

*San Gabriel Basin Groundwater Quality
Management and Remediation Plan
“§406 Plan”*



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Cleaning Up Our Groundwater
For Future Generations

April 19, 2011

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VOLUME I

LIST OF 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
CD	Consent Decree
CDWC	California Domestic Water Company
CEM	City of El Monte
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CMP	City of Monterey Park
DPH	California Department of Public Health (until 2007 known as the Department of Health Services)
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
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
NCP	National Contingency Plan
NDMA	N-Nitrosodimethylamine
NL	Notification Level
Northrop	Northrop Grumman Space and Mission System Corporation
NPDES	National Pollutant Discharge Elimination System
OEHHA	Office of Environmental Health Hazard Assessment
OU	Operable Unit
Policy 97-005	California Department of Public Health Policy 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
SGVMWD	San Gabriel Valley Municipal Water District
SGVWC	San Gabriel Valley Water Company
SEMOU Barrier	South El Monte Shallow Extraction Barrier
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWS	Suburban Water Systems
TCP	1,2,3-Trichloropropane
TVMWD	Three Valleys Municipal Water District
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
VCWD	Valley County Water District
VOC	Volatile Organic Compound
Watermaster	Main San Gabriel Basin Watermaster
WSGRF	Whitmore Street Groundwater Remediation Facility
WQA	Water Quality Authority
WQA Act	San Gabriel Basin Water Quality Authority's Enabling Act
WSPSD	West Side Performing Settling Defendant

SUMMARY

As in previous years, the San Gabriel Basin Water Quality Authority ("WQA") is revising its San Gabriel Basin Groundwater Quality Management and Remediation Plan ("§406 Plan"). The §406 Plan, which is required by this agency's enabling act ("WQA Act"), Statutes 1992, Chapter 776 (West's California Water Code Appendix, §134-101 et seq.), promotes improvement of groundwater quality in the San Gabriel Basin ("Basin") by setting forth: (1) a general process under which this plan shall be developed and implemented; (2) remedial goals; and (3) a restatement of existing regulatory authority governing cleanup within the Basin in addition to requirements of the United States Environmental Protection Agency ("USEPA"). Additionally, elements of the §406 Plan fit into a framework of overarching remedial principals and sets forth specific projects proposed to be facilitated by the WQA or by others within the Basin.

Date:

This §406 Plan is effective April 19, 2011.

Address:

Supporting materials are available for viewing at WQA offices, located at 1720 W. Cameron Avenue, Suite 100, West Covina, CA 91790. WQA offices are open from 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding recognized holidays. It is recommended that an appointment be made to review these materials by calling (626) 338-5555.

General Information:

For general information, WQA may be contacted at (626) 338-5555 between the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding recognized holidays. Various materials may also be viewed on the Internet at www.wqa.com.

I. Legal Authority

This §406 Plan is developed and adopted under the authority of the WQA Act. §406 of the WQA Act requires the WQA “to develop and adopt a basinwide groundwater quality management and remediation plan” that is required to be consistent with the USEPA’s National Contingency Plan (“NCP”) and Records of Decision (“ROD”) and all requirements of the Los Angeles Regional Water Quality Control Board (“LARWQCB”). According to the WQA Act, the §406 Plan must include:

- 1) Characterization of Basin contamination;
- 2) A comprehensive cleanup plan;
- 3) Strategies for financing the design, construction, operation and maintenance of groundwater cleanup facilities;
- 4) Provision for a public information program; and
- 5) Coordination of activities with federal, state, and local entities.

The WQA shall review and adopt this §406 Plan on an annual basis and, if necessary, shall make revisions according to changing regulatory, political and/or funding environments.

In support of the §406 Plan, the WQA shall also adopt an annual fiscal year budget (July 1 through June 30) which shall include all projects (actual or planned) that WQA is facilitating through its participation during that time period. The budget shall identify various funding sources and combinations thereof to ensure that full funding for each project (capital and/or O&M) can be achieved.

The WQA, through representation on its board of directors, includes three municipal water districts. These member water agencies are the Upper San Gabriel Valley Municipal Water District (“USGVMWD”), the Three Valleys Municipal Water District (“TVMWD”), and the San Gabriel Valley Municipal Water District (“SGVMWD”). These public water agencies are each mandated to develop and adopt an Urban Water Management Plan that identifies reasonable and practical measures that provide for water recycling, water use efficiency and conservation to maximize the utilization of

local resources and minimize the use of imported water supplies. Their respective sponsorship and administration of these projects is a vital part of enhancing the long-term reliability of the Basin's water supply. WQA's §406 Plan references several of those projects because they directly augment WQA's goals and objectives (Appendix G).

II. Policy Statement for Year 2011

The WQA general policy statement is the foundation of the §406 Plan. Therefore, the first steps in revising the §406 Plan are to review the past year's activities and to identify successes as well as challenges and obstacles that may have delayed or hindered cleanup progress. Using that information as a basis, WQA can apply current conditions and determine WQA's direction for the coming year.

Interpretation of The Clean Water Act by the LARWQCB and the Los Angeles County Flood Control District ("LACFCD") continued to be an impediment to groundwater cleanup during the past year. Their interpretation has prevented the long-term discharge of treated water to local creeks and caused delays in project implementation which has increased the cost of cleanup in several areas. WQA continues to engage and participate with USEPA, LACFCD, LARWQCB and the Department of Toxic Substances Control ("DTSC") to facilitate solutions. While some progress was made, WQA will continue to facilitate long-term solutions to get the affected projects moving forward with cleanup.

Recent court cases and severe drought have contributed to a significant reduction of replenishment water available from MWD. In fact, the Basin hasn't received replenishment water for three of the last four years. Due to the fragility of the Delta water system and the issues noted above, the WQA recognizes a renewed emphasis on promoting the Basin as a strategic regional groundwater storage solution for supply reliability and the vital role it could play if all imported supplies were suspended to the region by either a natural disaster or institutional decisions. When viewed from this perspective, the Basin's viability as part of the region-wide strategic water supply plan rests on the ability to move cleanup forward and assure its completion.

POLICY STATEMENT 2011

The WQA was created and authorized by the State Legislature to address the critical need for coordinated and accelerated groundwater cleanup programs in the Basin.

The WQA is committed: 1) to protecting public health and safety; 2) to prioritizing, facilitating, and coordinating groundwater cleanup/supply programs with local water providers, LARWQCB, LACFCD, DTSC and USEPA; and 3) to minimizing local financial and economic impacts, including impacts on local groundwater consumers.

The WQA recognizes that groundwater contamination issues in the Basin are complex and that the USEPA Superfund response alone may not adequately address the environmental, regulatory and financial issues that affect the one million residents and the many thousands of businesses who rely primarily on the Basin for potable water.

In addition, the WQA recognizes the critical nature of developing strategies that ensure the Basin's long-term reliability while reducing our reliance on imported water and enhancing the Basin's potential to meet regional strategic groundwater storage demands.

In order to effectively coordinate the local water supply needs with cleanup, containment, reliability and storage goals, the WQA will promote and participate in technical, financial and regional partnerships, including partnerships with responsible parties, wherever possible. Where partnerships with responsible parties cannot be voluntarily formed, WQA will seek ways to move forward and implement the necessary groundwater cleanup projects and will consider all options to require financial participation from those responsible for the contamination.

The WQA will continue to pro-actively address the growing problems of emerging chemicals ("EC"), such as 1,4-Dioxane, 1,2,3-Trichloropropane ("TCP") and Chromium VI and the impact they have on the overall cleanup goals of the WQA. Currently, the Office of Environmental Health Hazard Assessment ("OEHHA") is poised to lower the Public Health Goal for perchlorate to 1 ppb and the California Department of Public Health ("DPH") may ultimately adopt an MCL for perchlorate significantly less than the current MCL of 6 ppb which will directly impact many projects in the Basin. In addition,

USEPA has announced that they will establish a federal MCL within the next two years. USEPA will most likely implement an MCL close to the 1 ppb that was suggested by their draft risk assessment released in 2002. Furthermore, DPH recently lowered the 1,4-Dioxane notification level to 1 ppb from 3 ppb. WQA will continue to coordinate activities while reviewing the potential impact of this regulatory standard on current and planned treatment projects throughout the Basin.

While cleanup costs have grown, so have requests and competition for federal and state funding (primarily due to nationwide perchlorate problems). At the same time, local groundwater providers continue to face growing ambiguity and sometimes conflicting federal and state requirements.

The Policy Statement will become effective with the adoption of this document and will remain in effect until institutional, environmental or other changes necessitate a revision of the Policy Statement.

III. Background Information

A. OVERVIEW OF THE GROUNDWATER CONTAMINATION

The San Gabriel Valley's 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 volatile 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 USEPA to place four portions of the Basin on the NPL 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 DPH permitting requirements under their Technical Memorandum 97-005. While the additional treatment is necessary, each step has incrementally increased the costs of capital construction and operations and maintenance 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, the South El Monte Operable Unit (“SEMOU”) has been affected the most by the need for additional treatment.

B. OVERVIEW OF WQA AUTHORITY

The WQA was formed by special act of the California Legislature (Senate Bill 1679, Russell). The WQA Act gives WQA authority, *inter alia*, to plan for and to coordinate among several agencies with authority affecting cleanup of the Basin. §406 of the WQA Act requires WQA to develop and adopt a basinwide groundwater quality management and remediation plan. §406 further requires the plan to provide for: (1) a characterization of the Basin’s contamination; (2) the development and implementation of a comprehensive Basin cleanup plan; (3) the financing of the design, construction, operation, and maintenance of groundwater cleanup facilities; (4) provisions for a public information and participation program; (5) the coordination with federal, state and local entities, including WQA member agencies; and (6) the maintaining of consistency with the National Contingency Plan, any applicable USEPA RODs, all LARWQCB requirements, and all applicable cleanup agreements with federal, state and local agencies. The §406 Plan has to be developed with an eye toward the statutory requirement that “the basin-wide plan shall consider the benefits to be achieved by the

plan or any proposed project in relation to its economic impact on persons or entities within the boundaries of the authority.”

C. HISTORY OF WQA PLANNING

As required by §406, WQA first adopted the §406 Plan in June of 1993. This plan identified a mission and eight goals and served as the guiding principles over the next six years of early action projects to remove and contain contamination (well ahead of the Superfund-mandated process) and to characterize the extent and movement of contamination.

Once the data, necessary to design and construct projects on a regional basis, was available, including information on the extent and movement of groundwater contamination, the WQA officially adopted the first amended §406 Plan on March 6, 2000. Since that time, the WQA, using the §406 Plan as its implementation guide, facilitated the design and/or construction of several treatment facilities described within the §406 Plan. A listing of WQA’s major activities and milestones can be found in Table 1.

As in previous years, the WQA will continue to assist USEPA with its response efforts by engaging the authority of other agencies. Section 102(b) of the WQA Act declares legislative intent directing the WQA to coordinate among state and federal government agencies to plan and implement groundwater cleanup. The Remedial Standards (Section V(b)) established by the §406 Plan (as required by Section 106 of the WQA Act) incorporate rules, regulations and standards previously adopted by other agencies of the State of California. The Remedial Standards harmonize and coordinate the requirements of the Main San Gabriel Basin Watermaster (“Watermaster”), the State Water Resources Control Board (“SWRCB”), the LARWQCB, and the DPH. One purpose of the Remedial Standards is to help integrate groundwater cleanup objectives with water supply objectives, according to the legislative intent directive set forth in Section 102(a) of the WQA Act.

The USEPA has recognized some of these Remedial Standards as applicable or relevant and appropriate requirements (“ARARs”). Federal Superfund Law requires parties responsible for pollution to comply with ARARs in the process of carrying out

federal cleanup orders. ARARs include any State standard that is (1) more stringent than any Federal requirement, (2) validly promulgated, (3) either "applicable" or "relevant and appropriate" and has been identified by the State to the USEPA. Due in part to the efforts of the WQA, the USEPA's Unilateral Administrative Order (No. 2003-17) for remedial design and remedial action in the SEMOU of the San Gabriel Valley Superfund Sites, issued on August 28, 2003, (1) encourages the parties identified as responsible for the pollution to integrate their cleanup obligations with water supply projects that exist or are under development and (2) directs compliance with ARARs, such as meeting water quality standards for potable water service established by DPH and/or for discharge of the product water established by the LARWQCB.

IV. Goals of the WQA §406 Plan

Originally, 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 to determine applicability and whether any additional goals should be added. While these goals have remained unchanged, WQA has expanded the descriptions under the four goals to further validate WQA's focus. The four goals are:

- Accelerate Removal of Contaminant Mass in the Basin;
- Prevent Migration of Contamination into Critical Groundwater Supplies;
- Integrate Cleanup with Water Supply; and
- Minimize Economic Impact to the Public.

In the following sections, each of the four goals are described in more detail.

A. ACCELERATE REMOVAL OF CONTAMINANT MASS IN THE BASIN

In recent years, it has become increasingly apparent that cleanup actions, implemented earlier than CERCLA provides, are needed to address the immediate threats to the local water supplies. The goal of accelerating the removal of contaminant mass is fulfilled primarily by engaging the regulatory processes of other agencies of the State, and, wherever possible, prompting the implementation of activities ahead of the time required under the applicable regulatory process.

In the past, the WQA identified and focused its accelerated removal activities on projects that could immediately be implemented to remove contaminant mass. In more recent years, the focus has changed due to the ever-growing list of impacted water supply wells. This widespread impact has necessitated the early implementation of several treatment facilities by water purveyors, individually and jointly with the WQA and/or other agencies well ahead of the mandate from regulatory agencies.

With the rapid migration of contamination towards critical water supplies, the WQA now primarily focuses on projects that will 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 has and will continue to be extensive coordination with USEPA, DTSC 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. Several crisis situations exist within the Basin that demand this type of immediate action as described in Appendix A. Waiting on mandated actions have already had severe impacts in many parts of the Basin.

