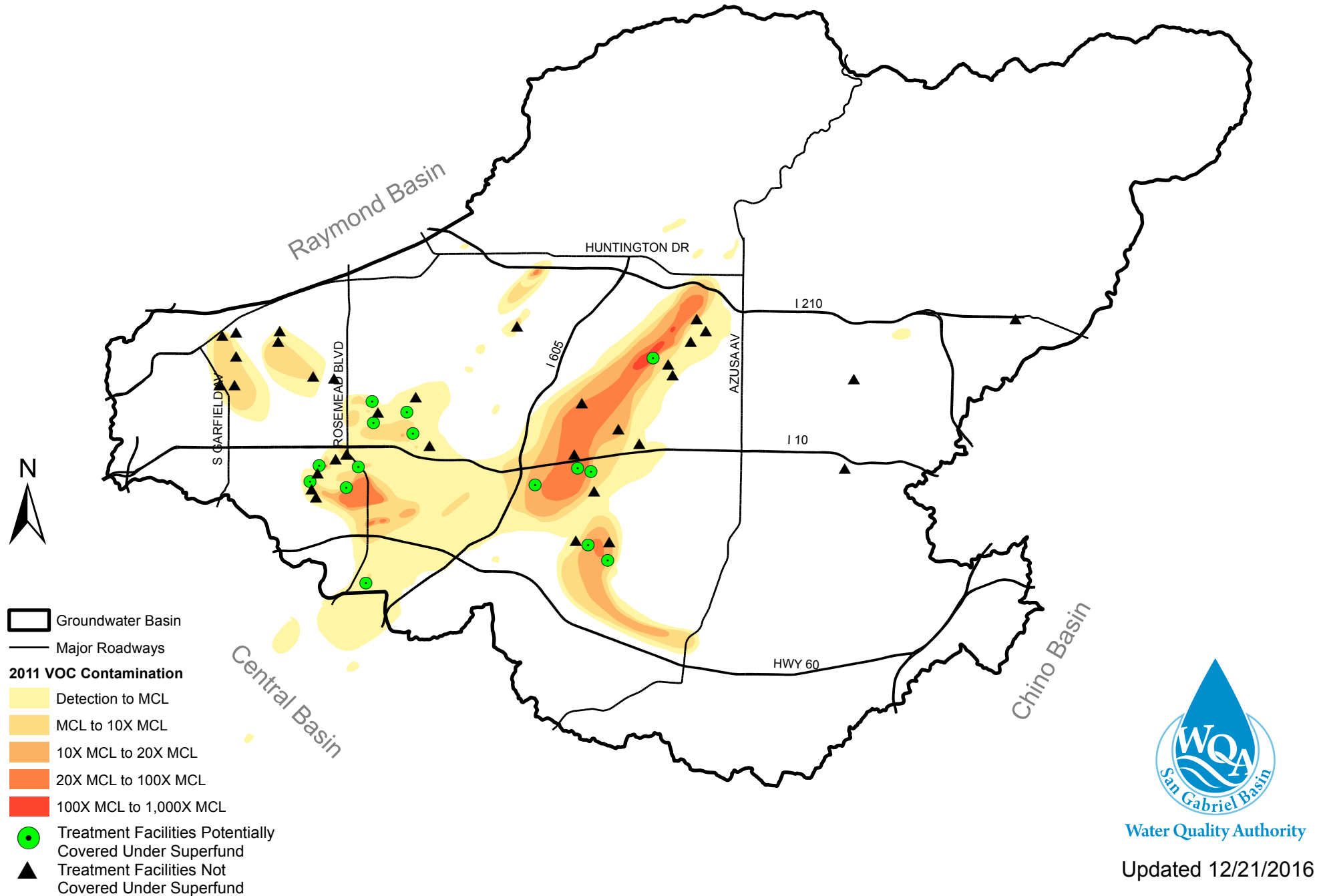


FIGURE 11 – The number of treatment plants operating in the Basin through June 30, 2017.

