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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

UNITED STATES OF AMERICA, and STATE OF CALIFORNIA, on behalf of the Department of Toxic Substances Control and Toxic Substances Control Account, Plaintiffs, v. ABEX AEROSPACE, et al., Defendants.	Case No. 2:16-cv-02696-GW-E **CORRECTED CONSENT DECREE**

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I. BACKGROUND

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and the State of California Department of Toxic Substances Control and the Toxic Substances Control Account ("DTSC"), filed a complaint in this matter pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9606, 9607, and Section 7003 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6973.

B. The United States in its complaint seeks, *inter alia*: (1) reimbursement of costs incurred by EPA and the Department of Justice ("DOJ") for certain response actions at Operable Unit 2 ("OU2") of the Omega Chemical Corporation Superfund Site ("Site") in Los Angeles County, California, together with accrued interest; and (2) performance of certain response actions by the Settling Defendants at OU2 consistent with the National Contingency Plan, 40 C.F.R. Part 300 ("NCP"), and the Statement of Work ("SOW"). In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of California ("State") on December 21, 2011 of negotiations with potentially responsible parties ("PRPs") regarding the implementation of remedial design and remedial action for OU2, as described in the SOW, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree. DTSC is the lead state agency.

C. DTSC alleges, as co-plaintiff in that complaint, that Settling Defendants are liable to DTSC under Section 107 of CERCLA, 42 U.S.C. § 9607, and under Sections 25187 and 25358.3 of the California Health and Safety Code for: (1) reimbursement of certain costs that DTSC has incurred at OU2, together with accrued interest; and (2) performance of certain response actions by the

Settling Defendants at OU2 consistent with the NCP, 40 C.F.R. Part 300, and the SOW.

D. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the Federal natural resource trustee, the United States Department of the Interior, Fish and Wildlife Service, in January 2012, of negotiations with PRPs regarding the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree.

E. The defendants that have entered into this Consent Decree ("Settling Defendants") do not admit any liability to Plaintiffs arising out of the transactions or occurrences alleged in the complaint, nor do they acknowledge that the release or threatened release of hazardous substance(s) at or from OU2 constitutes an imminent and substantial endangerment to the public health or welfare or the environment.

F. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on January 19, 1999, 64 Fed. Reg. 2950.

G. To date, EPA has divided the Site into three geographically delineated Operable Units ("OUs") to expedite and streamline investigation and cleanup. OU1 includes the vadose zone soils and shallow groundwater contamination at the former Omega Chemical property and immediate proximity. OU2 is composed of groundwater contamination outside and generally downgradient of OU1. OU3 is composed of indoor air contamination at buildings located in the nearby vicinity of the former Omega Chemical property.

H. Previous response actions at the Site include, without limitation, those described in: (1) a Unilateral Administrative Order issued by EPA to potentially responsible parties ("PRPs") who arranged for the disposal of at least 10 tons of materials containing hazardous substances at the former Omega Chemical facility;

(2) a consent decree (docket no. 00-12471-TJH) entered by the United States District Court for the Central District of California on February 28, 2001, relating to OU1 work; (3) a consent decree (docket 2:10-cv-05051-TJH-PLA) filed on October 6, 2010, relating to additional OU1 work; and (4) an Administrative Settlement Agreement and Order on Consent for Removal Action, signed by EPA in November 2009, relating to OU3 work.

I. In order to determine whether further responses to a release or a substantial threat of a release of a hazardous substance(s) at or from the Site were necessary, EPA commenced in 2001 a Remedial Investigation and Feasibility Study ("RI/FS") for OU2, pursuant to 40 C.F.R. § 300.430. EPA completed the OU2 RI/FS in August 2010.

J. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action on August 12, 2010 in a local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for OU2 remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Assistant Director of the Superfund Division, EPA Region 9, based the selection of the response action.

K. The decision by EPA on the remedial action to be implemented for OU2 is embodied in an OU2 Interim Action Record of Decision ("ROD"), executed on September 20, 2011, on which DTSC had a reasonable opportunity to review and comment, and on which DTSC has given its concurrence. The ROD includes a responsiveness summary to the public comments. Notice of the ROD was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

L. EPA has begun preparing an Explanation of Significant Differences ("ESD") to approve other end uses for treated OU2 groundwater analyzed in the

OU2 RI/FS and ROD, as described in Paragraph 1.3(k) of the SOW, and to indicate that circumstances have changed since September 20, 2011 such that drinking water is no longer the preferred end use for extracted OU2 groundwater.

M. Based on the information presently available to EPA and DTSC, EPA and DTSC believe that the Work will be properly and promptly conducted by Settling Work Defendants if conducted in accordance with the requirements of this Consent Decree and its appendices.

N. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the remedy set forth in the ROD and the Work to be performed by Settling Work Defendants shall constitute a response action taken or ordered by the President for which judicial review shall be limited to the administrative record.

O. The Work referenced in this Consent Decree does not constitute the entirety of Remedial Design/Remedial Action described in the ROD. Generally speaking, this Work, which is described more particularly in Sections IV (Definitions) and VI (Performance of the Work by Settling Work Defendants) and Appendix B (Statement of Work) below, includes the design, construction, and operation of one or more groundwater extraction and treatment systems to meet Performance Standards identified in the ROD that are applicable to the Northern Extraction ("NE") Area, the Central Extraction ("CE") Area, and the northern portion of the Leading Edge ("LE") Area as depicted in the ROD. (These Areas are collectively referred to herein as the "NE/CE Area.") The Work also includes certain data collection and analysis activities in the LE Area, and other actions as described herein and in the SOW. The NE, CE, and LE Areas as presented in the ROD and in the Work are depicted more specifically in Appendix C hereto.

P. The Parties agree that additional investigation is needed before designing and implementing remedial action in the LE Area not covered by the CE extraction system. Accordingly, this Consent Decree does not resolve Settling Defendants' responsibility for future work, if necessary, in the LE. Unless data

suggest the need to act sooner, EPA does not currently anticipate future work in the LE beyond what is required as Work in this Consent Decree until EPA evaluates additional groundwater monitoring data collected from existing wells and from the newly installed LE monitoring wells described in the SOW, evaluates the impact of changes in the status of the Dace and Pioneer drinking water wells, and evaluates the status of source control at Leading Edge source properties. It is not yet determined which General Notice Letter or Special Notice Letter recipients at OU2 would perform such work, if any such work is needed.

Q. Source Control is not incorporated within this Consent Decree. The implementation of the Work required by this Consent Decree does not eliminate the need for Source Control at particular properties within or adjacent to OU2. Timely Source Control at these individual properties may facilitate the expeditious and cost-effective achievement of the Performance Standards in this Consent Decree and the Remedial Action Objectives of the ROD.

R. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of OU2 and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby ordered, adjudged, and decreed:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331, 1345, and 1367; CERCLA Sections 106, 107, and 113(b), 42 U.S.C. §§ 9606, 9607, and 9613(b); and RCRA Section 7003, 42 U.S.C. § 6973. This Court also has personal jurisdiction over Settling Defendants. Solely for the purposes of this Consent Decree and the underlying complaint, Settling Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. Settling Defendants shall not challenge the

terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree. As provided for under Section 113(g)(2) of CERCLA, 42 U.S.C. § 9613(g)(2), this action constitutes an "initial action for the recovery of costs" at the Site within the meaning of that section, and any subsequent action by Plaintiff to recover any response costs under CERCLA Section 107, 42 U.S.C. § 9607, for the Site, not addressed by this Consent Decree, constitutes a "subsequent action" for further response costs within the meaning of Section 113(g)(2).

III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States and DTSC and upon Settling Defendants and their heirs, successors, and assigns. Any change in ownership or corporate status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property, shall in no way alter such Settling Defendant's responsibilities under this Consent Decree.

3. Settling Work Defendants shall provide a copy of this Consent Decree to each contractor hired to perform the Work required by this Consent Decree and to each person representing any Settling Work Defendant with respect to OU2 or the Work, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. Settling Work Defendants or their contractors shall provide written notice of the Consent Decree to all subcontractors hired to perform any portion of the Work required by this Consent Decree. Settling Work Defendants shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with the terms of this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with Settling Work Defendants within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

4. Unless otherwise expressly provided in this Consent Decree, terms used in this Consent Decree that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or its appendices, the following definitions shall apply solely for purposes of this Consent Decree:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675.