B. 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 continues to represent a significant threat to the Basin's water supply. Therefore, priority must be given to implementing cleanup projects that will prevent the loss of water supplies. In order to meet this goal, contaminant migration controls must be implemented quickly so that constituents will be prevented from entering clean supplies. Further, this action must also prevent constituents from entering 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.

The Watermaster has existing rules and regulations which govern the location and production of water wells for water quality purposes. The WQA under this §406 Plan will work with the Watermaster and its existing rules and regulations to help contain and control the migration of contaminants within the Basin.

C. INTEGRATE CLEANUP WITH WATER SUPPLY

With so much of the state and 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 will serve to enhance the overall water supply situation in the Basin and help 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 treated 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. The necessity to develop new sources and to fully utilize existing sources is very evident in court decisions within the State and the Colorado River Watershed. For example, the 2003 Quantification Settlement Agreement (“QSA”) between the United States Department of the Interior and Southern California Colorado River users restricts the State’s withdrawal of Colorado River water to its original allotment of 4.4 million acre-ft per year in non-surplus years. In addition, the dependability of the State Water Project (“SWP”) is decreasing as a result of a lack of storage facilities. Furthermore, in 2007, United States District Court Judge Oliver Wanger ordered that the California Department of Water Resources and the United States Bureau of Reclamation (“USBR”) must reduce pumping from the Sacramento Delta in order to enhance the Delta Smelt population. This decision and his subsequent decisions have the effect of significantly reducing SWP availability. Now more than ever, it is critical to protect and develop the 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.

The Los Angeles County Superior Court has Constitutional authority, through its continuing jurisdiction under the Judgment in the case of *Upper San Gabriel Valley Municipal Water District v. City of Alhambra*, LACSC 924128, to promote the beneficial use of water and to prevent the waste of water in the Basin. Through the Court’s continuing jurisdiction under the Judgment, the Watermaster has adopted rules and regulations governing the location and production of water wells for water quality purposes. The LARWQCB has Constitutional, statutory and regulatory authority to regulate discharges to waters of the State, to promote the beneficial use of water, and to prevent the waste of water. DPH has statutory and regulatory authority to set and enforce standards for public drinking water systems, including acceptable water treatment processes. The WQA intends to engage the existing rules, regulations and standards of these agencies of the State to coordinate and promote the reasonable and

beneficial use of water produced and treated under mandate from the USEPA. The 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 intends to encourage 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.

D. 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 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 to the water supply crisis is the fact that there is no assurance that the immediate water supply concerns will be addressed under CERCLA. Therefore, many water purveyors may still need to construct and bear the expense of operating their own treatment facilities or look for alternative supplies at their own expense even after the PRPs fulfill their obligation under CERCLA.

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 detrimentally impacting their businesses. In the meantime, the spread of contamination continues to impact more water supply sources and, by extension, the basic reliability of plentiful water to support the economic basis and vitality of the Basin. To address this goal, 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 will always consider cost recovery actions to minimize costs borne by the public. To that end, WQA has already filed two cost recovery actions and may be soon considering other cost recovery actions against those responsible entities that chose not to participate in the sponsored early remedial actions.

V. §406 Plan

A. DEFINITIONS

1. This §406 Plan incorporates by reference the definitions of "facility," "hazardous substance," "national contingency plan," and "person". The terms "remedial action," or "remedy," or "cleanup," or "remediation," are used interchangeably herein. Additionally, such terms are intended to be encompassed by the definitions of "remove," "removal," "remedy," "remedial action," "respond," or "response," as appropriate and as those terms are defined in Title 42 (CERCLA) of the United States Code, § 9601, as amended.

2. This §406 Plan incorporates by reference Title 42 of the United States Code, §9607 (a), as amended, the class of persons who are PRPs for the cleanup of hazardous substances.

B. REMEDIAL STANDARDS

The WQA has identified certain appropriate rules, regulations and standards for the management of Basin remedial actions from among the rules, regulations and standards promulgated by the Watermaster, the LARWQCB and DPH. The rules, regulations and standards specified below are incorporated by reference in this §406 Plan and adopted as the Remedial Standards of the WQA.

These Remedial Standards, and the underlying existing rules, regulations and standards of the Watermaster, LARWQCB and DPH are additional requirements of the State which are applicable or relevant and appropriate to remedial actions ordered by the USEPA in the Basin. (See Appendix C-2).

The WQA will engage the existing procedures of the Watermaster, the LARWQCB and the DPH to implement the following Remedial Standards so that all remedial actions affecting Basin groundwater shall be conducted accordingly.

1. WATERMASTER SECTION 28

In furtherance of two objectives of this §406 Plan to prevent migration of contamination into critical groundwater supplies and to integrate cleanup activities with water supply operations, production of Basin water for remedial action purposes shall be carried out in conformance with Section 28 of the Rules and Regulations adopted by the Watermaster under authority of the Amended Judgment in *Upper San Gabriel Valley Municipal Water District vs. City of Alhambra*, Los Angeles County Superior Court Case No. 924128. (See Appendix C-1). Under this Remedial Standard water wells used for remedial action purposes shall be located, with the approval of the Watermaster, both to prevent migration of contaminated groundwater and to best integrate the water produced for remedial action with water supply operations in the Basin. If necessary, WQA will engage the existing implementation and enforcement procedures of the Watermaster to carry out this Remedial Standard. Section 28 of the Watermaster Rules and Regulations is attached as Appendix D-1 and incorporated herein.

2. LARWQCB DISCHARGE REQUIREMENTS

In furtherance of an objective of this §406 Plan to integrate cleanup activities with water supply operations, disposal of Basin water produced for remedial action purposes shall be carried out in conformance with discharge requirements issued by the LARWQCB and, if necessary, approved by the SWRCB. (See Appendix C-1). Under this Remedial Standard, Basin water produced and treated for remedial action purposes shall not be wasted and such water shall be put to the greatest reasonable and beneficial use of which it is capable. Conversely, the waste and unreasonable use or unreasonable method of use of such waters shall be prohibited. Additionally, under this Remedial Standard, Basin water produced and treated for remedial action purposes shall not be discharged to the environment except in conformance with discharge requirements issued by the LARWQCB.

The SWRCB and the LARWQCB are both subject to the requirements of the California State Constitution and California Water Code § 100 *et seq.* to promote the greatest reasonable and beneficial uses of the waters of the State and to prevent the waste and unreasonable use and unreasonable method of use of those waters. SWRCB's express statutory authority to prevent the waste and unreasonable use of water is set forth in Water Code § 275 which provides as follows:

“The department and board shall take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in this state”

The LARWQCB exists, pursuant to Water Code §§ 13200-13201, as a branch of the SWRCB. The LARWQCB exercises its authority to regulate discharges to promote the beneficial use of water and prevent waste through the issuance of waste discharge requirements. Waste discharge requirements are predicated upon the water quality control plan (“Basin Plan”) that each regional board is required to promulgate according to Water Code § 13241. Water Code § 13263(a) requires each regional board to issue discharge permits in conformity with its adopted Basin Plan.

Discharge requirements issued by the LARWQCB must be conditioned, taking into consideration the beneficial use of water, pursuant to Water Code § 13263(a), as follows:

“The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge, except discharges into a community sewer system, with relation to the conditions existing in the disposal area or receiving waters upon, or into which, the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241.”

Thus, in enacting Water Code §§ 13241 and 13263, the State has expressly stated its intent that the regional boards exercise their authority to regulate discharges to promote the beneficial use of water and prevent waste through the issuance of waste discharge requirements. Pursuant to the express terms of these statutes, this authority includes the prohibition on any discharge that is wasteful and does not promote the beneficial use of water.

The State has been approved to issue National Pollutant Discharge Elimination System (“NPDES”) Program permits under the Federal Clean Water Act. Under that authority, the LARWQCB issued General NPDES Permit No. CAG914001 (the “General Permit”), adopted by Order No. R4-2007-0022 on April 5, 2007. The General Permit establishes Waste Discharge Requirements for discharges of Treated Groundwater from Investigation and/or Cleanup of Volatile Organic Compounds Contaminated-Sites to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties. The General Permit prohibits, for example, the daily discharge of an effluent containing more than 4 ppb perchlorate (See General Permit, F (Effluent Limitations)).

The standards contained in the General Permit are ARARs. They were properly promulgated because they were adopted pursuant to the authority granted to the State under 40 CFR parts 122 and 123 and Section 402 of the Clean Water Act and other State authorities, including Water Code § 13263. The General Permit is generally applicable – it serves as a general NPDES permit and covers discharges to all surface waters in the Los Angeles Region (See General Permit, ¶23.). It is enforceable both administratively and through the Superior Court (See Water Code §§ 13300 et seq.). Finally, the General Permit standards are legally applicable or relevant and appropriate as state standards stricter than current federal standards. Thus, the standards set forth in the General Permit are ARARs.

If necessary, WQA will engage the implementation and enforcement procedures of SWRCB and LARWQCB to carry out this Remedial Standard. The applicable rules, regulations and standards of SWRCB and LARWQCB are attached as Appendix D-2 and incorporated herein.

3. DPH WATER TREATMENT STANDARDS

In furtherance of an objective of this §406 Plan to integrate cleanup activities with water supply operations, water treatment for remedial action purposes shall be carried out in conformance with treatment standards for public drinking water systems adopted by the DPH (See Appendix C-3). Under this Remedial Standard, Basin water produced and treated for remedial action purposes shall not be wasted and such water shall be put to the greatest reasonable and beneficial use of which it is capable. Conversely, the waste and unreasonable use or unreasonable method of use of such waters shall be prohibited. Under authority of §106 of the California Water Code, domestic use is the highest beneficial use of water. Unless discharge or other use of the Basin water produced and treated for remedial action purposes is approved by the LARWQCB, all such water shall be made available for domestic use through public drinking water systems or recycled water systems. Under this Remedial Standard, Basin water produced for remedial action, with the approval of the DPH, shall be integrated into water supply operations in the Basin.

The California Safe Drinking Water Act (Health & Safety Code §§ 116275 *et seq.*) (the “Act”), contains public water supply permitting provisions which authorize DPH to set permit conditions for water delivered by public water systems. In Section 116270(e) of the Act, the Legislature declared its intent to “ensure that the water delivered by public water systems of this state shall at all times be pure, wholesome, and potable.” In addition, in Section 116270(g) of the Act, the Legislature declared its intent “to establish a drinking water regulatory program within the DPH in order to provide for the orderly and efficient delivery of safe drinking water within the state and to give the establishment of drinking water standards and public health goals greater emphasis and visibility within the state department.”

In 1997, the Chief of the Division of Drinking Water and Environmental Management of the DPH drafted a “Guidance for Direct Use of Extremely Impaired Sources” memorandum known as Policy Memo 97-005 (“Policy 97-005”). According to Policy 97-005, it is a memorandum that provides guidance to DPH staff on the evaluation of extremely impaired sources of water for use as a supply of drinking water.

Pursuant to Policy 97-005, the following findings are required of DPH for approval to use an extremely impaired source¹:

(1) Drinking water MCLs and Notification Levels² (formerly Action Levels) will not be exceeded if the permit is complied with; and

¹ An extremely impaired source, according to Policy 97-005, is one that meets one or more of the following criteria: 1) exceeds 10 times an MCL or action level (AL) based on chronic health effects, 2) exceeds 3 times an MCL or AL based on acute health effects, 3) is a surface water that requires more than 4 log *Giardia*/5 log virus reduction, 4) is extremely threatened with contamination due to proximity to known contaminating activities, 5) contains a mixture of contaminants of health concern or 6) is designed to intercept known contaminants of health concern.

² As a result of an amendment in 2005 to Health & Safety Code § 116455, Action Levels have now been replaced by Notification Levels. As defined in Section 116455, a “Notification Levels” are “nonregulatory, health-based advisory levels established by the department for contaminants in drinking water for which maximum contaminant levels have not been established. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of maximum contaminant levels, but have not yet undergone or completed the regulatory standard setting process prescribed for the development of maximum contaminant levels and are not drinking water standards.”

(2) The potential for human health risk is minimized, and the risk associated with the project is less than or equal to the alternatives.

As set forth in Appendix C-2, the permit conditions in Policy 97-005 will be considered state ARARs if (1) they are more stringent than federal standards (2) they are properly promulgated standards, requirements, criteria or limitations, and (3) they are legally applicable or relevant and appropriate. The Policy 97-005 permit requirements are more stringent than federal standards. The requirements were “properly promulgated” because they are based on laws adopted by the California Legislature and administrative standards developed by the DPH. Finally, they are of general applicability to anyone who introduces water from extremely impaired sources into the drinking water system. Thus, the permit conditions in Policy 97-005 are ARARs.

If necessary, WQA will engage the implementation and enforcement procedures of the DPH to carry out this Remedial Standard. A copy of Policy 97-005 and the applicable rules, regulations and standards of DPH are attached as Appendix D-3 and incorporated herein.

C. OVERARCHING REMEDIAL PRINCIPLES

These principles represent the general guidelines that will steer the implementation of the strategies and tactics contained in this §406 Plan.

1. Consensual participation in remedial activities shall be maximized.
2. Consistency with USEPA actions and Watermaster Section 28 shall be maintained.
3. Control of decisions by the local public (i.e., producers and the water consumers/rate payers they represent) affecting groundwater quality and water supplies shall be maintained.
4. Expedite remedial activities, as appropriate, by providing incentives, such as (a) avoiding litigation costs and risks (e.g. adverse judgment, exposure to other PRPs/agencies, etc.), (b) providing funds from federal, state, the WQA or other sources, and (c) utilizing existing water producing/treatment equipment, where appropriate.

5. The overall economic impact to water consumers shall be minimized for all response actions by requiring financial participation from any party responsible for the contamination. Within the discretion of the WQA, a cost recovery action, including, but not limited to, a request for joint and several liability, will be initiated against any responsible party not participating at a financial level acceptable to WQA.

6. WQA shall facilitate the acceleration of the removal of contaminant mass in the Basin by working with the USEPA, DTSC, water purveyors and PRPs to (a) identify high priority cleanup projects that are consistent with USEPA objectives, and (b) begin implementation of the required remedy as soon as possible. Cleanup projects that prevent or otherwise restrict the lateral or vertical migration of contamination shall be given higher ranking over those cleanup projects that do not prevent such migration.