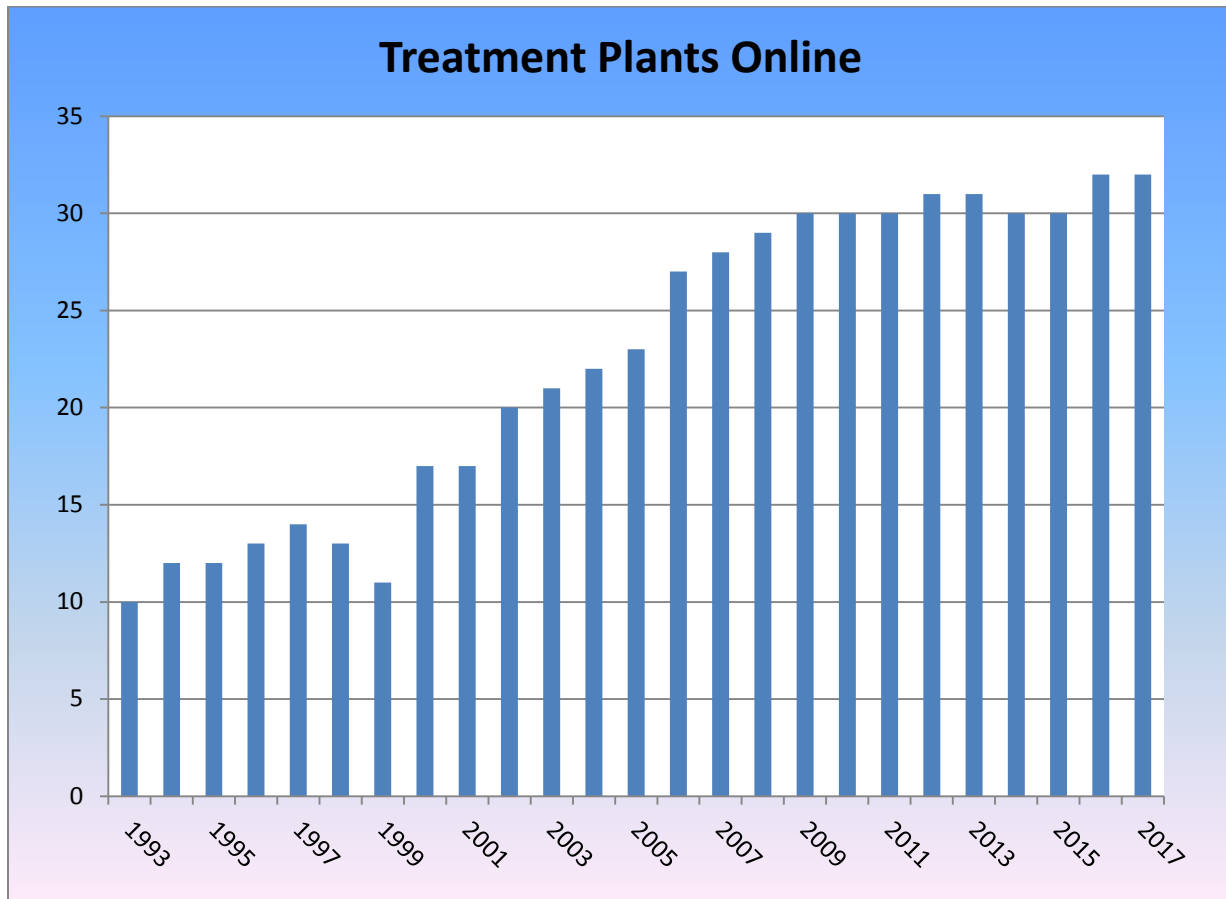


FIGURE 12 – The total amount of water treated and contaminants removed in the Basin. WQA considers the overall impact of the combined cleanup projects. This chart demonstrates how much contaminant mass has been removed from the Basin and how much treated water the projects have made available for beneficial use through June 30, 2017.