"Certain Noticed PRPs" shall mean certain enumerated persons or entities who received a Special Notice Letter or General Notice Letter from the United States for CERCLA or RCRA liability associated with owning and/or operating property within the Site, and whose liability is not based solely on their having arranged for storage, disposal, or treatment, or for transport for storage, disposal, or treatment, of hazardous substances at the Omega Property. As of the date of lodging of this Consent Decree, the Certain Noticed PRPs and the property or properties associated with such liability are listed in Appendix G. The Certain Noticed PRPs are not the only PRPs that have been identified by EPA at the Site. Nothing in this definition or anywhere in this Consent Decree alters EPA's prior or subsequent determination that a party who has received, or who will receive, a Special Notice Letter or General Notice Letter is or may be a PRP at the Site.

"Certain Other Site Litigation" shall mean any litigation among Settling Defendants and third parties, including: *Jennie Aguirre, et al. v. Omega Chemical Corporation, et al.*, Superior Court, County of Los Angeles, California, Case No. BC 450023 [filed Nov. 24, 2010]; *Alcoa Inc., et al. v. APC Investment Co., et al.*, United States District Court, Central District of California, Case No. 2:14 CV-06456 GW (EX) [filed Aug. 15, 2014]; *Angeles Chemical Company Inc., et al. v. Omega Chemical PRP Group LLC et al.*, United States District Court, Central

District of California, Case No. ED CV 5:07-01471-TJH-E [filed Nov. 7, 2007]; *Angeles Chemical Company, Inc., et al. v. McKesson Corporation, et al., (and related cross-actions)*, United States District Court, Central District of California, Case No. 01-10532 TJH (Ex) [filed Dec. 7, 2001]; *Omega Chemical PRP Group v. Aaron Thomas Company, Inc., et al.*, United States District Court, Central District of California, Case No. 2:04 CV-01340 TJH [filed Feb. 27, 2004]; and *Omega Chemical PRP Group v. Advanced Packaging Systems, et al.*, United States District Court, Central District of California, Case No. 2:05 CV-00754 TJH [filed Jan. 31, 2005] .

"Consent Decree" or "CD" shall mean this Consent Decree and all appendices attached hereto (listed in Section XXIII). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

"Day" or "day" shall mean a calendar day unless expressly stated to be a working day. The term "working day" shall mean a day other than a Saturday, Sunday, or federal or state holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or state holiday, the period shall run until the close of business of the next working day.

"*De Micromis* Parties" shall mean those persons whose liability with respect to the Site is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous substances at the Omega Property, or having accepted for transport for disposal or treatment of hazardous substances at the Omega Property, if the disposal, treatment, or transport occurred before April 1, 2001, and the total amount of material containing hazardous substances contributed by such person to the Omega Property was less than one ton, as recorded in the State's Hazardous Waste Manifest database.

"DOJ" shall mean the United States Department of Justice and its successor departments, agencies, or instrumentalities.

"DTSC" shall mean the California Department of Toxic Substances Control and the Toxic Substances Control Account and their successor departments, agencies, or instrumentalities.

"DTSC Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that DTSC incurs in connection with OU2 in reviewing or developing plans, reports, and other deliverables submitted pursuant to this Consent Decree, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs and laboratory costs, and the costs incurred pursuant to Section VII (Remedy Review), Section VIII (Access) (including, but not limited to, the cost of attorney time and any monies paid to secure access), Paragraph 25 (Funding for Work Takeover), and Paragraph 13 (Community Involvement). This term does not encompass any response actions by DTSC in connection with Source Control for properties located within or proximate to the boundaries of OU2, which are outside the Work covered by this Consent Decree.

"DTSC Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that DTSC paid at or in connection with OU2, through June 30, 2015, plus Interest on all such costs that has accrued pursuant to California Health and Safety Code section 25360.1 through such date. DTSC Past Response Costs do not include any DTSC costs specifically related to work at OU1 and OU3, including without limitation any costs that DTSC paid at or in connection with any of the following three agreements: the consent decree (docket no. 00-12471-TJH), entered by the United States District Court for the Central District of California on February 28, 2001, relating to OU1 work; the consent decree filed on October 6, 2010 (docket 2:10-cv-05051-TJH-PLA), relating to OU1 work; and the Administrative Settlement Agreement and Order on Consent for Removal Action, signed by EPA in November 2009, relating to OU3. This

term also does not encompass any costs incurred by DTSC for response actions in connection with Source Control for properties located within or proximate to the boundaries of OU2, which are outside the Work covered by this Consent Decree.

"Effective Date" shall mean the date upon which this Consent Decree is entered by the Court as recorded on the Court docket, or, if the Court instead issues an order approving the Consent Decree, the date such order is recorded on the Court docket.

"EPA" shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

"EPA Hazardous Substance Superfund" shall mean the Hazardous Substance Superfund established by the Internal Revenue Code, 26 U.S.C. § 9507.

"Federal Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year. Rates are available online at http://www2.epa.gov/superfund/superfund-interest-rates.

"Further Settling *De Minimis* Parties" shall mean those persons who, after April 1, 2015, have entered or will enter into a final CERCLA Section 122(g) (42 U.S.C. § 9622(g)) *de minimis* settlement with EPA and whose liability with respect to the Site is based solely on having arranged for storage, disposal, or treatment; or for transport for storage, disposal, or treatment, of hazardous substances at the Omega Property before April 1, 2001, and the total amount of material containing hazardous substances contributed by such person is at least one ton but less than three tons, as recorded in the DTSC's Hazardous Waste Manifest database. Such term does not encompass Previously Settling *De Minimis* Parties.

"Further Settlor(s)" shall mean the party or parties described in Paragraph 78.

"Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in connection with OU2 in reviewing or developing plans, reports, and other deliverables submitted pursuant to this Consent Decree, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, and the costs incurred pursuant to Section VII (Remedy Review), Section VIII (Access) (including, but not limited to, the cost of attorney time and any monies paid to secure access), Paragraph 25 (Funding for Work Takeover), and Paragraph 13 (Community Involvement), and including Agency for Toxic Substances and Disease Registry costs relating to the Work. This term does not encompass any direct or indirect costs incurred by the United States in connection with a CERCLA § 122(g) (42 U.S.C. § 9622(g)) *de minimis* settlement or in connection with Source Control for properties located within or proximate to the boundaries of OU2.

"Institutional Controls" or "ICs" shall mean non-engineering controls that will supplement engineering controls to prevent or limit potential exposure to hazardous substances, pollutants, or contaminants at the Site related to the Work and to ensure that the portion of the ROD applicable to the Work is effective. The ICs in the ROD applicable to the Work are informational ICs and include (1) annual notifications to all water rights holders in the Central Basin and other stakeholders, (2) periodic meetings with state and local agencies with jurisdiction over well drilling and groundwater use within the Central Basin, and (3) contemporaneous notifications by such agencies regarding groundwater extraction and well drilling, as described in the SOW.

"Interest" shall mean "Federal Interest" for payments to the United States and "State Interest" for payments to DTSC.

"Matters Addressed" in this Consent Decree are the Work, Past Response Costs, DTSC Past Response Costs, Future Response Costs, and DTSC Future Response Costs.

"McKesson" shall mean McKesson Corporation, a Delaware corporation; its current and former subsidiaries; its successors; its officers, directors, shareholders and employees in the course and scope of their employment or agency; and, for purposes of this Consent Decree only, its indemnitees, Harvey Sorkin and the Estates of Paul Maslin and Seymour Moslin. Any subsidiary or successor is included within the definition of "McKesson" only to the extent that that subsidiary's or successor's liability is based on its status as a subsidiary or successor of McKesson Corporation, and not to the extent that its liability arose independently of such status.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

"NE/CE Area" shall mean the area described as such in the Statement of Work.

"Omega Property" shall mean the property formerly owned by the Omega Chemical Corporation, encompassing approximately one acre, located at 12504 and 12512 East Whittier Boulevard, Whittier, California.

"Omega PRP Organized Group" or "OPOG" shall refer collectively to the parties listed in Appendix F.

"Operable Unit" or "OU" shall mean a discrete action that comprises an incremental step in the remediation of a contaminated site. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action.

"Operation and Maintenance" or "O&M" shall mean all activities required to maintain the effectiveness of the Remedial Action as required under the Operation and Maintenance Plan approved or developed by EPA pursuant to Section VI (Performance of the Work by Settling Work Defendants) and the SOW.

"OU2" shall mean the contamination in groundwater generally downgradient of the Omega Property, much of which has commingled with chemicals released at other locations into a regional plume containing multiple contaminants which, when considered in total, is more than four miles long and one mile wide.

"Paragraph" shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper or lower case letter.