7. Treated water shall be used for its highest and best use.

D. 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 summarizes WQA's specific plans for the individual OUs including key components and OU specific issues. Table 2 identifies the annual estimated costs of each project within the Basin OU boundaries through FY2015-16.

VI. Funding

The WQA has and continues to be 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 time and cost of implementing projects. In addition, even though USEPA has urged PRPs to consider

affected water supplies, the CERCLA process does not allow USEPA to require it. It is for these reasons that WQA is determined to aggressively seek 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, Watermaster 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. This section prioritizes each potential source of funding in the order of which it will be sought for a particular early response action.

A. POTENTIALLY RESPONSIBLE PARTIES

As stated previously, WQA will seek voluntary funds from those responsible for the contamination. If the process of acquiring those funds is unilaterally stalemating or delaying the project, the WQA will move forward without this source of funds to ensure necessary cleanup/water supply projects are implemented.

The WQA is committed to securing PRP funding for any given project by providing incentives for PRPs to participate financially. In the absence of sufficient PRP funds, WQA and others may be required to combine its resources to fund a project. In this event, WQA may choose to initiate cost recovery actions. This was the case in the BPOU, in which WQA brought two separate legal actions against PRPs in the year 2000 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 WQA and water entities initiated litigation against the remaining PRPs in order to maximize the recoverable dollars in an operable unit with very high estimated costs and very little potential funding from PRPs. As part of the overall financial and technical process, the USEPA and the DTSC were engaged due to their respective roles in the SEMOU. A portion of the PRP settlements cover ROD costs and are provided to the water entities via a cooperative agreement between WQA and the USEPA. The settlements also

include some direct funding for non-ROD costs. Nevertheless, these settlements will not fully cover the project costs. In recognition of the funding shortfall, the USEPA obtained \$2.2 million in gap funding from their Superfund program to help offset a portion of the water entity ROD costs. In the future, DTSC is expected to take on the longer term regulatory responsibility once it is declared a fund-lead operable unit by the USEPA and the State of California.

B. FEDERAL GOVERNMENT

The WQA, with the support and assistance of other local agencies, has sought and continues to seek all funding that may be available for projects in the Basin. As a result of those efforts, two federal programs have been authorized by Congress specifically for the Basin. Both of these reimbursement programs are administered through the USBR directly to the WQA. In February of 2002, WQA adopted a set of procedures called the Federal Funding Program Administration (Appendix F) to guide the allocation process for both programs.

Both sources of federal funding will be 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.

C. RESTORATION FUND (DREIER)

In December of 2000, Congress authorized the San Gabriel Basin Restoration Fund ("Restoration Fund"). The authorization of the Restoration Fund, when fully appropriated, will provide \$85 million for groundwater cleanup of which \$10 million is for use by the Central Basin Municipal Water District to cleanup the Central Basin and \$75 million is for use by the WQA to cleanup the Basin. To date, the Central Basin has received its full \$10 million appropriation and WQA has received \$70,567,509¹ of its \$75 million appropriation. The WQA Board has already allocated the \$70,567,509 for

¹ The first year appropriation was \$25 million but \$2 million was retained by the Army Corp for costs related to an independent study and \$10 thousand was retained for administrative costs which resulted in a reduced FY 2001 appropriation of \$22.99 million.

cleanup projects throughout the Basin based on criteria found in its Federal Funding Program Administration guidelines.

This program requires a 35% non-federal match deposited into the Restoration Fund to reimburse the WQA up to a maximum of 65% from federal sources. Non-federal funds are classified as funds that are not from the Department of the Interior, but rather PRP funds, state funds, local municipality funds, purveyor funds, WQA assessment funds or non-profit funds. Funds from this program may be used for design, construction and operation & maintenance for up to 10 years following construction. The Restoration Fund is administered via the USBR in conjunction with the WQA for use within the Basin.

Congress acknowledged that millions of dollars had already been spent to protect the Basin by remediating the groundwater and preventing further contamination. Due to the emergency nature of the contamination and the threat it posed to the local groundwater supply, Congress allowed the use of those past expenditures as a credit towards the 35% non-federal matching requirement under this program. The USBR is responsible for approving all qualifying prior expenditures. However, the WQA, at its discretion, will use this credit to meet the 35% matching requirement and eliminate the need to deposit additional funds into the Restoration Fund.

As of 2008, WQA had accumulated past cleanup cost information totaling more than \$47 million. This amount was sufficient to meet the 35% non-federal matching requirement for the \$75 million appropriated by Congress and deposited into the Restoration Fund. Based on more recent information, it is clear that additional funding will be required to continue the progress of ensuring that remedial activities will be combined with local water supply needs. Congress provided \$3.5 million for the Restoration Fund in FY 2010, and an additional \$3.0 million was in the House-passed FY 2011 Energy & Water Development Appropriations bill. However, that legislation was not enacted prior to the conclusion of the 111th Congress and became an issue for the new 112th Congress. Although the 112th Congress eventually passed the legislation, the final version did not contain any earmarks. Since the \$3.0M was determined to be an earmark it was not adopted with the legislation. This year, we are seeking an additional \$10 million appropriation for the Restoration Fund in FY 2012.

In recognition of the cleanup progress, and the need for additional funding to meet an estimated \$702 million funding gap (see Table 3), Congressman David Dreier along with his colleagues in the San Gabriel Congressional Delegation introduced H.R. 123 in January of 2007. H.R. 123 would have raised the authorization on the Restoration Fund by \$50 million and increasing the total cap to \$135 million. However, while H.R. 123 passed the U.S. House of Representatives it was not heard or voted on in the U.S. 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.

In March 2009, Congress passed the Omnibus Land Bill H.R. 146 (Public Law 111-11) which included the language from Congressman Dreier's H.R. 102 and effectively raised the total cap of the Restoration Fund to \$146.2 million.

D. 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% match from non-federal sources 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. The Title XVI fund is administered via the USBR directly to the WQA for use within the Basin.

Based on the Basin's enormous need for funds, the WQA will (1) continue to work to secure full appropriation of the remaining funds in the Title XVI authorization, and (2) work with Congress to seek legislation authorizing the transfer of any unobligated funds in the Title XVI program to the Restoration Fund.

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.

E. 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 Jerry 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, this legislation was not enacted prior to the end of the 110th Congress.

Congressman Xavier Becerra and Rep. Ginny Brown-Waite reintroduced the Clean Renewable Water Supply Bond Act, H.R. 4132, on November 19, 2009 along with original cosponsors Rep. Lucille Roybal-Allard (D-CA), Rep. Adam Putnam (R-FL), and Rep. Laura Richardson (D-CA). 17 additional cosponsors were added to the bill in the House, and a Senate companion bill, S. 1371, was introduced by Senator Bill Nelson (D-FL). At the end of the day, however, neither bill was enacted by the 111th Congress, and to date, no further legislation has yet to be introduced in the current 112th Congress.

F. STATE GOVERNMENT

In 2000, voters passed Proposition 13, which authorized the Safe Drinking Water, Clean Water, Watershed Protection, Flood Protection Bond Act, which, in part, authorized \$7 million in funding assistance for groundwater cleanup programs. Although the original intent of the language was to provide grant funds, the DTSC has chosen to interpret the funding language to mean loan funds. To that end, DTSC established procedures in 2001 for a low interest 20-year loan. In response to DTSC’s solicitation of applications, WQA applied for all of the funds on behalf of the Valley County Water District (“VCWD”) Sub-Area 1 BPOU project and was awarded the entire amount.

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 will be needed to release the millions of federal dollars dedicated to the Basin cleanup. To date, the State's participation in cleanup has been nominal. The WQA will continue to focus on securing bond funds through Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002. The WQA will also seek to participate in any programs it is eligible for under Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, as well as through the Integrated Regional Water Management Plan ("IRWMP").

Through the efforts of the San Gabriel Valley Caucus the WQA was able to secure \$10 million through the Proposition 84 implementation bill, SB 2XX that was signed by Governor Schwarzenegger in 2008. Language in SB 2XX gives preference to the San Gabriel Basin and other NPL- listed sites for funding in the groundwater section of the bill. Although WQA had sought qualified projects to compete for the funding, none were able to meet application requirements or chose not to apply due to concerns related to cost recovery language contained in the bill.

In the Fall of 2010, DPH indicated that they planned another round of Proposition 84 funding with the potential for distributing \$10 million for capital projects. WQA immediately began working with members of the San Gabriel Valley Caucus to address concerns about the cost recovery language. Additionally, WQA began working to prepare projects that could meet application requirements. First WQA developed a 2-tiered criteria ranking system that would be used to solicit and rank projects that (1) met WQA objectives; and (2) gave high points per DPH's pre-existing ranking system. The system was given significant opportunity for public and legislative input. Once adopted by the WQA board in June 2010 staff sent out solicitation letters for projects throughout the San Gabriel Basin. A total of eleven requests for project funding were received and ranked by WQA staff, the Administrative/Financial Committee and the Board of Directors. Of those, seven were chosen, prioritized and are awaiting DPH's solicitation for projects.

While WQA recognizes and appreciates the State's participation by providing bond funding for water needs, the assistance has heretofore been largely limited to capital funding. And as can be discerned in the project section of this Plan, much of the Basin's needs are now focused on long-term remediation costs which make up most of the \$702 million funding gap.

On November 4, 2009 the Legislature passed SBX7 2, the Safe, Clean, and Reliable Drinking Water Supply Act of 2010. Governor Schwarzenegger subsequently signed SBX7 2 which allows this bond to go before the voters in 2012.

Through the united efforts of the San Gabriel Valley State Legislative Caucus the Safe, Clean, and Reliable Drinking Water Supply Act of 2010 includes language that is favorable to the WQA's efforts to secure future funding for cleanup. In 2010, the successful passage of AB153 of 2010 added language to the bond that would allow the funding to be used for treatment and remediation as well as capital costs. If the Safe, Clean and Reliable Drinking Water Supply Act of 2010 is passed by voters the WQA will continue to work with the San Gabriel Valley State Legislative Caucus to further enhance the WQA's ability to access funding.

Furthermore, the WQA will seek to place similar language in any future water bond ballot measures. Working with other water entities in the Basin, the WQA will continue to 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.

The WQA will work to educate State agencies on the merits of financial participation in the near- term and the very real impacts which could result from inadequate State financial assistance. The WQA will emphasize that stemming the flow and mitigating the spread of contamination will be more cost effective and have less of an impact on both the State and local ratepayers.

In 2007, the SWRCB awarded WQA a \$1.42 million grant from their Cleanup and Abatement Account to fund an orphan project named the Whitmore Street Groundwater Remediation Facility ("WSGRF"). The grant included construction costs and up to five years of operation. The treatment facility was completed in 2007 and is currently operational. The project is located within the SEMOU and removes significant

concentrations of 1,4 dioxane and VOCs (see Appendix A). WQA will actively continue to identify projects that could qualify for similar funding streams from the SWRCB.

The WQA is also actively involved in hosting, representing and financially supporting the Upper San Gabriel and Rio Hondo sub-regional areas of the Greater Los Angeles IRWMP. As the Vice-Chairperson of the Upper San Gabriel and Rio Hondo sub-regional steering committee, the WQA Executive Director provides and solicits input and opportunities for local stakeholders to network and develop multi-benefit projects. This in turn increases the likelihood of funding from IRWMP bond funds. For example, what may have been a single-purpose project to increase water supply, could become a project that enhances nearby open space, cleans-up water supply and/or provides more water storage.

The WQA Executive Director is also a Leadership Committee member of the Greater Los Angeles IRWMP. This committee is represented by two members from each of the five sub-regions in the Greater Los Angeles area. The duties of this group include representation of the sub-regions to the full Leadership Committee and to finalize IRWMP plans and endorse/select priority projects that represent and benefit the needs of the entire Greater Los Angeles area.

G. WATER QUALITY AUTHORITY

The WQA may impose an annual assessment for capital and operational costs not to exceed \$10 per acre-foot. In the past, it has been WQA's policy to utilize assessment dollars to provide incentives for PRPs to move forward on a given project. With the recent availability of significant federal funds, these funds will only be utilized if sufficient federal and/or state dollars are or will not be available in addition to PRP funds. If PRPs do not voluntarily provide funds to a project, then the WQA will, on a project-by-project basis, consider 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.

The WQA Act provides that WQA may issue bonds for a term not to exceed 20 years for any purpose authorized by it. Additionally, the WQA Act authorizes the State Treasurer to continue to collect assessments to payoff bond obligations in the event that WQA sunsets prior to the bonds' maturity dates. WQA has begun exploring this option in addition to the other funding mechanisms available as a means to augment treatment and remediation costs over the next several decades.

H. WATER PURVEYORS/CITIES/MEMBER AGENCIES/OTHER LOCAL WATER AGENCIES

As of January 2001, all potential projects requesting WQA participation must go through WQA's Procedure No. 38, "WQA Project Participation". As part of that procedure, the WQA requires the impacted water purveyor 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.

VII. Public 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 will continue to build on that effort to foster understanding of the WQA's mission, projects and accomplishments and plans, and to encourage public participation in the cleanup process. The WQA will undertake efforts to ensure that all stakeholders, including the general public, understand projects that involve the WQA and have ample opportunity to contribute ideas and opinions.

The program will employ 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. The WQA will constantly update its web site to provide instant access to public information, including news releases, publications, agendas, minutes of meetings, and reports on projects. In addition to WQA-specific issues, the WQA web site links to local, state and federal

water agencies and organizations, giving the public immediate access to information on many local water issues, including groundwater contamination and cleanup activities. It also gives access to the names of officials who can be contacted for further information.

The WQA will work to keep the local offices of federal and state legislators informed of any developments and the progress of water cleanup issues in the Basin. These efforts will include office visits, tours of treatment facilities and an invitation to participate in the WQA legislative committee. The WQA has continued to host the Legislative Water Forum Luncheon in which local legislators are invited to provide updates on state legislation as it pertains to the Basin water community. Speakers in the series to date have included United States Senators Barbara Boxer and Dianne Feinstein, Congressman David Dreier, former Congresswoman Hilda Solis (now U.S. Secretary of Labor), Congresswoman Lucille Roybal-Allard, former Attorney General Bill Lockyer (now State Treasurer), former Secretary of State Bruce McPherson and former Board of Equalization Member Judy Chu (now Congresswoman).

In 2006, the WQA developed a DVD presentation that features Senator Dianne Feinstein and Congressman David Dreier. The DVD is being used in Sacramento and Washington, D.C to educate legislators, bureaucrats and other stakeholders to 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.

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 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.

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 *San Gabriel Valley Tribune*, *Pasadena Star News* and the *Whittier Daily News*, which are all published by the Los Angeles News Group. The inserts are distributed throughout the Basin, through home and business delivery and general sales of the Los Angeles News Group. The WQA will continue to provide the public with the latest information on its projects and programs

The WQA will continue to work closely with the news media and other organizations to reach the public. It will distribute press releases, contact and meet with reporters and editors to inform them of activities respond to press inquiries and take other steps to encourage media interest. The WQA will continue to work 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 will continue to provide 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.

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, the WQA will continue to work with other agencies on information projects and participate with other water agencies on public outreach efforts.

All projects involving WQA will follow an established process, including all applicable federal, state and local regulations. Because the Basin is a Superfund site, the process will always include meeting requirements under the NCP, including its public participation component, in order to ensure maximum cost recovery potential. In addition, whenever needed or requested, WQA will work closely with water purveyors to help them meet the extensive public outreach requirements set forth in the DPH Technical Memorandum 97-005. However, absent regulatory requirements, the WQA continues to be committed to informing the public of all of its activities.

VIII. 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 the USEPA, the USBR, the DTSC, the SWRCB, the LARWQCB, the DPH, the WQA and each of its member water districts, the Watermaster, cities affected by the Basin groundwater contamination, San Gabriel Valley Water Association, water purveyors in the Basin, and PRPs.

Response actions alone cannot fulfill the long-term need of creating a sustainable and reliable source of water supply in the Basin. The State of California requires water districts to develop and adopt an Urban Water Management Plan. WQA, in coordination with its three member water districts, shall incorporate water reliability projects identified in each of their Urban Water Management Plans into the 406 Plan. These projects, listed in Appendix G directly benefit the Basin and help augment WQA's groundwater cleanup activities.

IX.Litigation Plan

The WQA Act authorizes the WQA to bring legal action, including against responsible parties to recover from them the response costs incurred in connection with removal and remedial actions in the Basin.

Among other claims the WQA can assert for cost recovery, the WQA may bring suit under CERCLA, which provides that any person or entity who owns or operates a facility from which there has been an actual or threatened release of a hazardous substance which has caused the WQA to incur response costs, is liable for the costs of response. Liability similarly is imposed on persons and entities, among others, who previously owned or operated a facility at the time such hazardous substance(s) were released.

CERCLA further allows the WQA to seek to hold all PRPs jointly and severally liable for these response costs, recover prejudgment interest, and obtain a declaration from the court that the responsible parties are liable for future response costs. In addition, the WQA may seek to recover its attorneys' fees incurred in bringing legal action. A more detailed discussion of the WQA's legal options is included in Legal Appendix C- 3.

VOLUME II

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 (Appendix E). 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 Watermaster (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, Watermaster and 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, Watermaster and local purveyors to fund the prescribed remedy described in this section.

Southern Remedy

In conjunction with the LPVCWD treatment project constructed in 2000, a new treatment facility located at the San Gabriel Valley Water Company (“SGVWC”) Plant B6 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 DPH in 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.

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. SGVWC received its amended water supply permit from DPH in mid- 2008. 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 will be 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. Once 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.

Northern Remedy

In 2005 construction was completed on a new treatment facility at the VCWD Arrow/Lante wellfield. The new treatment facility known as the Subarea 1 ("SA1") treatment facility will consist of all necessary treatment technology, 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 some of the treated water to Suburban Water Systems

("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.

Implementation of the northern remedy will provide significant removal of mass from the Basin and is a necessary component of the overall BPOU plan. However, with the exception of the SA1 treatment facility, the northern remedy provides only ancillary benefits towards preventing migration of contamination towards critical water supplies. This is primarily because no groundwater production is currently occurring in the central and northern portions of the plume. With the southern remedy in place, the most severe water supply crises are addressed; however, it will still be important to put the treated water to beneficial use and not waste such a valuable resource.

To achieve rapid implementation in both areas, only treatment processes that are approved as Best Available Treatment Technologies ("BATT") by DPH 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 2009, these studies have led to changing out the existing ion exchange treatment technologies at LPVCWD's treatment facility, SGVWC's Plant B6 treatment facility, and VCWD's SA1 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 nitrate treatment. Therefore,

DPH 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 scaled down regenerable resin ion exchange treatment system but will be designed specifically for nitrate removal.

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

Other Remedies

California Domestic Water Company's ("CDWC") Well No. 14 is threatened by contamination emanating from the BPOU, including perchlorate and NDMA. CDWC expanded their 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.

After losing their Plant 139 wellfield to the BPOU contamination, SWS constructed new production wells at their Plant 121, Plant 142 and Plant 152 wellfields. The interim project also included the construction of a pipeline that will allow for better operational flexibility and provide additional supply to their affected service area.

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 City of Monterey Park (“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”) (Appendix E) 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 (Appendix E) 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 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.

In 2007, USEPA lodged two Consent Decrees (“CDs”) embodying settlements with 39 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 DPH to require SGVWC to install a secondary barrier treatment system. Construction of a LPGAC second 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 DPH to operate the Plant No. 8 VOC treatment facility, a sentinel well 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. SGVWC’s recent analyses of the sentinel well revealed and confirmed the presence of perchlorate and 1,4-Dioxane at concentrations just below the DPH MCL and Notification

Level (“NL”), respectively. Because the current Plant No. 8 VOC treatment facility is not capable of removing perchlorate or 1,4-Dioxane, SGVWC has plans to construct a 5,000 gpm, single pass ion exchange and advanced oxidation ultraviolet (“UV”) light treatment facility for the removal of perchlorate and 1,4-Dioxane. Construction will begin when levels reach 50% of the respective MCL and NL. The addition of the ion exchange 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 are in the process of deactivating their perchlorate treatment equipment. If required by DPH, GSWC may retrofit their perchlorate treatment system to accommodate nitrate treatment equipment. The new nitrate treatment will allow GSWC to return well SG2 to service and restore plant capacity. CMP plans to construct additional piping to bypass their perchlorate treatment equipment while maintaining it in a state of readiness if future perchlorate treatment is needed. This plan endorses both projects 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 connect existing Well No. 6 to the existing VOC treatment facility at Well No. 5. In 2011, CMP plans to expand the existing Well No. 5 VOC treatment facility by adding air-stripping treatment technology to ensure that remediation objectives are met once the Well No. 6 connection is in place. The VOC expansion will be designed with enough capacity to treat both Well No. 5 and Well No. 6.

Other Intermediate Zone Extraction

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.

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.

SGVWC has constructed a VOC treatment facility at their Plant G4 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.

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 operation in November of 2007 with treatment and remediation estimated to continue through 2012.

EL MONTE OPERABLE UNIT

The El Monte Operable Unit ("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 (Figure 4).

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 (Appendix E) 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 (Appendix E) 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").

West Side Remedy

The WSPSD will be responsible for containment of the western shallow zone contaminant plume and the containment of the northwestern deep zone plume. Containment of the western shallow plume will be accomplished via five extraction wells and a centralized treatment facility. The treatment facility will be designed to treat not only VOCs but all emergent chemicals to below drinking water standards.

The existing GSWC Encinita Plant treatment facilities, owned and operated by GSWC and partially funded by the WPSD, along with a VOC treatment facility, 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.

East Side Remedy

The ESPSD will be responsible for containment of the eastern shallow zone contaminant plume and the containment of the southeastern deep zone contaminant plume. 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 emergent chemicals. In addition, the ESPSD in conjunction with CEM will be installing 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 is currently working with the ESPSD to provide federal reimbursements for their projects.

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 for groundwater recharge, 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 Watermaster's rules and regulations.

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.

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 (Appendix E) 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 5) 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 their centralized treatment facility and integrated well EW4-3 into their 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. USEPA is working with other purveyors to take the remaining extracted water that City of Whittier is unable to utilize. Water from the shallow zone is extracted at a reduced rate and is being discharged into Legg Lake.

In 2007, USEPA conducted a five-year review of the WNOU remedy to ensure that it remains protective of human health and the environment.

PUEENTE VALLEY OPERABLE UNIT

In 1998, the USEPA released the Interim ROD for the Puente Valley Operable Unit (“PVOU”) (Figure 6) 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 (Appendix E).

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 and 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. Since water from the shallow zone is not suitable for potable use due to high Nitrates and TDS, UTC plans to discharge the treated water into a neighboring creek under a discharge waiver from the LARWQCB. However, UTC continues to actively search for beneficial end use of the treated water.

Intermediate Zone Remedy

The Northrop Grumman Systems Corporation (“Northrop”), formerly known as the PVOU Steering Committee, has submitted an intermediate zone extraction plan to USEPA for approval. Northrop plans to construct six new extraction wells and pipelines in the mouth of the valley and to utilize the existing VOC treatment facility located at SGVWC’s Plant B7. Northrop may also be required to add a treatment system to remove 1,4-Dioxane. It is anticipated that SGVWC will take the treated water and blend it in the reservoir at Plant B24 which is near Plant B7. The blended water would then be conveyed into SGVWC’s existing distribution system. SGVWC is also constructing a transmission main from its Plant B6 service area to Plant B24 to facilitate blending of the PVOU treated water.

AREA 3

In 1999, USEPA began RI/FS investigations in the Area 3 Operable Unit (“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 in groundwater at the site.

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 completed 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. 7, 8, 11, 12 and two new wells yet to be designed and engineered. All water treated from both Phase I and Phase II projects is used by Alhambra in its distribution system (Figure 7). Both phases of the Alhambra’s pump and treat program received reimbursement from WQA’s federal funding programs.

APPENDIX B

Appendix B

NON-OPERABLE UNIT SPECIFIC PLANS

The overwhelming amount of time spent planning remedial actions is understandably focused on projects that are related to a specific OU, i.e., Baldwin Park, El Monte, South El Monte, Whittier Narrows, and Puente Valley. This is because USEPA's enforcement actions in these areas make headlines and demand public attention. However, necessity for cleanup in the Basin is not limited to the specific locations designated by USEPA. Because the USEPA mandate is limited to defining only how a plume of contamination may be contained, their RODs fail to address the remedial actions necessary to restore water supply wells that are not a part of their official cleanup plan. Furthermore, many contaminated water supply wells are facing imminent shutdown or have already been shut down and remain in this state largely due to overburdened regulatory agencies. WQA prescribes the treatment of the water at these wells to restore the water supplies and to remove contaminant mass from the Basin. Table 4 provides a list of contaminated wells that are not part of any OU specific plan. Figure 7 shows the locations of these wells relative to Basin contamination.

Over the past several years the City of Monrovia ("Monrovia") has experienced rising levels of VOCs at their Myrtle Well Field. In 2007, Monrovia finished construction of a VOC treatment facility to help contain contamination and restore lost water supply.

APPENDIX F

APPENDIX G

Appendix G

MEMBER WATER DISTRICT PROJECTS

The WQA, in coordination with its three member water districts, USGMWD, TVMWD and SGVMWD, incorporates the following projects by reference. The projects are sponsored, administered and implemented by the water districts. It is WQA's determination that these projects: 1) directly benefit the Basin; 2) help augment WQA's groundwater cleanup activities; and therefore 3) help enhance the long-term reliability of the Basin's water supply.

<u>Description</u>	<u>Estimated Budget</u>
1) <u>Fulton Plant Water Resource Enhancements</u> Utilization of District's Fulton Property to develop groundwater well, nitrate removal facility, 1.0 MG reservoir, and appurtenant piping. (TVMWD)	\$4,000,000
2) <u>Covina Irrigating Company Water Treatment & Supply Plan</u> Upgrade of surface water treatment processes at Temple Plant and addition of a groundwater treatment facility and transmission pipelines. (TVMWD)	\$7,000,000
3) <u>Imported Water Spreading Connection at San Dimas Wash</u> Raw water service connection to MWD's Foothill Feeder to replenish groundwater in the Basin on behalf of Golden State Water Company. (TVMWD)	\$1,500,000
4) <u>Extension of PM-26 Replenishment Service Connection</u> Pipeline facilities and turnout from existing connection in Little Dalton Wash to Big Dalton Wash for enhanced groundwater replenishment opportunities in the Basin. (TVMWD)	\$2,000,000
5) <u>TVMWD – SGVMWD Interconnection</u> Raw water connection between District's Miramar Plant and nearby Azusa~Devil's Canyon Pipeline. (TVMWD)	\$1,750,000

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| 6) | <u>Alosta Connection (SGVMWD)</u>
Provide operational flexibility to Upper District/MWD to provide untreated imported water to Canyon Basin area . | \$2,000,000 |
| 7) | <u>Extension of SGVMWD Pipeline (SGVMWD)</u>
Provide groundwater recharge to Raymond Basin and to Eaton S.B. | \$10,000,000 |
| 8) | <u>Wellfield Outside of Alhambra Pumping Hole</u>
Provide alternative sources of supply to various purveyors to reduce the drawdown in the pumping hole area. Consists of new wells, pumps and transmission pipeline. (SGVMWD & USGVMWD) | \$10,000,000 |
| 9) | <u>Suburban Water Systems Improvements</u>
Infrastructure improvements including well(s) and transmission pipeline to convey groundwater. (USGVMWD) | \$5,000,000 |
| 10) | <u>New Spreading Ground Development</u>
Infrastructure improvements including well(s) and transmission pipeline to convey groundwater. (USGVMWD) | \$10,000,000 |