"Parties" shall mean the United States, DTSC, and Settling Defendants.

"Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with OU2 through the date of lodging of this Consent Decree, plus Interest that has accrued on all such costs pursuant to 42 U.S.C. § 9607(a) through such date. Past Response Costs do not include any costs specifically related to work at OU1 and OU3 and billable by the United States under any of the following three agreements: the consent decree (docket no. 00-12471-TJH), entered by the United States District Court for the Central District of California on February 28, 2001, relating to OU1 work; the consent decree filed on October 6, 2010 (docket 2:10-cv-05051-TJH-PLA), relating to OU1 work; and the Administrative Settlement Agreement and Order on Consent for Removal Action, signed by EPA in November 2009, relating to OU3.

"Performance Standards" shall mean the cleanup levels and other measures of achievement of the remedial action objectives, as set forth in the SOW (Paragraph 1.3(c)).

"Plaintiffs" shall mean the United States of America and DTSC.

"Previously Settling *De Minimis* Parties" shall mean the parties: (a) who entered into the final CERCLA Section 122(g) (42 U.S.C. § 9622(g)) *de minimis* settlement with EPA and DTSC dated December 12, 2005; and (b) whose liability at the Site stems solely from their status as arrangers for treatment, storage, or disposal at the Omega Property. A party must meet both criteria (a) and (b) in the preceding sentence in order to be a Previously Settling *De Minimis* Party.

"RCRA" shall mean the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992 (also known as the Resource Conservation and Recovery Act).

"Record of Decision" or "ROD" shall mean the EPA Interim Action Record of Decision relating to OU2, signed on September 20, 2011 by the Assistant Director of the Superfund Division, EPA Region 9, and all attachments thereto. The ROD is attached as Appendix A.

"Remedial Action" or "RA" shall mean all activities Settling Defendants are required to perform under the Consent Decree to implement the ROD, in accordance with the SOW, the final approved remedial design submission, the approved Remedial Action Work Plan, and other plans approved by EPA, including the Institutional Controls and Implementation and Assurance Plan (ICIAP), until the Performance Standards are met, and excluding performance of the Remedial Design, O&M, and the activities required under Section XX (Retention of Records).

"Remedial Action Work Plan" or "RA Work Plan" shall mean the document developed pursuant to Paragraph 4.1 of the SOW and approved by EPA, and any modifications thereto.

"Remedial Design" or "RD" shall mean those activities to be undertaken by Settling Work Defendants to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan.

"Remedial Design Work Plan" or "RD Work Plan" shall mean the document developed pursuant to Paragraph 3.1 of the SOW and approved by EPA, and any modifications thereto.

"Section" shall mean a portion of this Consent Decree identified by a Roman numeral.

"Settling Cash Defendants" shall mean those Parties listed in Appendix D, who are signatories to this Consent Decree, who will participate in this Consent Decree with the other Parties to this Consent Decree, primarily through cash payments, and are not involved in performing the Work under this Consent Decree. The term "Settling Cash Defendant" shall also apply to certain affiliates of each Settling Cash Defendant; where the Settling Cash Defendant is a trust, its trustees and successor trustees appointed to carry out the purposes of said trust; where the Settling Cash Defendant is a corporate entity, its corporate successors to potential liability for Matters Addressed; and where the Settling Cash Defendant is a partnership, its partners. However, as set out more generally in Paragraph 5.b, the term "Settling Cash Defendant" shall not include any person or entity with liability for OU2 independent of that person's or entity's affiliation with a Settling Cash Defendant, including liability for hazardous substances that has not been attributed to a Settling Cash Defendant. Additionally, for each Settling Cash Defendant, the nature of the liability it is settling (*i.e.*, whether it is settling owner/operator liability pursuant to Section 107(a)(1) and/or Section 107(a)(2) of CERCLA, 42 U.S.C. §§ 9607(a)(1) and/or 9607(a)(2), arranger liability pursuant to Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3), or transporter liability pursuant to Section 107(a)(4) of CERCLA, 42 U.S.C. § 9607(a)(4), or some combination of all) is indicated by identifying the specific property or properties associated with the liability in connection with that Settling Cash Defendant's name in Appendix D. For each Settling Cash Defendant, any potential basis of liability not explicitly described in Appendix D is not resolved in this Consent Decree until such person

or entity has separately settled such liability with the United States or the Settling Work Defendants and this Consent Decree has been modified to reflect the settlement of such liability. Settling Work Defendants, after the Effective Date of this Consent Decree, may propose that a party be removed from the list of Settling Work Defendants listed in Appendix E and added to the list of Settling Cash Defendants listed in Appendix D. Such removal and addition shall be a non-material modification of this Consent Decree, pursuant to Paragraph 95.

"Settling Defendants" shall mean the Settling Work Defendants and Settling Cash Defendants.

"Settling Work Defendants" or "SWDs" shall mean those Parties identified in Appendix E, who are signatories to this Consent Decree, and who are required to perform the Work, whether they perform the Work individually or through any legal entity that they may establish to perform the Work. The term "Settling Work Defendants" shall also apply to certain affiliates of each Settling Work Defendants: where the Settling Work Defendant is a trust, its trustees and successor trustees appointed to carry out the purposes of said trust; where the Settling Work Defendant is a corporate entity, its corporate successors to potential liability for Matters Addressed; and, where the Settling Work Defendant is a partnership, its partners. However, the term "Settling Work Defendant" shall not include any person or entity with liability for OU2 independent of that person's or entity's affiliation with a Settling Work Defendant, including liability for hazardous substances that has not been attributed to a Settling Work Defendant.

"Settling Work Defendants' Project Coordinator" shall mean an individual who represents the SWDs, is responsible for overall coordination of the Work, and satisfies the requirements of Paragraph 10.a(1).

"Site" shall mean the Omega Chemical Corporation Superfund Site, originally listed on the National Priorities List on January 19, 1999, 64 Fed. Reg.

2950, which is located in Los Angeles County, California, and includes the contamination being addressed by multiple Operable Units.

"Site Special Account" shall mean the special account, within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3).

"Source Control" shall mean those actions that have been or will be taken at or near a property within or proximate to OU2 to reduce contaminant mass loading to soil and/or groundwater. Source Control actions can include property-specific soil vapor extraction, contaminated soil removal, *in situ* treatment, or groundwater containment or mass removal actions, as well as any monitoring required to evaluate the need for or the effectiveness of the Source Control actions.

"State" shall mean the State of California.

"State Interest" shall mean the interest at the rate specified in California Health and Safety Code § 25360.1. The applicable rate of State Interest shall be the rate in effect at the time State Interest accrues.

"Statement of Work" or "SOW" shall mean the statement of work for implementation of certain Remedial Design, Remedial Action, O&M, and other activities at OU2, as set forth in Appendix B to this Consent Decree and any modifications made in accordance with this Consent Decree.

"Transfer" shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

"United States" shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any "solid waste" under Section

1004(27) of RCRA, 42 U.S.C. § 6903(27); or as any of the foregoing terms are defined under any appropriate or applicable provisions of California law.

"Work" shall mean all activities and obligations Settling Work Defendants are required to perform under this Consent Decree, except the activities required under Section XX (Retention of Records).

"Work Area" shall mean the portions of OU2 that are the subject of Work under this Consent Decree and SOW.

V. GENERAL PROVISIONS

5. Objectives of the Parties.

a. The objectives of the Parties in entering into this Consent Decree are to protect public health or welfare or the environment by the design and implementation of response actions at OU2 by Settling Work Defendants, to pay response costs of the Plaintiffs, and to resolve the claims of Plaintiffs against Settling Defendants as provided in this Consent Decree.

b. Specifically, it is the intention of Plaintiffs and Settling Defendants to address in this Consent Decree certain known liabilities for hazardous substances associated with OU2 of the Settling Defendants, Previously and Further Settling *De Minimis* Parties and *De Micromis* Parties. The liability that McKesson is resolving in this Consent Decree is the liability associated with its ownership and operation of property, and any facilities thereon, located at 9005 Sorenson Ave., Santa Fe Springs, California. The liability that the settling members of OPOG are resolving in this Consent Decree is their liability for arranging for storage, disposal, or treatment, or for transport for storage, disposal, or treatment, of hazardous substances at the Omega Property. For each Settling Cash Defendant, the liability resolved in this Consent Decree is that liability indicated for that Settling Cash Defendant in Appendix D. For any Settling Defendant who joins this Consent Decree after the Effective Date, the liability that

that Settling Defendant is resolving will be explicitly indicated in the Appendix or other document that adds that Settling Defendant to the Consent Decree. However, if any person or entity covered by such terms has a separate, independent liability for hazardous substances arising out of ownership or operations of other property with the Site, or arranging for storage, disposal, or treatment, or transport for storage, disposal, or treatment, of hazardous substances to other property within the Site, which is not specifically settled by this Consent Decree, the terms "Settling Defendants," "Settling Cash Defendants," "Settling Work Defendants," "Previously Settling *De Minimis* Parties," "Further Settling *De Minimis* Parties" and "*De Micromis* Parties" do not encompass such separate, independent liability, nor do the covenants, waivers, contribution protection, or other benefits and obligations tied to such categories in this Consent Decree attach to such person or entity for such separate liability until specifically resolved and addressed by this Consent Decree. The specific property or properties associated with the liability of Settling Cash Defendants for hazardous substances addressed by this Consent Decree are set out in Appendix D and for Settling Work Defendants in Appendix E.