SAN GABRIEL BASIN WATER QUALITY AUTHORITY
SAN GABRIEL BASIN GROUNDWATER QUALITY MANAGEMENT AND REMEDIATION PLAN

Table 1 - Major WQA Activities and Milestones

Month	Year	Area	Activity/Milestone
Jan.	1992	BPOU	Arrow Well treatment facility completed
Sep.	1992		Governor signs SB 1679 which establishes WQA
Jun.	1993		WQA Board adopted the San Gabriel Basin Groundwater Quality Management & Remediation Plan (406 Plan)
Aug.	1994	BPOU	WQA develops Consensus Approach plan integrating water supply and cleanup
Feb.	1995	Monrovia	Monrovia treatment facility completed
Feb.	1995	EMOU	WQA and PRPs form partnership to conduct voluntary investigations and remedy design study
Apr.	1995	BPOU	WQA and PRPs form partnership for voluntary pre-design leading to \$4.39M in contributions from PRPs
May	1995	BPOU	Big Dalton treatment facility completed
Nov.	1995	SEMOU	WQA and PRPs form partnership to conduct voluntary investigations and remedy design study
Feb.	1996	BPOU	State and Federal Environmental Documentation Completed for BPOU cleanup
Feb.	1996	BPOU	Final design and construction administration transferred to Three Valleys MWD
Jun.	1996	BPOU	Discovery of perchlorate contamination
Nov.	1996	EMOU	Crown City Plating/Hermetic Seal treatment facility construction completed
Sep.	1997	BPOU	WQA successfully acquires \$1.7M from a state administered escrow funds and reimburses BPOU producer for cleanup costs
Jul.	1998	EMOU	WQA sponsored investigation and design study completed
Jul.	1998	EMOU	WQA and PRPs form partnership to conduct voluntary design and implementation of early action cleanup
Mar.	1998	EMOU	Clayton Manufacturing treatment facility construction completed
Oct.	1998	BPOU	WQA first to authorize \$1.5M to expedite LPVCWD Perchlorate and NDMA treatment facility construction and acquires 25% USBR funding
Nov.	1998	EMOU	Golden State Water Company Encinita Phase I & II treatment facility completed
Jan.	1999	ALL	Spear-headed legislative effort (H.R. 910) with San Gabriel Valley Water Association to acquire \$75M in federal funding to accelerate cleanup
Apr.	1999	SEMOU	WQA-sponsored investigation and design study completed
May	1999	SEMOU	Led development of ROD and implementation of projects
Jun.	1999	SEMOU	Monterey Park Well No. 12 air stripping treatment facility completed
Jul.	1999	SEMOU	Monterey Park Well No. 5 treatment facility completed
Jul.	1999	SEMOU	South El Monte Barrier project completed**
Aug.	1999	Area 3	Alhambra Phase I treatment facility completed
Jan.	2000	WNOU	Whittier Narrows Barrier project completed**
Feb.	2000	BPOU	LPVCWD treatment plant construction completed
Mar.	2000		WQA Board adopts the Amended San Gabriel Basin Groundwater Quality Management & Remediation Plan and updates it annually thereafter
Apr.	2000	SEMOU	San Gabriel Valley Water Company Plant No. 8 treatment facility completed
Mar.	2001	SEMOU	Golden State Water Company SG1 & SG2 treatment facility completed
Apr.	2002	SEMOU	Led negotiations with settling parties (G10 & G13) and administered settlement funds

Note: Groundwater remediation projects in **BOLD** were completed with funding participation from WQA. **Projects solely funded and operated by WQA.

SAN GABRIEL BASIN WATER QUALITY AUTHORITY
SAN GABRIEL BASIN GROUNDWATER QUALITY MANAGEMENT AND REMEDIATION PLAN

Table 1 (cont.) - Major WQA Activities and Milestones

Month	Year	Area	Activity/Milestone
Feb.	2003	EMOU	Golden State Water Company Encinita Phase III treatment facility completed
Mar.	2003	BPOU	BPOU Project Agreement completed
Apr.	2003	SEMOU	San Gabriel Valley Water Company G4 treatment facility completed
May	2003		Governor signs AB 334 Extending WQA's sunset date to July 1, 2010
Oct.	2003	SEMOU	Monterey Park Well No. 12 Delta Plant perchlorate treatment facility completed
Nov.	2003	SEMOU	Monterey Park Well Nos. 1,3,10 treatment facility completed
Jan.	2004	SEMOU	Monterey Park Well No. 15 completed
Feb.	2004	SEMOU	Monterey Park Well No. 12 secondary barrier completed
Apr.	2004	SEMOU	Plant No. 8 sentinel well completed
Nov.	2004	SEMOU	San Gabriel Valley Water Company Plant No. 8 secondary barrier completed
June	2004		Proposition 50 passes and includes \$7M loan for WQA
Jul.	2004	BPOU	San Gabriel Valley Water Company B6 treatment facility completed
Aug.	2005	BPOU	Valley County Water District SA-1 treatment facility completed
Jun.	2006	SEMOU	Monterey Park Well No. 5 perchlorate blending facility completed
Jan.	2007	BPOU	San Gabriel Valley Water Company B5 treatment facility completed
Jan.	2007		Congressman Dreier Introduced HR 123 to raise authorization cap of the Restoration Fund by \$50M
Sept.	2007	SEMOU	SWRCB awards \$1.4M to WQA for project at Bozung site (capital & O&M)
Oct.	2007		City of Monrovia's Mrytle Wellfield treatment facility completed
Oct.	2007		Governor signs AB 1010 Extending WQA's sunset date to July 1, 2017
Nov.	2007	SEMOU	1-4 Dioxane & VOC Treatment Project completed at Bozung site**
Nov.	2007	SEMOU	Two Consent Decrees filed by U.S. EPA as a result of settlements between WQA, affected purveyors, several PRPs, U.S. EPA & DTSC.
Oct	2008	ATOU	City of Alhambra's Phase II treatment facility completed
Oct	2008	SEMOU	Dedication of WQA's Whitmore Street groundwater remediation treatment facility
Mar.	2009	ALL	Congress passed H.R. 146 which included an additional \$50 million for the Restoration Fund
Mar.	2010	SEMOU	Initiated reimbursements from Consent Decree settlements
Sept.	2010	ALL	AB153 passes to allow future WQA bond funding to be used for treatment and remediation

Note: Groundwater remediation projects in **BOLD** were completed with funding participation from WQA. **Projects solely funded and operated by WQA.

SAN GABRIEL BASIN WATER
QUALITY AUTHORITY
SAN GABRIEL BASIN
GROUNDWATER QUALITY
MANAGEMENT AND REMEDIATION PLAN

04/19/2011

Table 2- Estimated Costs of
WQA-Assisted Projects
Within Operable Unit Areas
Plans per Fiscal Year

OPERABLE UNIT	FISCAL YEAR 2010-2011		FISCAL YEAR 2011-2012		FISCAL YEAR 2012-2013		FISCAL YEAR 2013-2014		FISCAL YEAR 2014-2015		FISCAL YEAR 2015-2016	
	CAPITAL	O&M	CAPITAL	O&M	CAPITAL	O&M	CAPITAL	O&M	CAPITAL	O&M	CAPITAL	O&M
BALDWIN PARK												
LPVCWD (2)		2,000,000		2,000,000		2,000,000		2,000,000		2,000,000		2,000,000
LPVCWD New Well & Single Pass Perchlorate Treatment (2)	200,000	438,000		438,000		438,000		438,000		438,000		438,000
SGVWC B6 (2)	1,300,000	4,570,000	4,000,000	4,570,000		4,570,000		4,570,000		4,570,000		4,570,000
SGVWC B5 (2)		4,000,000		4,000,000		4,000,000		4,000,000		4,000,000		4,000,000
VCWD Arrow/Lante (2)		6,200,000		6,200,000		6,200,000		6,200,000		6,200,000		6,200,000
VCWD Nixon Wells Treatment (14)	800,000	150,000		364,000		364,000		364,000		364,000		364,000
California Domestic Well 14-NDMA, VOC (2), (3)		1,000,000		1,000,000		1,000,000		1,000,000		1,000,000		1,000,000
California Domestic Well 14-Perchlorate (2), (3)		800,000		1,600,000		1,600,000		1,600,000		1,600,000		1,600,000
California Domestic Well 14 Rehabilitation (14)	250,000											
California Domestic New Well (14)	500,000											
SWS Extraction Wells & Pipelines (2), (3)		1,500,000		1,500,000		1,500,000		1,500,000		1,500,000		1,500,000
CIC Baldwin Wells Pumping Plant (14)	3,500,000		578,000									
CIC/RWD/WW/D/Clendora (14)	200,000		2,000,000		10,000,000		30,000,000		23,634,218			
EL MONTE												
West Shallow Extraction (4)	2,997,654		2,389,000	700,000		1,400,000		1,400,000		1,400,000		1,400,000
East Shallow Extraction (5)	1,500,000		3,385,589	315,000	1,734,543	723,250		723,250		630,000		630,000
SCWC Encinita Plant (1)		184,450		184,450		184,450		184,450		184,450		184,450
Adams Ranch West Deep (1)		19,500		19,500		19,500		19,500		19,500		19,500
ESPSD/City of El Monte East Deep Extraction (5)	1,500,000	406,400	3,000,000	10,000	1,866,974	330,000		330,000		330,000		330,000
SOUTH EL MONTE												
Monterey Park No.5 (1)		512,000										
Monterey Park No.5 Perchlorate Blending (1)		17,000		17,000		17,000		17,000		17,000		17,000
Monterey Park No.5 and No. 6 VOC Expansion & Pipeline (6)	360,000	1,090,000	1,000,000	510,000		510,000		510,000		510,000		510,000
Monterey Park No.12 & No.15 VOC (1)		522,000		522,000		522,000		522,000		522,000		522,000
Monterey Park No. 15 Well and Pipeline (1)		104,000		104,000		104,000		104,000		104,000		104,000
Monterey Park No.12 & No.15 Perchlorate (1)		188,800		87,000		87,000		87,000		87,000		87,000
Monterey Park No.12 & No.15 Secondary Barrier (1)		180,000		180,000		180,000		180,000		180,000		180,000
SGVWC Plant 8 (1)		175,000		175,000		175,000		175,000		175,000		175,000
SGVWC Plant 8 Secondary Barrier (1)		365,000		365,000		365,000		365,000		365,000		365,000
SGVWC Plant 8 Perchlorate, 1,4-Dioxane (7)					3,500,000	750,000		750,000		750,000		750,000
SGVWC Plant G4 (1)		100,000		100,000		100,000		100,000				
GSWC SG1 & SG2 VOC (1)		179,000		179,000		179,000		179,000		179,000		179,000
GSWC SG1 & SG2 Perchlorate (8)										179,000		179,000
GSWC Nitrate Treatment (8)			914,000			67,000		67,000		67,000		67,000
WQA Barrier Project (9)												
WQA Bozung Project		135,588		135,588		135,588		135,588				
WHITTIER NARROWS												
EPA Fund-Lead Remedy (10)		620,000		620,000		620,000		620,000				
PUENTE VALLEY												
UTC Shallow Zone Remedy (11)	1,000,000	1,280,000	4,500,000	1,280,000	1,868,000	1,280,000		1,280,000				
PVOUSC Intermediate Extraction (12)	1,500,000	500,000	3,770,000	1,479,350		1,479,350		1,479,350		1,479,350		1,479,350
SGVWC Plant B7 (7)		150,000		150,000		150,000		150,000		150,000		150,000
AREA 3												
Alhambra Water Treatment Facilities Phase I (1)		200,000		200,000		200,000		200,000		200,000		200,000
Alhambra Water Treatment Facilities Phase II (13)		1,080,338		1,080,338		1,080,338		1,080,338		1,080,338		1,080,338
TOTAL COSTS	15,607,654	28,667,076	25,536,589	30,085,226	18,969,517	32,330,476	30,000,000	32,330,476	23,634,218	30,101,638	-	30,101,638

Notes:

(1) Existing Projects

(2) BPOU Project Agreement Estimate, May 2002.

(3) Project not included in Operable Unit Specific Plan, but is

included in the comprehensive BPOU Project Agreement

(4) West Side Performing Settling Defendants Estimate, May 2009

(5) East Side Performing Settling Defendants Estimate, May 2009

(6) City of Monterey Park Estimate, March 2008

(7) San Gabriel Valley Water Company Estimate, February 2011

(9) Discontinued 2004

(10) U.S Environmental Protection Agency Estimate, February 2004

(11) UTC Estimate, January 2004

(12) Northrop Estimate, May 2009

(13) City of Alhambra Estimate March 2008

(14) FFPA Estimate May 2009

*Costs are present value and do not include monitoring wells and long term monitoring, which may be required by EPA.

SAN GABRIEL BASIN WATER QUALITY AUTHORITY
SAN GABRIEL BASIN GROUND WATER QUALITY MANAGEMENT AND REMEDIATION PLAN - 2011

TABLE 3 - Estimated Funding Gap

	SEMOU	BPOU	EMOU	PVOU	AREA 3	Other ⁶	Total
<u>PROJECTED COSTS¹</u>							
Projected Capital Costs	\$33,686,971	\$253,457,277	\$34,371,449	\$35,729,700	\$13,322,768	\$11,971,001	\$382,539,166
Projected Treatment & Remediation Costs	156,960,331	578,231,568	89,319,337	84,172,171	17,137,338	16,703,084	942,523,829
Total Projected Costs	190,647,302	831,688,845	123,690,786	119,901,871	30,460,106	28,674,085	1,325,062,995
<u>CURRENT AVAILABLE FUNDING</u>							
Current Available Funding for Capital Costs	28,195,445	197,792,614	34,371,449	35,729,700	13,322,768	7,333,501	316,745,477
Current Available Funding for Treatment & Remediation Costs	22,505,963	234,622,340	25,329,199	22,829,800	1,202,220	369,896	306,859,418
Total Current Available Funding	50,701,408	432,414,954	59,700,648	58,559,500	14,524,988	7,703,397	623,604,895
<u>UNFUNDED COSTS</u>							
Unfunded Capital Costs	5,491,526	55,664,663	-	-	-	4,637,500	65,793,689
Unfunded Treatment & Remediation ³	134,454,368 ⁴	343,609,228 ⁵	63,990,138 ⁴	61,342,371 ⁴	15,935,118 ⁴	16,333,188	635,664,411
TOTAL UNFUNDED COSTS	\$139,945,894	399,273,891	63,990,138	61,342,371	15,935,118	20,970,688	\$701,458,100

Explanations:

- ¹ The dollar amounts shown above do not include an inflation factor. Treatment & Remediation costs are projected to be incurred over periods ranging from 1 to 30 years.
- ² Current available funding for Treatment & Remediation reflects funding obligations per current agreements.
- ³ The unfunded portion of Treatment & Remediation reflects cleanup costs that will be incurred that do not have a source of funding per current agreements.
- ⁴ Treatment & Remediation costs exceed current source of funding.
- ⁵ The BPOU agreement currently covers Treatment & Remediation costs for 15 years of operation. Treatment is projected for 30 years.
- ⁶ Funding for Capital Projects and T & R has been provided for treatment facilities that are operating outside the bounds of known operable units but are located within the San Gabriel Basin boundaries.