6. Agency Coordination. EPA is the lead agency under the National Contingency Plan ("NCP") for overseeing the implementation of the response actions at the Site. DTSC is a support agency, as defined in the NCP, 40 C.F.R. § 300.515(a). It is EPA's and DTSC's intention to reduce unnecessary duplication of effort between these agencies, while allowing DTSC to fulfill its role as a support agency under the NCP. Should the Settling Work Defendants have concerns about lack of coordination and unnecessary duplication of effort, the Settling Work Defendants may address such concerns in accordance with the dispute resolution provisions of Paragraph 31.b (Contesting DTSC Future Response Costs).

7. Commitments by Settling Defendants.

a. Settling Work Defendants shall finance and perform the Work in accordance with this Consent Decree, the SOW, and all work plans and other plans, standards, specifications, and schedules set forth in this Consent Decree or developed by Settling Work Defendants and approved by EPA pursuant to this Consent Decree. Settling Work Defendants shall pay the United States for Past Response Costs and Future Response Costs, and shall pay DTSC for DTSC Past Response Costs and DTSC Future Response Costs, as provided in this Consent Decree.

b. The obligations of Settling Work Defendants to finance and perform the Work, including obligations to pay amounts due under this Consent Decree, are joint and several. In the event of the insolvency of any Settling Work Defendant or the failure by any Settling Work Defendant to implement any requirement of this Consent Decree, the remaining Settling Work Defendants shall complete all such requirements.

c. This Consent Decree does not obligate Settling Work Defendants to provide water from the Work for drinking water use or to perform further analysis of the drinking water end use.

d. The Settling Cash Defendants shall cooperate with the EPA and DTSC and the Settling Work Defendants to effectuate the purposes of this Consent Decree, including, but not limited to, those obligations set forth in Section X (Obligations of Settling Cash Defendants).

8. Compliance With Applicable Law. All activities undertaken by Settling Work Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. Settling Work Defendants must also comply with all applicable or relevant and appropriate requirements of all federal and state environmental laws as set forth in the ROD, applicable to the Work covered in this Consent Decree and

the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be deemed to be consistent with the NCP as provided in Section 300.700(c)(3)(ii) of the NCP.

9. Permits.

a. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work. Where any portion of the Work does require a federal or state permit or approval, Settling Work Defendants shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. The EPA and DTSC agree to cooperate with and assist the Settling Work Defendants in obtaining any necessary permits or approvals.

b. Settling Work Defendants may seek relief under the provisions of Section XIII (Force Majeure) for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval referenced in Paragraph 9.a and required for the Work, provided that they have submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals.

c. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

VI. PERFORMANCE OF THE WORK BY SETTLING WORK DEFENDANTS

10. Coordination and Supervision.

a. Project Coordinators.

(1) Settling Work Defendants' Project Coordinator must have sufficient technical expertise to coordinate the Work. Settling Work Defendants' Project Coordinator may not be an attorney representing any Settling

Work Defendants in this matter and may not act as the Supervising Contractor. Settling Work Defendants' Project Coordinator may assign other representatives, including other contractors, to assist in coordinating the Work.

(2) EPA shall designate and notify the Settling Work Defendants of its Project Coordinator and Alternate Project Coordinator. EPA may designate other representatives, which may include its employees, contractors and/or consultants, to oversee the Work. EPA's Project Coordinator/Alternate Project Coordinator will have the same authority as a remedial project manager and/or an on-scene coordinator, as described in the NCP. This includes the authority to halt or modify the Work, and/or to conduct or direct any necessary response action in response to his or her determination that conditions at the Work Area constitute an emergency or may present an immediate threat to public health or welfare or the environment due to a release or threatened release of Waste Material.

(3) DTSC shall designate and notify EPA and the Settling Work Defendants of its Project Coordinator and Alternate Project Coordinator. DTSC may designate other representatives, including its employees, contractors and/or consultants to oversee the Work. For any in-person meetings and inspections in which EPA's Project Coordinator participates, DTSC's Project Coordinator also may participate. Settling Work Defendants shall notify DTSC reasonably in advance of any such in-person meetings or inspections.

b. Supervising Contractor. Settling Work Defendants' proposed Supervising Contractor must have a quality assurance system that complies with ANSI/ASQC E4-2004, Quality Systems for Environmental Data and Technology Programs: Requirements with Guidance for Use (American National Standard).

c. Procedures for Disapproval/Notice to Proceed.

(1) Settling Work Defendants shall designate, and notify EPA within ten (10) days after the Effective Date, of the name[s], contact

information, and qualifications of the Settling Work Defendants' proposed Project Coordinator. Settling Work Defendants' obligation to designate a Supervising Contractor begins on the due date of the Preliminary Remedial Design Report as defined in the SOW. Settling Work Defendants shall notify EPA of the name, contact information, and qualifications of the Settling Work Defendants' proposed Supervising Contractor on that due date; or earlier, if the Supervising Contractor will be used prior to the completion of the Preliminary Remedial Design Report.

(2) EPA, after a reasonable opportunity for review and comment by DTSC, shall issue notices of disapproval and/or authorizations to proceed regarding the proposed Project Coordinator and Supervising Contractor, as applicable. If EPA issues a notice of disapproval, Settling Work Defendants shall, within thirty (30) days, submit to EPA a list of supplemental proposed Project Coordinators and/or Supervising Contractors, as applicable, including a description of the qualifications of each. EPA shall issue a notice of disapproval or authorization to proceed regarding each supplemental proposed coordinator and/or contractor. Settling Work Defendants may select any coordinator/contractor covered by an authorization to proceed and shall, within twenty-one (21) days, notify EPA of Settling Work Defendants' selection.

(3) Settling Work Defendants may change their Project Coordinator and/or Supervising Contractor, as applicable, by following the procedures of Paragraphs 10.c(1) and 10.c(2).

11. Performance of Work in Accordance with SOW. Settling Work Defendants shall: (a) develop the RD; (b) perform the RA; (c) complete any other obligations prescribed in the SOW; and (d) operate, maintain, and monitor the effectiveness of the RA; all in accordance with the SOW and all EPA-approved, conditionally-approved, or modified deliverables as required by the SOW. All deliverables required to be submitted for approval under the CD or SOW shall be

subject to approval by EPA in accordance with Paragraph 7.6 (Approval of Deliverables) of the SOW.

12. Emergencies and Releases. Settling Work Defendants shall comply with the emergency and release response and reporting requirements under Paragraph 4.4 (Emergency Response and Reporting) of the SOW. Subject to Section XVI (Covenants by Plaintiffs), nothing in this CD, including Paragraph 4.4 of the SOW, limits any authority of Plaintiffs: (a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Work Area, or (b) to direct or order such action, or seek an order from the Court, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Work Area. If, due to Settling Work Defendants' failure to take appropriate response action under Paragraph 4.4 of the SOW, EPA or, as appropriate, DTSC takes such action instead, Settling Work Defendants shall reimburse EPA and DTSC under Section XI (Payments for Response Costs and DTSC Response Costs) for all costs of the response action.

13. Community Involvement. If requested by EPA, Settling Work Defendants shall support community involvement activities under EPA's oversight as provided for in, and in accordance with, the SOW. Such activities may include, but are not limited to, designation of a Community Involvement Coordinator. Costs incurred by the United States under this Section constitute Future Response Costs to be reimbursed under Section XI (Payments for Response Costs and DTSC Response Costs).