SAN GABRIEL BASIN WATER QUALITY AUTHORITY
SAN GABRIEL BASIN GROUNDWATER MANAGEMENT AND REMEDIATION PLAN

Table 4 - Additional Existing and Potential Projects Basinwide
(With and Without WQA Funding)

PURVEYOR	WELL NAME	TREATMENT	ESTIMATED COSTS (3)	CAPACITY (GPM)
ALHAMBRA, CITY OF	09	LGAC	\$ 650,000	590
AMARILLO MUTUAL WATER (1)	01 & 02	LGAC	\$ 400,000	1,100
ARCADIA, CITY OF	ST. JOSEPH	LGAC/IONEXCHANGE	\$ 5,250,000	3,000
AZUSA, CITY OF	GEN. 3	LGAC	\$ 1,060,000	3,780
AZUSA, CITY OF	10	LGAC	\$ 1,840,000	2,650
CALIFORNIA AMERICAN	HOWLAND	LGAC	\$ 1,040,000	1,060
CALIFORNIA AMERICAN	IVAR 1	LGAC	\$ 1,500,000	780
CALIFORNIA AMERICAN	ROSEMEAD	LGAC	\$ 650,000	580
CALIFORNIA AMERICAN	ROANOKE	LGAC	\$ 1,040,000	1,210
COVINA, CITY OF	02	ION EXCHANGE, LGAC	\$ 6,700,000	600
EL MONTE, CITY OF	10	LGAC	\$ 1,440,000	2,000
EL MONTE, CITY OF	13	LGAC	\$ 500,000	1,500
GLENDORA, CITY OF (2)	IRWINDALE	ION EXCHANGE	\$ 9,000,000±5,000,000 (2)	4,250
LA VERNE, CITY OF		ION EXCHANGE	\$ 3,500,000	2,000
MONROVIA, CITY OF	MYRTLE WELLS	LGAC/IONEXCHANGE	\$ 4,780,000	6,000
MONTEREY PARK, CITY OF	09	LGAC	\$ 1,440,000	1,980
MONTEREY PARK, CITY OF	06	LGAC	\$ 650,000	500
SAN GABRIEL COUNTY WATER DISTRICT	10	ION EXCHANGE		2,200
GSWC SAN DIMAS	ART-3 and BAS-3,4	ION EXCHANGE, LGAC	\$ 6,590,000	360
GSWC SAN DIMAS	COL-4, 6	ION EXCHANGE		
GSWC SAN GABRIEL (1)	JEF 1	LGAC	\$ 1,440,000	600
GSWC SAN GABRIEL	JEF 2	LGAC		350
GSWC SAN GABRIEL	JEF 3	LGAC		960
GSWC SAN GABRIEL (1)	GARVEY 1 & 2	LGAC	\$ 1,500,000	1,500
GSWC SAN GABRIEL	EARLE	LGAC		310

SAN GABRIEL BASIN WATER QUALITY AUTHORITY
SAN GABRIEL BASIN GROUNDWATER MANAGEMENT AND REMEDIATION PLAN

Table 4 (cont.) - Additional Existing and Potential Projects Basinwide
(With and Without WQA Funding)

PURVEYOR	WELL NAME	TREATMENT	ESTIMATED COSTS (3)	CAPACITY (GPM)
SOUTH PASADENA, CITY OF (1)	WIL 2	AIR STRIPPING	\$ 850,000	1070
SOUTH PASADENA, CITY OF	WIL 3	AIR STRIPPING		1590
SOUTH PASADENA, CITY OF	WIL 4	AIR STRIPPING		1040
SOUTH PASADENA, CITY OF	GRAV 2	LGAC	\$ 1,040,000	900
SUBURBAN WATER SYSTEMS (1)	139W-2	ION EXCHANGE, UV OXIDATION	\$ 5,000,000	2570
SUBURBAN WATER SYSTEMS	139W-4	ION EXCHANGE, UV OXIDATION		2580
SUBURBAN WATER SYSTEMS	139W-5	ION EXCHANGE, UV OXIDATION		3470
SUBURBAN WATER SYSTEMS	139W-6	ION EXCHANGE, UV OXIDATION		3500
SUBURBAN WATER SYSTEMS (1), (5)	140W-3	ION EXCHANGE, UV OXIDATION	\$ 7,360,000	850
SUBURBAN WATER SYSTEMS	140W-5	ION EXCHANGE, UV OXIDATION		3720
VALENCIA HEIGHTS WATER	04	ION EXCHANGE, AIR STRIPPING	\$ 8,570,000	2180
VALLEY COUNTY WATER (4)	B DALTON	LGAC		2850
VALLEY COUNTY WATER	PADDY LN	ION EXCHANGE, AIR STRIPPING	\$ 6,750,000	1460
VALLEY COUNTY WATER	PALM	LGAC	\$ 640,000	790
VALLEY COUNTY WATER	MORADA	ION EXCHANGE, LGAC	\$ 6,640,000	1,200
WHITTIER, CITY OF	18	AIR STRIPPING	\$ 3,030,000	5210

NOTES

PROJECTS IN BOLD RECEIVED WQA FUNDING

(1) COSTS FOR ENTIRE WELLFIELD

(2) CITY OF GLENDORA'S 1999 COST ESTIMATE

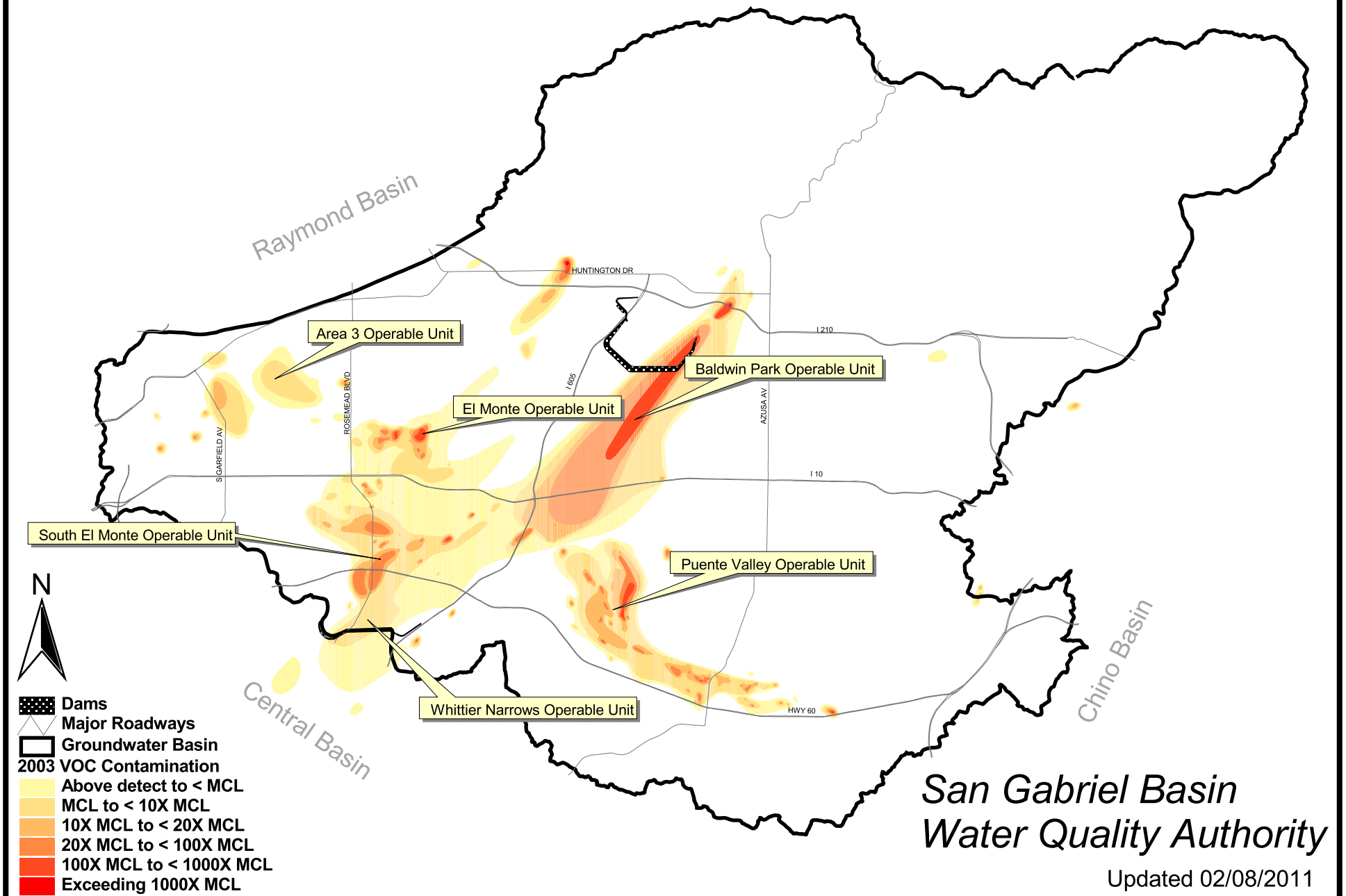
(3) STETSON ENGINEERS ESTIMATE, JANUARY 2001

(4) INCLUDED IN SUBURBAN WATER SYSTEMS 139W-2 COST

(5) UV TREATMENT NOT INCLUDED IN ESTIMATED COSTS

-Figure 1-

San Gabriel Basin Contamination



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



- Pipeline
- ⊕ Remedial Extraction Well
- ▲ Treatment Plant

Washes

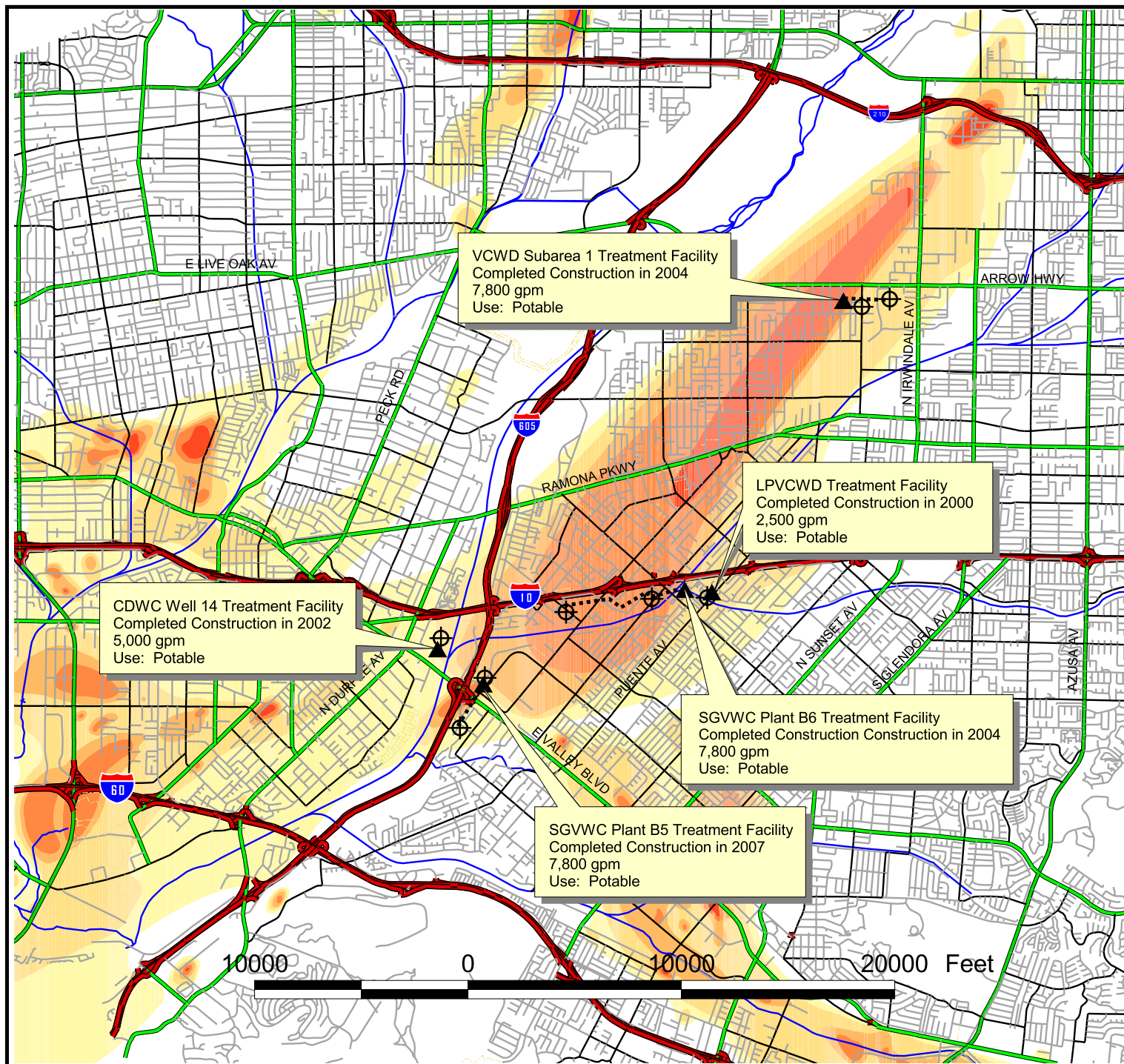
- 2003 VOC Contamination**
- Above detect to < MCL
 - MCL to < 10X MCL
 - 10X MCL to < 20X MCL
 - 20X MCL to < 100X MCL
 - 100X MCL to < 1000X MCL
 - Exceeding 1000X MCL

Source:

CH2MHill San Gabriel Database GIS
Prepared for EPA, 2007

**San Gabriel Basin
Water Quality Authority**

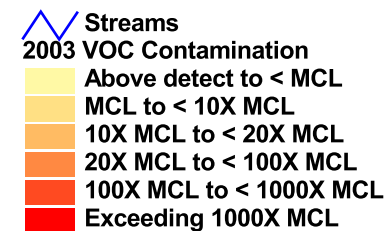
Updated: February 8, 2011



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



- Pipeline
- ⊕ Remedial Extraction Well
- ▲ Treatment Plant

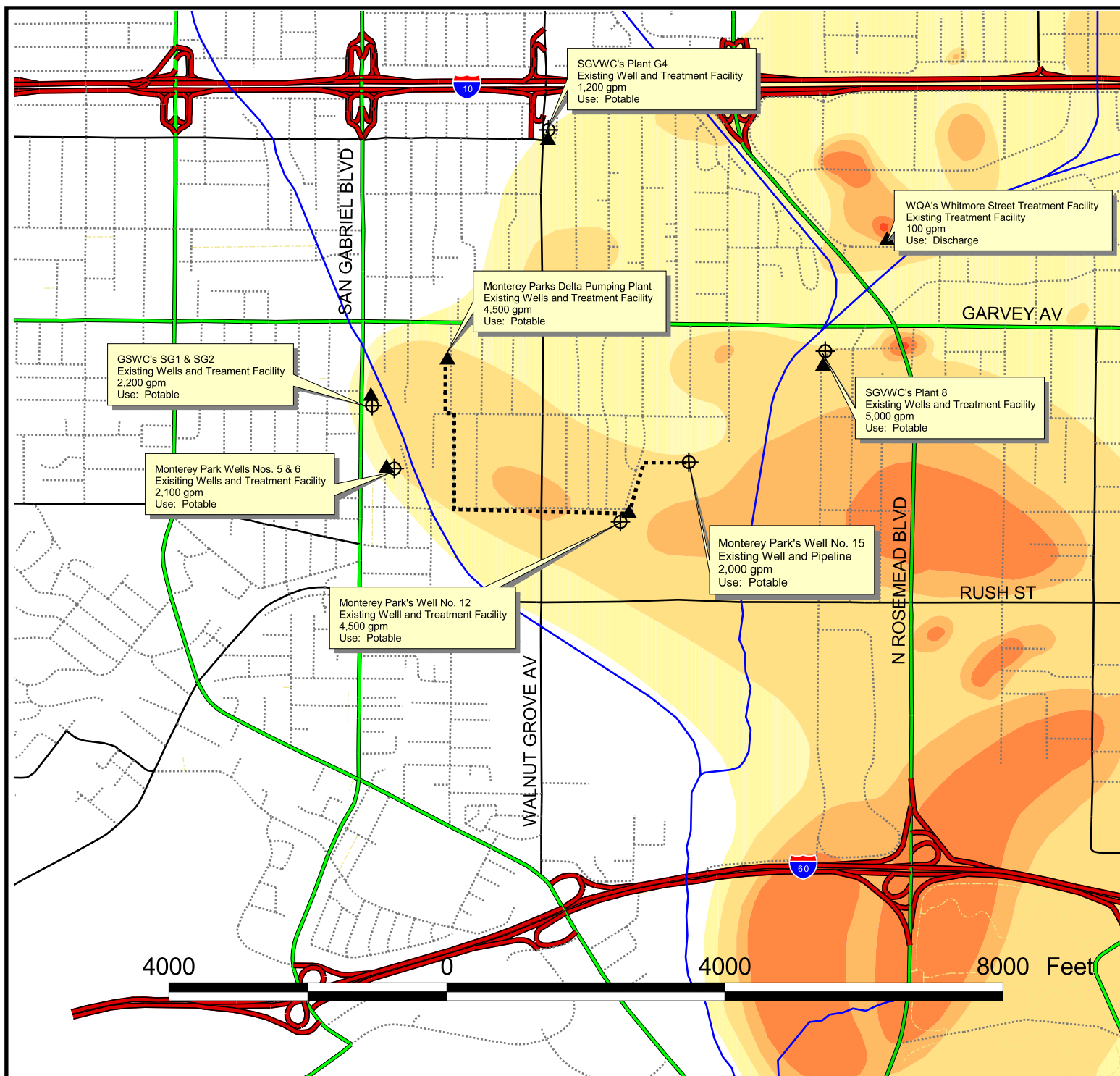


Source:

CH2MHill San Gabriel Database GIS
Prepared for EPA, 2007

**San Gabriel Basin
Water Quality Authority**

Updated: February 8, 2011



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



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

Streams

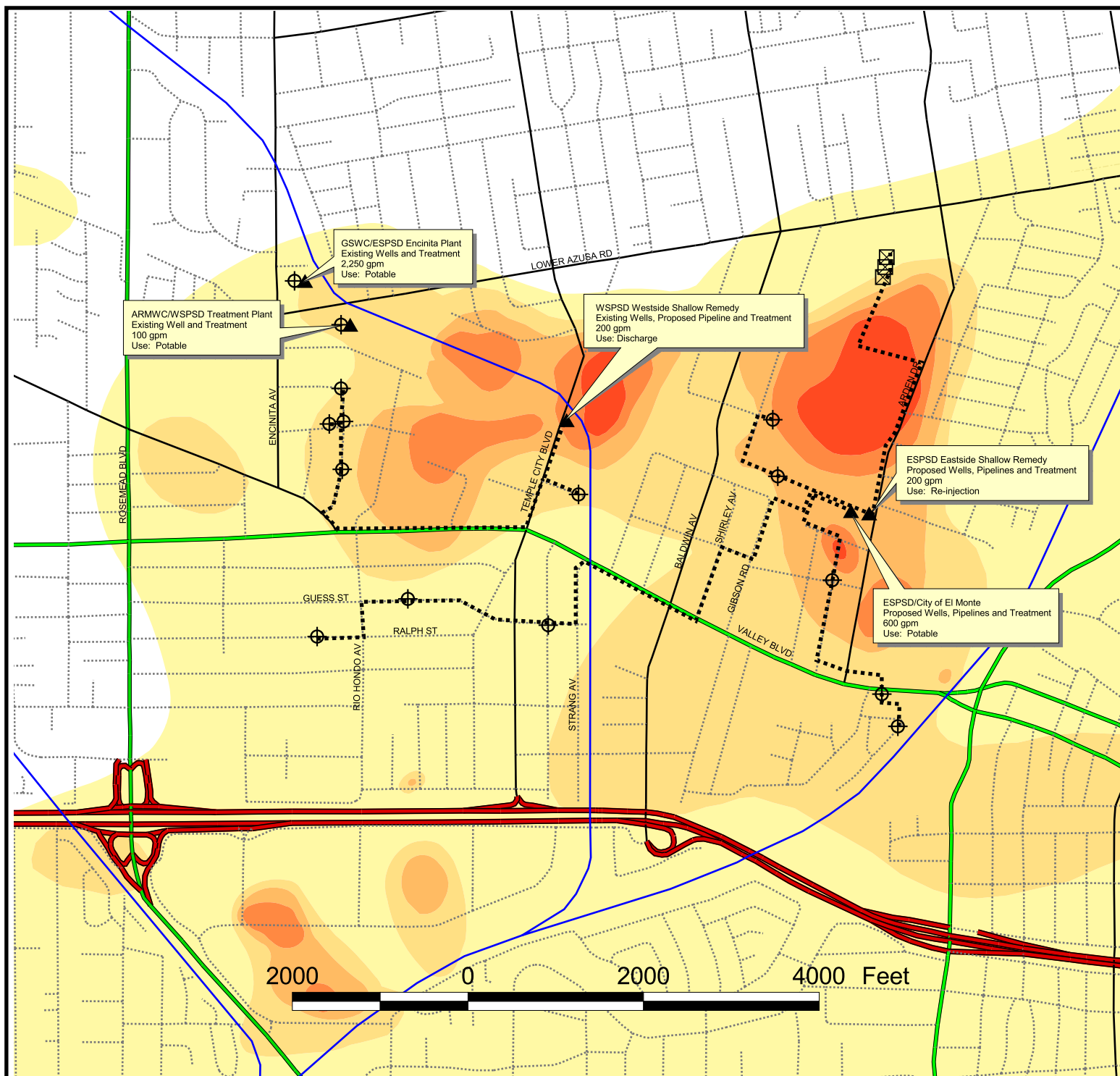
- 2003 VOC Contamination**
- Above detect to < MCL
 - MCL to < 10X MCL
 - 10X MCL to < 20X MCL
 - 20X MCL to < 100X MCL
 - 100X MCL to < 1000X MCL
 - Exceeding 1000X MCL

Source:

CH2MHill San Gabriel Database GIS
Prepared for EPA, 2007

**San Gabriel Basin
Water Quality Authority**

Updated: February 8, 2011



**-Figure 5-
Prescribed Remedy
Whittier Narrows
Operable Unit**



- Pipeline
- ⊕ Remedial Extraction Well
- ▲ Treatment Plant

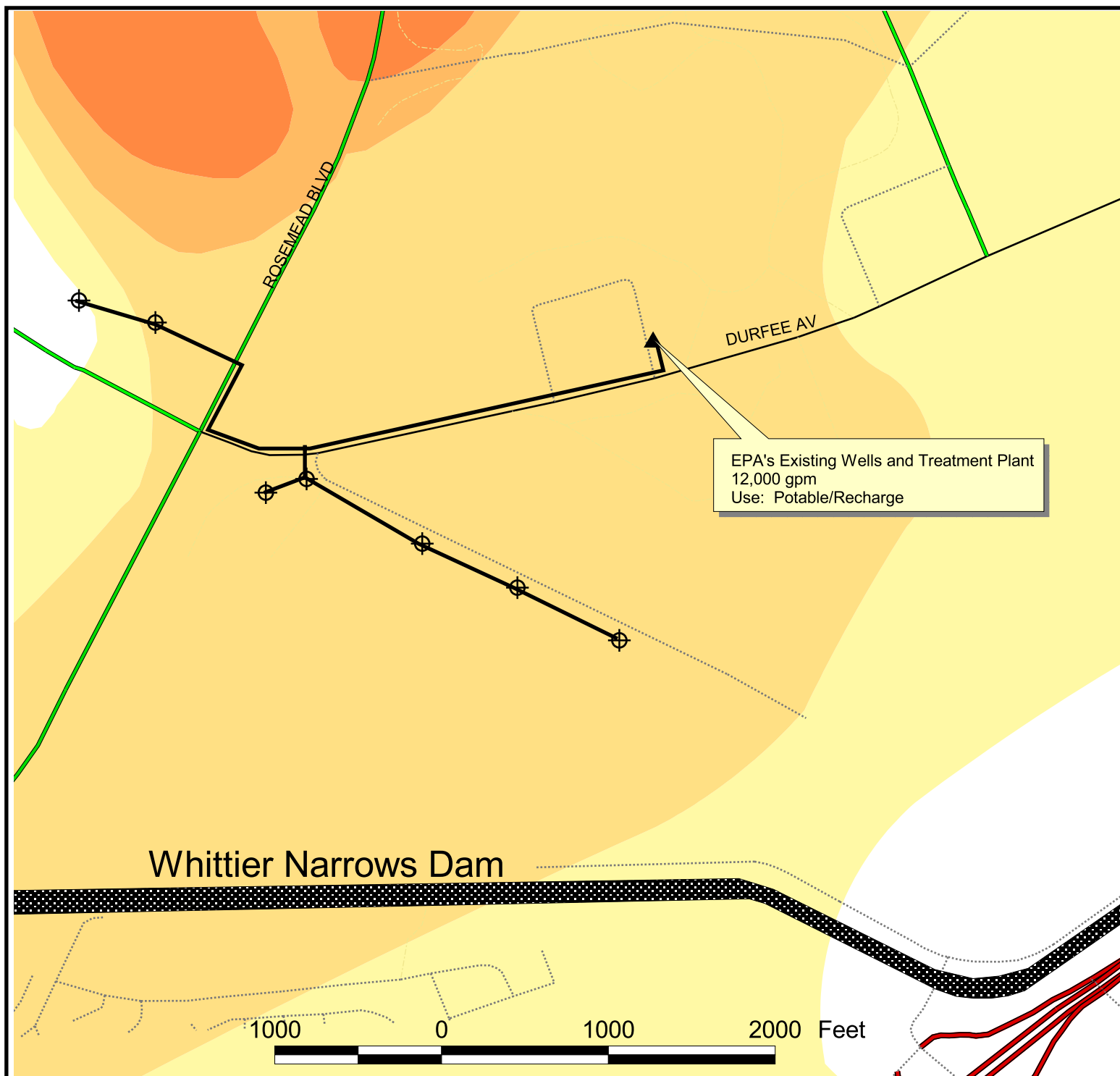
- Dams
- 2003 VOC Contamination
- Above detect to < MCL
- MCL to < 10X MCL
- 10X MCL to < 20X MCL
- 20X MCL to < 100X MCL
- 100X MCL to < 1000X MCL
- Exceeding 1000X MCL

Source:

CH2MHill San Gabriel Database GIS
Prepared for EPA, 2007

**San Gabriel Basin
Water Quality Authority**

Updated: February 8, 2011



**-Figure 6-
Prescribed Remedy
Pueante Valley
Operable Unit**



- ⊙ Proposed Shallow Zone Extraction Wells
- ⊕ Proposed Intermediate/Deep Zone Extraction Wells
- Proposed Shallow Pipeline
- Proposed Intermediate Pipeline
- ▲ Proposed Treatment Plant