14. Modification of SOW or Related Deliverables.

a. If EPA determines that it is necessary to modify the work specified in the SOW and/or in deliverables developed under the SOW in order to achieve and/or maintain the Performance Standards or to carry out and maintain

the effectiveness of the RA, and such modification is consistent with the Scope of the Remedy set forth in Paragraph 1.3 of the SOW, then EPA may notify Settling Work Defendants of such modification. If Settling Work Defendants object to the modification they may, within thirty (30) days after EPA's notification, seek dispute resolution under Section XIV.

b. The SOW and/or related deliverables shall be modified: (1) in accordance with the modification issued by EPA; or (2) if Settling Work Defendants invoke dispute resolution, in accordance with the final resolution of the dispute. The modification shall be incorporated into and enforceable under this CD, and Settling Work Defendants shall implement all work required by such modification. Settling Work Defendants shall incorporate the modification into the deliverable required under the SOW, as appropriate.

c. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions as otherwise provided in this CD.

15. Nothing in this CD, the SOW, or any deliverable required under the SOW constitutes a warranty or representation of any kind by Plaintiffs that compliance with the work requirements set forth in the SOW or related deliverable will achieve the Performance Standards.

VII. REMEDY REVIEW

16. Periodic Review. Settling Work Defendants shall conduct any studies and investigations that EPA requests in order to permit EPA to conduct reviews of whether the Remedial Action is protective of human health and the environment at least every five (5) years as required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations.

VIII. ACCESS

17. If properties in the Work Area, or any other real property where access and/or land/water use restrictions are needed in connection with the Work, are owned or controlled by any of Settling Defendants:

a. such Settling Defendant(s) shall, commencing on the date of lodging of this Consent Decree, upon reasonable notice (generally not less than 48 hours for unoccupied properties), provide the United States and the State, and their representatives, including EPA, DTSC and their contractors, and Settling Work Defendants and their contractors and representatives, with access at all reasonable times to that portion of the Work Area, or such other real property, for the purpose of conducting any activity regarding the Consent Decree including, but not limited to, the following activities:

(1) Monitoring the Work;

(2) Verifying any data or information submitted to the United States or DTSC;

(3) Conducting investigations pursuant to the SOW regarding contamination at or near the Work Area;

(4) Obtaining samples pursuant to the SOW;

(5) Assessing the need for, planning, or implementing additional response actions at or near the Work Area consistent with the terms of this Consent Decree and in a manner intended to minimize disruption to the ongoing conduct of any business on such property;

(6) Assessing implementation of quality assurance and quality control practices as defined in the approved CQA Plan;

(7) Implementing the Work pursuant to the conditions set forth in Paragraph 63 (Work Takeover);

(8) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, consistent with Section XIX (Access to Information);

(9) Assessing Settling Defendants' compliance with the Consent Decree; and

(10) Determining whether the property in the Work Area or such other real property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted, under the Consent Decree; and

b. commencing on the date of lodging of the Consent Decree, such Settling Defendant(s) shall not use property within the Work Area, or such other real property, in any manner that EPA or DTSC determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material, or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action or O&M.

18. If property at the Work Area, or any other real property where access is needed in connection with the Work, is owned or controlled by persons other than any Settling Defendant:

a. Settling Work Defendants shall use best efforts to secure from such persons:

(1) an agreement to provide access thereto for the United States, DTSC, and Settling Work Defendants, and their representatives, contractors, and subcontractors, to conduct any activity regarding the Consent Decree including, but not limited to, the activities listed in Paragraph 17.a; and

(2) if EPA so requests, an agreement, enforceable by Settling Work Defendants, the United States, and DTSC, (i) to provide the access described in Paragraph 17.a, and (ii) to refrain from using such property in any manner that EPA or DTSC determines will pose an unacceptable risk to human health or to the

environment due to exposure to Waste Material, or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action.

b. All other obligations on the part of Settling Work Defendants to implement Institutional Controls in the Work Area shall be set forth in the Institutional Control Implementation and Assurance Plan ("ICIAP") consistent with Paragraph 7.7(h) of the SOW.

19. For purposes of Paragraph 18.a, "best efforts" includes the offer of payment of commercially reasonable sums of money to obtain access. However, in no event shall Settling Work Defendants be required to pay money to secure an agreement to refrain from using property as described in Paragraph 18.a.(2)(ii), to any party to whom EPA has sent a General Notice Letter or Special Notice Letter regarding OU2. If, within forty-five (45) days after the Preliminary Remedial Design is approved, unless the Parties agree to a different time frame, Settling Work Defendants have not obtained agreements as required by Paragraph 18.a(1) or 18.a.(2), Settling Work Defendants shall promptly notify the United States in writing, and shall include in that notification a summary of the steps that Settling Work Defendants have taken to attempt to comply with Paragraph 18. The United States or DTSC may, as they deem appropriate, assist Settling Work Defendants in obtaining such agreements. Settling Work Defendants shall reimburse the United States and DTSC under Section XI (Payments for Response Costs and DTSC Response Costs) for all costs incurred, direct or indirect, by the United States and DTSC in obtaining such agreements, including, but not limited to, the cost of attorney time and the amount of monetary consideration paid or just compensation.

20. Notwithstanding any provision of the Consent Decree, the United States and DTSC retain all of their access authorities and rights, as well as all of their rights to require Institutional Controls, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

IX. PERFORMANCE GUARANTEE

21. In order to ensure the full and final completion of the Work, Settling Work Defendants shall establish and maintain a performance guarantee, initially in the amount of seventy million dollars ($70,000,000), for the benefit of EPA (hereinafter "Estimated Cost of the Work"). If the Settling Work Defendants use the mechanisms described in Subparagraphs 21.a., 21.b., 21.c, or 21.d., the Performance Guarantee may be allocated among the Settling Work Defendants as the Settling Work Defendants agree among themselves so long as the aggregated total equals seventy million dollars ($70,000,000). The performance guarantee must be one or more of the mechanisms listed below and, if applicable, in a form substantially identical to the relevant sample documents available from the "Financial Assurance" category on the Cleanup Enforcement Model Language and Sample Documents Database at http://cfpub.epa.gov/compliance/models/, and satisfactory to EPA. If a Settling Work Defendant intends to use multiple mechanisms, such multiple mechanisms shall be limited to surety bonds guaranteeing payment, letters of credit, trust funds, and insurance policies.

a. A surety bond unconditionally guaranteeing payment and/or performance of the Work that is issued by a surety company among those listed as acceptable sureties on federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury;

b. One or more irrevocable letters of credit, payable to or at the direction of EPA, that is issued by one or more financial institution(s) (1) that has the authority to issue letters of credit and (2) whose letter-of-credit operations are regulated and examined by a federal or state agency;

c. A trust fund established for the benefit of EPA that is administered by a trustee (1) that has the authority to act as a trustee and (2) whose trust operations are regulated and examined by a federal or state agency;

d. A policy of insurance that (1) provides EPA with acceptable rights as a beneficiary thereof; and (2) is issued by an insurance carrier (i) that has the authority to issue insurance policies in the applicable jurisdiction(s) and (ii) whose insurance operations are regulated and examined by a federal or state agency;

e. A demonstration by one or more Settling Work Defendants that each such Settling Work Defendant meets the relevant financial test criteria of 40 C.F.R. § 264.143(f) and reporting requirements of this Section with respect to the Estimated Cost of the Work (plus the amount(s) of any other federal or any state environmental obligations financially assured through the use of a financial test or guarantee). Such demonstration shall be made in accordance with the requirements of 40 C.F.R. § 264.143(f)(3);

f. A demonstration by one or more Settling Work Defendants, but in no event more than three Settling Work Defendants, that each such Settling Work Defendant meets the relevant financial test criteria of 40 C.F.R. § 264.143(f)(1)(i) or (ii), and the reporting requirements of this Section with respect to the Estimated Cost of the Work (plus the amount(s) of any other federal or any state environmental obligations financially assured through the use of a financial test or guarantee). The demonstration shall be made by:

(i) submission of each such Settling Work Defendant's independently audited financial statements (*e.g.*, a 10-K report submitted to the Securities and Exchange Commission), including a letter signed by that Settling Work Defendant's chief financial officer certifying the integrity and accuracy of the financial data, as required pursuant to the Sarbanes-Oxley Act of 2002, 15 U.S.C. § 7241, and certifying that such Settling Work Defendant meets the criteria of 40 C.F.R. § 264.143(f)(1)(i) or (ii), and including a copy of the independent certified public accountant's report on examination of such Settling Work Defendant's financial statements for the latest completed fiscal year; and

(ii) if a Settling Work Defendant applies the criteria of 40 C.F.R. § 264.143(f)(1)(ii), a report, including a printout from ratings available online, from the Standard and Poor's or Moody's ratings services indicating the current bond rating for that Settling Work Defendant.