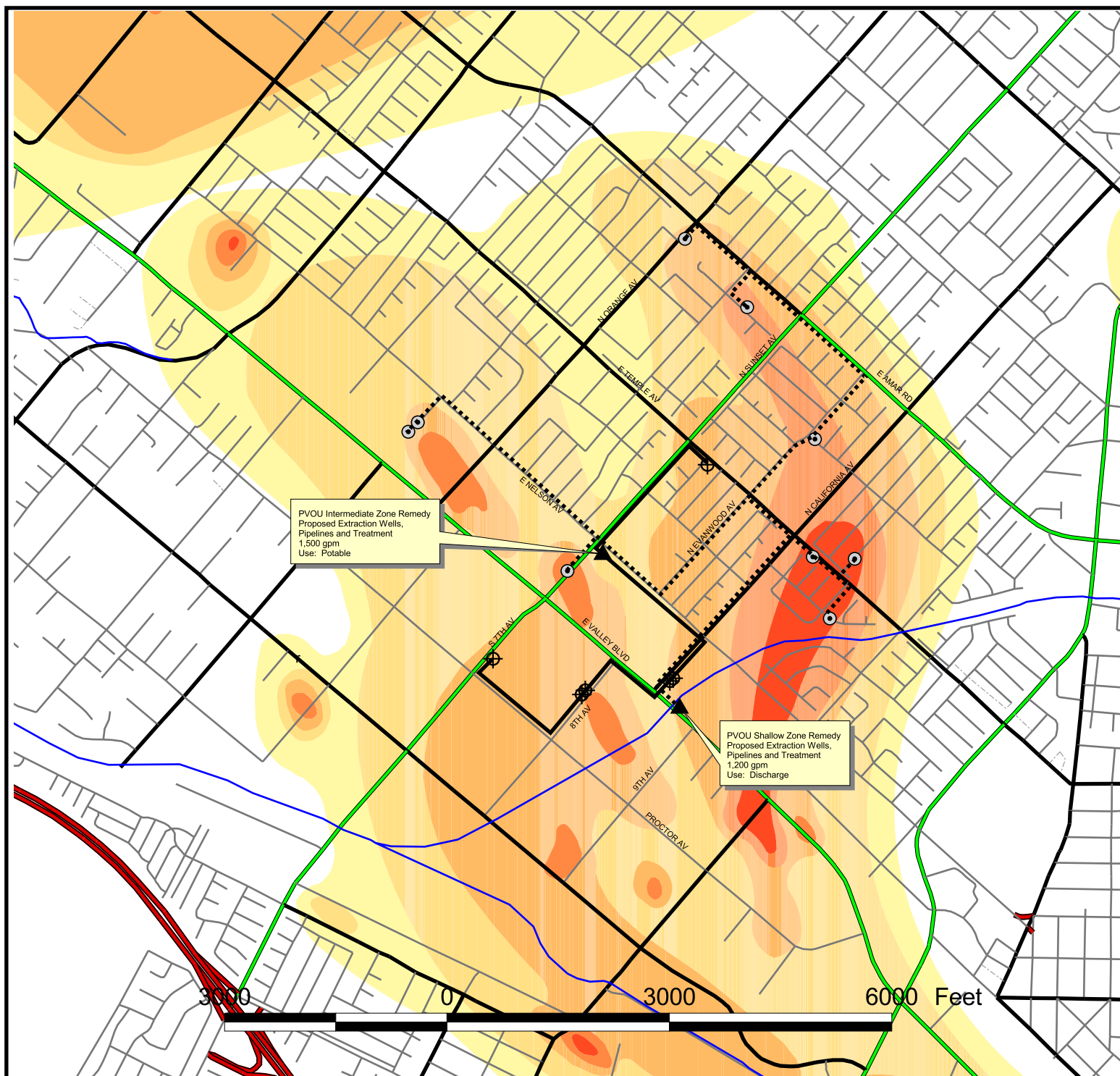
- Streams
- 2003 VOC Contamination**
- Yellow: Above detect to < MCL
 - Light Orange: MCL to < 10X MCL
 - Orange: 10X MCL to < 20X MCL
 - Dark Orange: 20X MCL to < 100X MCL
 - Red-Orange: 100X MCL to < 1000X MCL
 - Red: Exceeding 1000X MCL

Source:

CH2MHill San Gabriel Database GIS
Prepared for EPA, 2007

**San Gabriel Basin
Water Quality Authority**

Updated: February 8, 2011



**-Figure 7-
Early Investigation
Area 3**



- ★ Existing Groundwater Monitoring Well Locations
- ▲ Existing Treatment Facility

2003 VOC Contamination

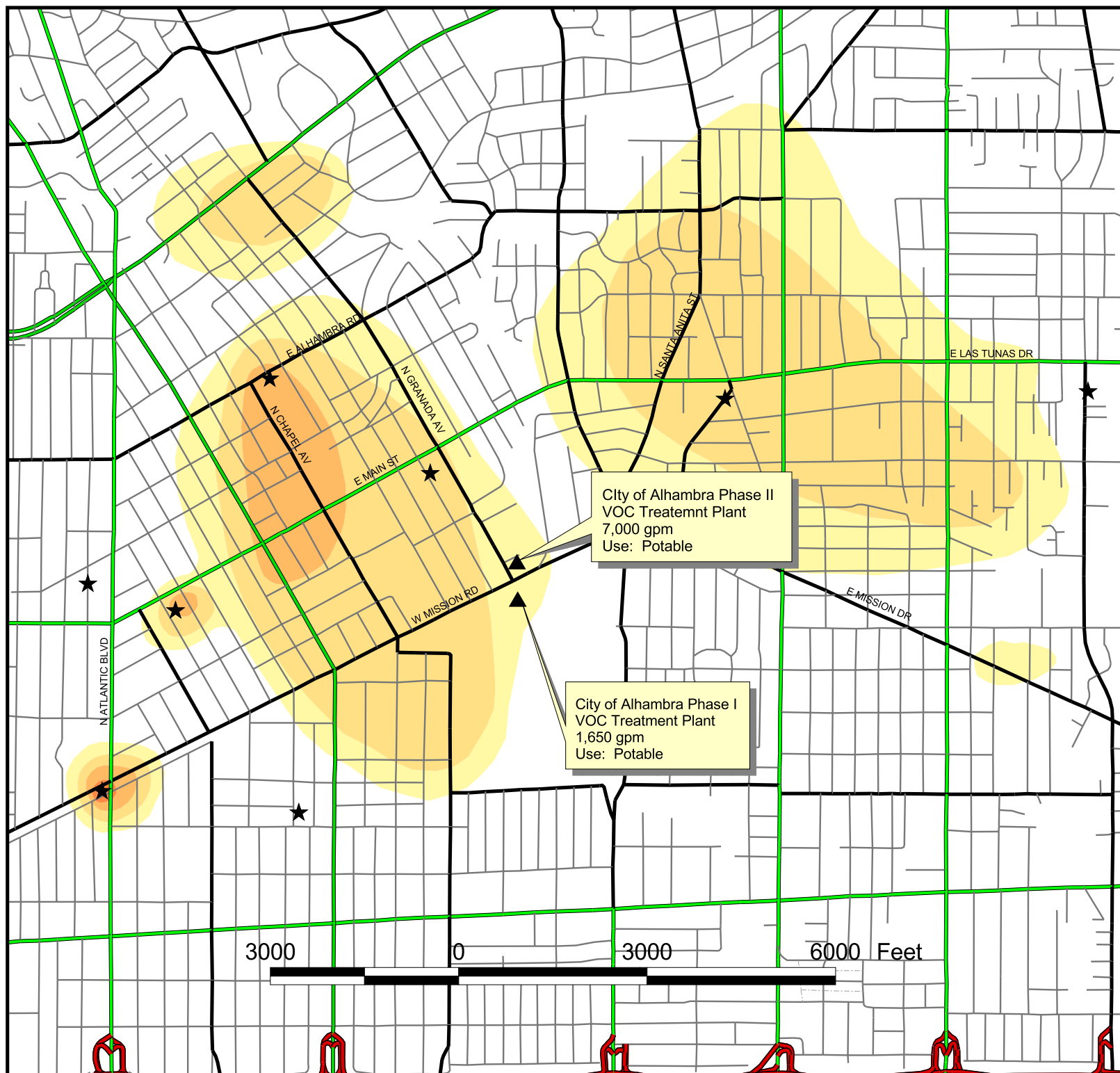
- Above detect to < MCL
- MCL to < 10X MCL
- 10X MCL to < 20X MCL
- 20X MCL to < 100X MCL
- 100X MCL to < 1000X MCL
- Exceeding 1000X MCL

Source:

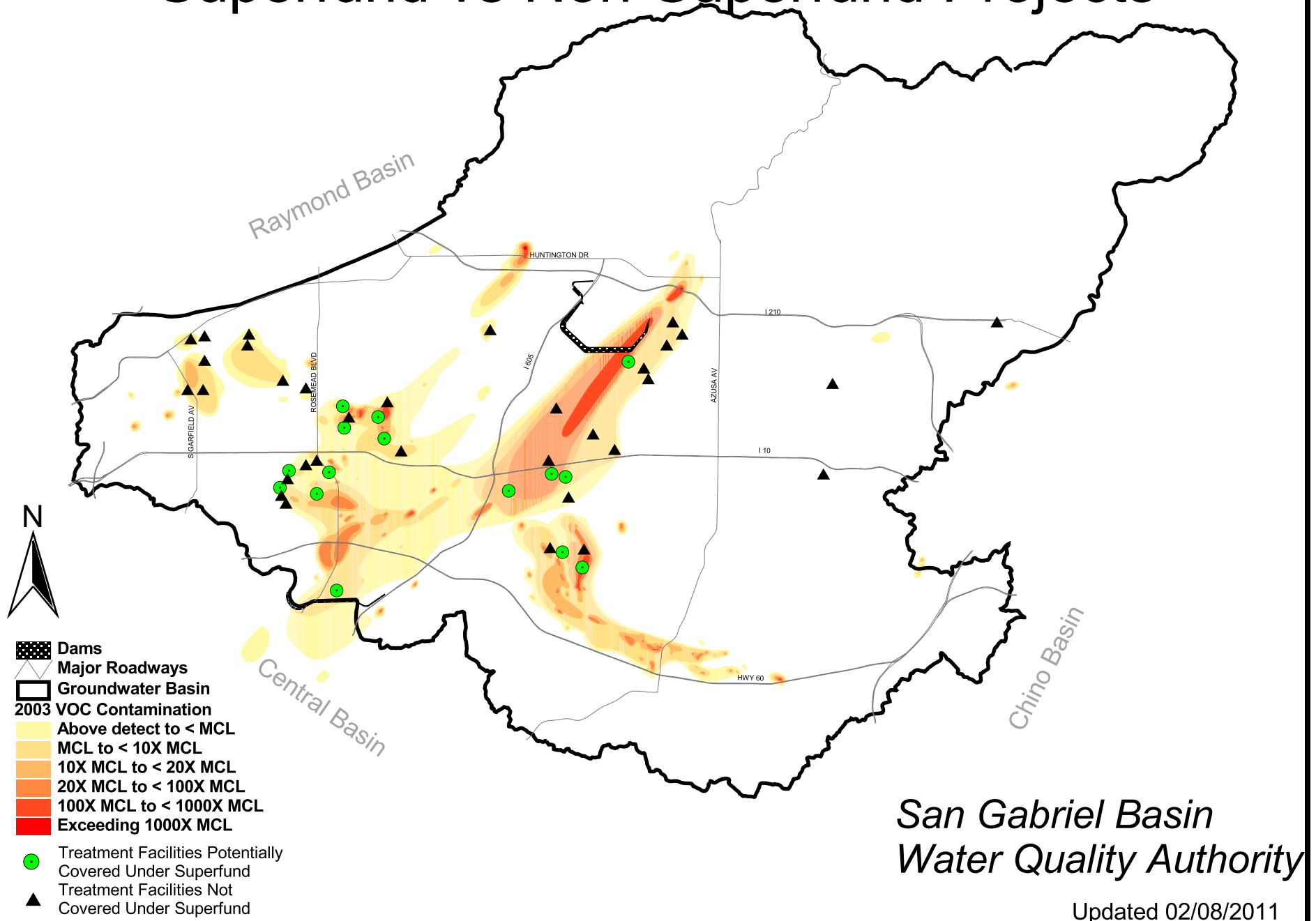
CH2MHill San Gabriel Basinwide GIS
Prepared for EPA, 2004

**San Gabriel Basin
Water Quality Authority**

Updated: February 8, 2011



-Figure 8- Superfund vs Non-Superfund Projects



VOLUME III

APPENDIX C-1

APPENDIX C-2

APPENDIX C-3

APPENDIX D-1

APPENDIX D-2

APPENDIX D-3

APPENDIX E

U.S. ENVIRONMENTAL PROTECTION AGENCY PLANS FOR:

San Gabriel Valley Superfund Sites Update – May 2002

San Gabriel Valley Superfund Sites Update – June 2006

Baldwin Park Operable Unit – May 1999

Baldwin Park Operable Unit – October 2002

Azusa/Baldwin Park Groundwater Cleanup – August 2007

South El Monte Operable Unit – September 1999

South El Monte Operable Unit ESD – November 2005

South El Monte Operable Unit – March 2011

El Monte Operable Unit – October 1998

El Monte Operable Unit ESD – August 2002

El Monte Operable Unit – December 2010

Whittier Narrows Operable Unit – October 1998

Whittier Narrows Operable Unit – May 2002

Puente Valley Operable Unit – January 1998

Puente Valley Operable Unit ESD – June 2005

Puente Valley Operable Unit – February 2006

Puente Valley Operable Unit – July 2009

Area 3 – September 2002

Area 3 – November 2004

Area 3 – April 2010