The foregoing demonstration requirements are in lieu of the requirements of 40 C.F.R. § 264.143(f)(3). The use of the demonstration methods described in this Subparagraph 21.f.(i) and 21.f.(ii) is a permissible option for this Consent Decree only because it was used in the previous consent decree filed on October 6, 2010 (docket 2:10-cv-05051-TJH-PLA), relating to OU1 work at this Site; or

g. A written guarantee to fund or perform the Work executed in favor of EPA by one or more of the following: (1) a direct or indirect parent company of a Settling Work Defendant, or (2) a company that has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with at least one Settling Work Defendant; provided, however, that any company providing such a guarantee must demonstrate to the satisfaction of EPA that it satisfies the relevant financial test criteria of 40 C.F.R. § 264.143(f) and reporting requirements of this Section with respect to the Estimated Cost of the Work (plus the amount(s) of any other federal or any state environmental obligations financially assured through the use of a financial test or guarantee) that it proposes to guarantee hereunder.

22. Settling Work Defendants have selected, and EPA has found satisfactory, as an initial performance guarantee a demonstration pursuant to Paragraph 21.f, in the form attached hereto as Appendix H. Within thirty (30) days after the Effective Date, Settling Work Defendants shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the form of performance guarantee attached as Appendix H, and shall submit such mechanisms and documents to the EPA Regional Financial Management Officer in accordance with Section XXI (Notices and Submissions), with copies to the United States, EPA, and DTSC as specified in Section XXI.

23. If, at any time after the Effective Date and before EPA's issuance of the Certification of Work Completion pursuant to Paragraph 4.7 of the SOW, Settling Work Defendants provide a performance guarantee for completion of the Work by means of a demonstration or guarantee pursuant to Paragraph 21.e, 21.f, or 21.g, the relevant Settling Work Defendants shall also comply with the other relevant requirements of 40 C.F.R. § 264.143(f) and this Section, including but not limited to:

a. the initial submission to EPA of required financial reports and statements from the relevant entity's chief financial officer ("CFO") and independent certified public accountant ("CPA") no later than thirty (30) days after the Effective Date, in the form prescribed by EPA in its financial test sample CFO letters and CPA reports available at: http://cfpub.epa.gov/compliance/models/view.cfm?model_ID=573, or in the form prescribed in Appendix H (CERCLA Performance Guarantee Sample Letter), as applicable;

b. the annual resubmission of such reports and statements within ninety (90) days after the close of each such entity's fiscal year; and

c. the prompt notification of EPA and DTSC after each such entity determines that it no longer satisfies the financial test criteria and requirements set forth at 40 C.F.R. § 264.143(f)(1) and in any event within ninety (90) days after the close of any fiscal year in which such entity no longer satisfies such financial test requirements. For purposes of the performance guarantee mechanisms specified in this Section IX, references in 40 C.F.R. Part 264, Subpart H, to "closure," "post-closure," and "plugging and abandonment" shall be deemed to include the Work; the terms "current closure cost estimate," "current post-closure cost estimate," and "current plugging and abandonment cost estimate" shall be deemed to include the Estimated Cost of the Work; the terms "owner" and "operator" shall be deemed to refer to each Settling Work Defendant making a

demonstration or obtaining a guarantee under Paragraph 21.e, 21.f, or 21.g; and the terms "facility" and "hazardous waste facility" shall be deemed to include the Work Area.

24. In the event that EPA determines at any time that a performance guarantee provided by any Settling Work Defendant pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, or in the event that any Settling Work Defendant becomes aware of information indicating that a performance guarantee provided pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, Settling Work Defendants, within thirty (30) days after receipt of notice of EPA's determination or, as the case may be, within thirty (30) days after any Settling Work Defendant becoming aware of such information, shall obtain and present to EPA for approval a proposal for a revised or alternative form of performance guarantee listed in Paragraph 21 that satisfies all requirements set forth in this Section IX; provided, however, that if any Settling Work Defendant cannot obtain such revised or alternative form of performance guarantee within such 30-day period, and provided further that the Settling Work Defendant shall have commenced to obtain such revised or alternative form of performance guarantee within such 30-day period, and thereafter diligently proceeds to obtain the same, EPA shall extend such period for such time as is reasonably necessary for the Settling Work Defendant in the exercise of due diligence to obtain such revised or alternative form of performance guarantee, such additional period not to exceed sixty (60) days. On day 30, Settling Work Defendants shall provide to EPA and DTSC a status report on its efforts to obtain the revised or alternative form of guarantee. In seeking approval for a revised or alternative form of performance guarantee, Settling Work Defendants shall follow

the procedures set forth in Paragraph 26.b(2). Settling Work Defendants' inability to post a performance guarantee for completion of the Work shall in no way excuse performance of any other requirements of this Consent Decree, including, without limitation, the obligation of Settling Work Defendants to complete the Work in strict accordance with the terms of this Consent Decree.

25. Funding for Work Takeover. The commencement of any Work Takeover pursuant to Paragraph 63 shall trigger EPA's right to receive the benefit of any performance guarantee(s) provided pursuant to Paragraphs 21.a, 21.b, 21.c, or 21.d, and at such time EPA shall have immediate access to resources guaranteed under any performance guarantee(s) provided pursuant to Paragraphs 21.a, 21.b, 21.c, or 21.d, whether in cash or in kind, as needed to continue and complete the Work assumed by EPA under the Work Takeover. Upon the commencement of any Work Takeover, if (a) for any reason EPA is unable to promptly secure the resources guaranteed under any such performance guarantee(s), whether in cash or in kind, necessary to continue and complete the Work assumed by EPA under the Work Takeover, or (b) in the event that the performance guarantee involves a demonstration of satisfaction of the financial test criteria pursuant to Paragraph 21.e, 21.f, or 21.g, Settling Work Defendants (or in the case of Paragraph 21.g, the guarantor) shall promptly upon written demand from EPA deposit into a special account within the EPA Hazardous Substance Superfund or such other account as EPA may specify, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount up to but not exceeding the estimated cost of completing the Work as of such date, as determined by EPA. In addition, if at any time EPA is notified by the issuer of a performance guarantee that such issuer intends to cancel the performance guarantee mechanism it has issued, then, unless Settling Work Defendants provide a substitute performance guarantee mechanism in accordance with this Section IX no later than thirty (30) days prior to the impending cancellation date, EPA shall be entitled (as of and after the date that is

thirty (30) days prior to the impending cancellation) to draw fully on the funds guaranteed under the then-existing performance guarantee. All EPA Work Takeover costs not reimbursed under this Paragraph shall be reimbursed under Section XI (Payments for Response Costs and DTSC Response Costs).

26. Modification of Amount and/or Form of Performance Guarantee.

a. Reduction of Amount of Performance Guarantee. If Settling Work Defendants believe that the estimated cost of completing the Work has diminished below the amount set forth in Paragraph 21, Settling Work Defendants may, on any anniversary of the Effective Date, or at any other time agreed to by the Parties, petition EPA in writing to request a reduction in the amount of the performance guarantee provided pursuant to this Section so that the amount of the performance guarantee is equal to the estimated cost of completing the Work. Settling Work Defendants shall submit a written proposal for such reduction to EPA that shall specify, at a minimum, the estimated cost of completing the Work and the basis upon which such cost was calculated. In seeking approval for a reduction in the amount of the performance guarantee, Settling Work Defendants shall follow the procedures set forth in Paragraph 26.b(2) for requesting a revised or alternative form of performance guarantee, except as specifically provided in this Paragraph 26.a. If EPA decides to accept Settling Work Defendants' proposal for a reduction in the amount of the performance guarantee either to the amount set forth in Settling Work Defendants' written proposal or to some other amount as selected by EPA, EPA will notify the petitioning Settling Work Defendants of such decision in writing. Upon EPA's acceptance of a reduction in the amount of the performance guarantee, the Estimated Cost of the Work shall be deemed to be the estimated cost of completing the Work set forth in EPA's written decision. After receiving EPA's written decision, Settling Work Defendants may reduce the amount of the performance guarantee in accordance with and to the extent permitted by such written acceptance and shall submit copies of all executed

and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding in accordance with Paragraph 26.b(2). In the event of a dispute, Settling Work Defendants may reduce the amount of the performance guarantee required hereunder only in accordance with a final administrative or judicial decision resolving such dispute pursuant to Section XIV (Dispute Resolution). No change to the form or terms of any performance guarantee provided under this Section, other than a reduction in amount, is authorized except as provided in Paragraphs 24 or 26.b.

b. Change of Form of Performance Guarantee.

(1) If, after the Effective Date, Settling Work Defendants desire to change the form or terms of any performance guarantee(s) provided pursuant to this Section, Settling Work Defendants may, on any anniversary of the Effective Date, or at any other time agreed to by the Parties, petition EPA in writing to request a change in the form or terms of the performance guarantee provided hereunder. The submission of such proposed revised or alternative performance guarantee shall be as provided in Paragraph 26.b(2). Any decision made by EPA on a petition submitted under this Paragraph shall be made in EPA's sole and unreviewable discretion, and such decision shall not be subject to challenge by Settling Work Defendants pursuant to the dispute resolution provisions of this Consent Decree or in any other forum.

(2) Settling Work Defendants shall submit a written proposal for a revised or alternative performance guarantee to EPA that shall specify, at a minimum, the estimated cost of completing the Work, the basis upon which such cost was calculated, and the proposed revised performance guarantee, including all proposed instruments or other documents required in order to make the proposed performance guarantee legally binding. The proposed revised or alternative performance guarantee must satisfy all requirements set forth or incorporated by reference in this Section. Settling Work Defendants shall submit such proposed

revised or alternative performance guarantee to the EPA Regional Financial Management Officer in accordance with Section XXI (Notices and Submissions). EPA will notify DTSC and Settling Work Defendants in writing of its decision to accept or reject a revised or alternative performance guarantee submitted pursuant to this Paragraph. Settling Work Defendants shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding to the EPA Regional Financial Management Officer within thirty (30) days after receiving a written decision approving the proposed revised or alternative performance guarantee in accordance with Section XXI (Notices and Submissions) and to the United States, EPA, and DTSC, as specified in Section XXI.

c. Release of Performance Guarantee. Settling Work Defendants shall not release, cancel, or discontinue any performance guarantee provided pursuant to this Section except as provided in this Paragraph. If Settling Work Defendants receive written notice from EPA in accordance with Paragraph 4.7 of the SOW that the Work has been fully and finally completed in accordance with the terms of this Consent Decree and the SOW, or if EPA otherwise so notifies Settling Work Defendants in writing, Settling Work Defendants may thereafter release, cancel, or discontinue the performance guarantee(s) provided pursuant to this Section. In the event of a dispute, Settling Work Defendants may release, cancel, or discontinue the performance guarantee(s) required hereunder only in accordance with a final administrative or judicial decision resolving such dispute pursuant to Section XIV (Dispute Resolution).

X. OBLIGATIONS OF SETTLING CASH DEFENDANTS

27. Obligations.

a. No later than thirty (30) days following the Effective Date of this Consent Decree, all funds to be paid by or on behalf of each Settling Cash Defendant shall be deposited into one or more Qualified Settlement Funds under

Treas. Reg. §1.468(b) and Treas. Reg. §301.7701-4(e) or such other funding mechanism established and designated by mutual agreement of the Settling Work Defendants, in contribution toward the Work, toward payment of Past Response Costs, DTSC Past Response Costs, Future Response Costs, and DTSC Future Response Costs, and fulfilling legal obligations related to the Work and implementation of this Consent Decree. Each Settling Cash Defendant's obligations under this Consent Decree shall be limited to its obligations under Section VIII (Access), Section XVII (Covenants by Settling Defendants), Section XX (Retention of Records), and the payment of its requisite amount as agreed to by the Settling Cash Defendants. No Settling Cash Defendant shall be responsible for any payment required of any other party. The name of each Settling Cash Defendant shall be submitted by the Settling Work Defendants to the United States as provided in Section XXI (Notices and Submissions) upon execution of the Consent Decree. The name of each Settling Cash Defendant at the time of lodging is appended as Appendix D to this Consent Decree.

b. The failure of any Settling Cash Defendant to satisfy its payment obligation pursuant to this Paragraph shall not defer the obligations of the Settling Work Defendants under this Consent Decree.

c. Each Settling Cash Defendant shall cooperate with the other Settling Defendants in good faith to effect the obligations and provisions set forth in this Consent Decree.

XI. PAYMENTS FOR RESPONSE COSTS AND DTSC RESPONSE COSTS

28. Payments for Past Response Costs and DTSC Past Response Costs.

a. Within thirty (30) days after the Effective Date, Settling Work Defendants shall pay to EPA EIGHT MILLION DOLLARS ($8,000,000) in payment for Past Response Costs, and pay to DTSC SEVENTY THOUSAND DOLLARS ($70,000), in payment for DTSC Past Response Costs. Payment shall be made in accordance with Paragraphs 30.a, 30.c and 30.d.

b. Deposit of Past Response Costs Payments. The total amount to be paid by Settling Work Defendants to EPA pursuant to Paragraph 28.a shall be deposited by EPA in the Site Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

29. Payments for Future Response Costs and DTSC Future Response Costs. Settling Work Defendants shall pay to EPA all Future Response Costs and to DTSC all DTSC Future Response Costs not inconsistent with the NCP.

a. Billing. On a periodic basis, EPA will send Settling Work Defendants a bill requiring payment, with a copy to the United States Department of Justice at the address listed below in Paragraph 92 (referencing Department of Justice Number 90-11-3-06529/10), that includes an EPA cost summary, which includes direct and indirect costs incurred by EPA and its contractors. EPA shall use its best efforts to submit bills requiring payment no less often than annually. Failure by EPA to submit annual bills shall not affect the United States' right to reimbursement under this Consent Decree. Upon request, EPA will provide the same level of supporting documentation that EPA currently provides in connection with bills regarding the consent decree filed on October 6, 2010 (docket 2:10-cv-05051-TJH-PLA), relating to OU1 work. Settling Work Defendants shall make all payments of Future Response Costs within forty-five (45) days of Settling Work Defendants' receipt of each bill requiring payment, or as otherwise agreed in writing by EPA with written confirmation provided to DOJ, except as otherwise provided in Paragraph 31, in accordance with Paragraphs 30.b and 30.c (Instructions for Future Response Cost Payments; Instructions for All Payments to EPA). On a periodic basis, DTSC will send Settling Work Defendants a similar bill requiring payment of DTSC Future Response Costs, that includes a DTSC cost summary, which includes direct and indirect costs incurred by DTSC and its contractors. DTSC shall use its best efforts to submit bills requiring payment no

less often than quarterly. Failure by DTSC to submit quarterly bills shall not affect the DTSC's right to reimbursement under this Consent Decree. Settling Work Defendants shall make all payments of DTSC Future Response Costs within sixty (60) days after the date of the billing, except as otherwise provided in Paragraph 31, in accordance with Paragraph 30.d (Instructions for All Payments to DTSC).

b. Deposit of Future Response Costs Payments. The total amount to be paid by Settling Work Defendants to EPA pursuant to Paragraph 29.a shall be deposited by EPA in the Site Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

30. Payment Instructions.

a. Instructions for Past Response Costs Payments. All payments required elsewhere in this Consent Decree to be made to EPA in accordance with this Paragraph 30.a, shall be made in accordance with instructions that will be provided to Settling Work Defendants by the Financial Litigation Unit ("FLU") of the United States Attorney's Office for the Central District of California after the Effective Date. The payment instructions provided by the FLU shall include a Consolidated Debt Collection System ("CDCS") number, which shall be used to identify all payments required to be made in accordance with this Consent Decree. The FLU shall provide the payment instructions to Settling Work Defendants in accordance with Section XXI (Notices and Submissions). Settling Work Defendants may change the individual to receive payment instructions on their behalf by providing written notice of such change in accordance with Section XXI (Notices and Submissions). When making payments under this Paragraph 30.a, Settling Work Defendants shall also comply with Paragraph 30.c.

b. Instructions for Future Response Costs Payments and Stipulated Penalties. All payments required elsewhere in this Consent Decree to be made to

EPA in accordance with this Paragraph 30.b shall be made in accordance with instructions to be provided by EPA following lodging of the Consent Decree, and shall be identified as "future response costs payments" or "stipulated penalties" as applicable. All payments required to be made under this Paragraph shall reference the EPA Site/Spill ID Number 09BC and DOJ Case Number 90-11-3-06529/10. At the time of payment required to be made in accordance with Paragraph 30.a or 30.b, Settling Defendants shall also comply with Paragraph 30.c.

c. Instructions for All Payments to EPA. All payments made to EPA under Paragraphs 30.a (Instructions for Past Response Cost Payments) or 30.b (Instructions for Future Response Cost Payments) shall reference the CDCS Number that will be provided by the FLU as described in Paragraph 30.a, EPA Site/Spill ID Number 09BC and DOJ Case Number 90-11-3-06529/10. At the time of any payment required to be made in accordance with Paragraphs 30.a or 30.b, Settling Work Defendants shall send notice that payment has been made to the United States, to EPA and to the Regional Financial Management Officer, in accordance with Section XXI (Notices and Submissions), and to the EPA Cincinnati Finance Office by email at cinwd_acctsreceivable@epa.gov, or by mail at 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268. Such notice shall also reference the CDCS Number, Site/Spill ID Number, and DOJ Case Number.

d. Instructions for All Payments to DTSC. All payments to DTSC made under this Consent Decree shall reference Site Code Number 300223-00. DTSC will bill Settling Work Defendants quarterly for DTSC Future Response Costs. Settling Work Defendants shall make all payments to DTSC that are required pursuant to this Consent Decree in the form of a check or checks made payable to the Department of Toxic Substances Control, Accounting Office/Cashier, 1001 I Street, 21st Floor, P.O. Box 806, Sacramento, California 95812-0806, or as DTSC subsequently notifies Settling Work Defendants in a bill or in accordance with Section XXI (Notices and Submissions). A photocopy of

each check shall also be sent to DTSC's Project Coordinator designated under Paragraph 10.a.

31. Contesting Future Response Costs and DTSC Future Response Costs.

a. Contesting Future Response Costs. If Settling Work Defendants dispute a Future Response Costs billing, or any part thereof, Settling Work Defendants shall notify EPA's Project Coordinator and attempt to informally resolve the dispute with EPA's Project Coordinator. Settling Work Defendants may submit a Notice of Dispute, initiating the procedures of Section XIV (Dispute Resolution), regarding any Future Response Costs billed under Paragraph 29 (Payments for Future Response Costs and DTSC Future Response Costs) if they determine that EPA has made a mathematical error or included a cost item that is not within the definition of Future Response Costs, or if they believe EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP. Such Notice of Dispute shall be submitted in writing within thirty (30) days after receipt of the bill and must be sent to the United States pursuant to Section XXI (Notices and Submissions). Such Notice of Dispute shall specifically identify the contested Future Response Costs and the basis for objection. If Settling Work Defendants submit a Notice of Dispute, Settling Work Defendants shall pay all uncontested Future Response Costs to the United States within thirty (30) days after Settling Work Defendants' receipt of the bill requiring payment. Simultaneously, Settling Work Defendants shall establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation ("FDIC"), and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Settling Work Defendants shall send to the United States, as provided in Section XXI (Notices and Submissions), a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not

limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. If the United States prevails in the dispute, Settling Work Defendants shall pay the sums due (with accrued Interest) to the United States within seven (7) days after the resolution of the dispute. If Settling Work Defendants prevail concerning any aspect of the contested costs, Settling Work Defendants shall pay that portion of the costs (plus associated accrued Interest) for which they did not prevail to the United States within seven (7) days after the resolution of the dispute. Settling Work Defendants shall be disbursed any balance of the escrow account. All payments to the United States under this Paragraph shall be made in accordance with Paragraph 30.b (Instructions for Future Response Costs Payments and Stipulated Penalties). The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIV (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Settling Work Defendants' obligation to reimburse the United States for its Future Response Costs.

b. Contesting DTSC Future Response Costs. If Settling Work Defendants dispute a DTSC billing, or any part thereof, Settling Work Defendants shall notify DTSC's Project Coordinator and attempt to informally resolve the dispute with DTSC's Project Coordinator. If Settling Work Defendants desire to formally request dispute resolution with regard to the billing, Settling Work Defendants shall file a request for dispute resolution in writing within forty-five (45) days of the date of the billing in dispute. The written request shall describe all issues in dispute and shall set forth the reasons for the dispute, both factual and legal. If the dispute pertains only to a portion of the costs included in the invoice, Settling Work Defendants shall pay all costs which are undisputed in accordance with Paragraph 30.d. The filing of a written request for dispute resolution pursuant

to this Paragraph shall not stay the accrual of Interest on any unpaid costs pending resolution of the dispute. The written request shall be sent to:

Chief, Collections and Resolution Unit
Department of Toxic Substances Control
1001 I Street, 21st Floor
P.O. Box 806
Sacramento, CA 95812-0806

A copy of the written request for dispute resolution shall also be sent to the person designated by DTSC to receive submittals under this Consent Decree. A decision on the billing dispute will be rendered by the Chief of the Collections and Resolution Unit or other DTSC designee.

32. Interest. In the event that any payment for Past Response Costs, for DTSC Past Response Costs, for Future Response Costs, or for DTSC Future Response Costs required under this Section is not made by the date required, Settling Work Defendants shall pay Interest on the unpaid balance. The Interest to be paid on Past Response Costs or DTSC Past Response Costs under this Paragraph shall begin to accrue on the Effective Date. The Interest on Future Response Costs shall begin to accrue on the date of receipt of the bill. The Interest shall accrue through the date of Settling Work Defendants' payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of Settling Work Defendants' failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to Paragraphs 48-50. Any billing by DTSC not paid within sixty (60) days is subject to Interest calculated from the date of the billing pursuant to California Health and Safety Code section 25360.1.

XII. INDEMNIFICATION AND INSURANCE

33. Settling Defendants' Indemnification of the United States and DTSC.

a. The United States and DTSC do not assume any liability by entering into this Consent Decree or by virtue of any designation of Settling Work Defendants as EPA's authorized representatives under Section 104(e) of CERCLA,

42 U.S.C. § 9604(e). Settling Work Defendants shall indemnify, save and hold harmless the United States, DTSC, and their officials, agents, employees, contractors, subcontractors, and representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Settling Work Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of Settling Work Defendants as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Further, Settling Work Defendants agree to pay the United States and DTSC all costs they incur including, but not limited to, attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or DTSC based on negligent or other wrongful acts or omissions of Settling Work Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree. Neither the United States nor DTSC shall be held out as a party to any contract entered into by or on behalf of Settling Work Defendants in carrying out activities pursuant to this Consent Decree. Neither Settling Work Defendants nor any such contractor shall be considered an agent of the United States or DTSC.

b. The United States and DTSC shall give Settling Work Defendants notice of any claim for which the United States or DTSC plans to seek indemnification pursuant to this Paragraph 33, and shall consult with Settling Work Defendants prior to settling such claim.

34. Settling Defendants covenant not to sue and agree not to assert any claims or causes of action against the United States or DTSC for damages or reimbursement or for set-off of any payments made or to be made to the United States or DTSC, arising from or on account of any contract, agreement, or

arrangement between any one or more of Settling Defendants and any person for performance of Work on or relating to the Work Area, including, but not limited to, claims on account of construction delays. In addition, Settling Work Defendants shall indemnify and hold harmless the United States and DTSC with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Work Defendants and any person for performance of Work on or relating to the Work Area, including, but not limited to, claims on account of construction delays.

35. Settling Work Defendants' Insurance Obligations. No later than fifteen (15) days before commencing any field Work that occurs after the Effective Date, Settling Work Defendants shall collectively secure, and shall maintain until the first anniversary after issuance of EPA's Certification of Work Completion pursuant to Paragraph 4.7 of the SOW, commercial general liability insurance with limits of five million dollars ($5,000,000) for any one occurrence, and automobile liability insurance with limits of five million dollars ($5,000,000), combined single limit, naming the United States and DTSC as additional insureds with respect to all liability arising out of the activities performed by or on behalf of Settling Work Defendants pursuant to this Consent Decree. In addition, for the duration of this Consent Decree, Settling Work Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Settling Work Defendants in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, Settling Work Defendants shall provide to EPA and DTSC certificates of such insurance and a copy of each insurance policy. Settling Work Defendants shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. If Settling Work Defendants demonstrate by evidence satisfactory

to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Work Defendants need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor.

XIII. FORCE MAJEURE

36. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Settling Work Defendants, of any entity controlled by Settling Work Defendants, or of Settling Work Defendants' contractors that delays or prevents the performance of any obligation under this Consent Decree despite Settling Work Defendants' best efforts to fulfill the obligation. The requirement that Settling Work Defendants exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure such that the delay is minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the Work or a failure to achieve the Performance Standards.

37. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree for which Settling Work Defendants intend or may intend to assert a claim of force majeure, Settling Work Defendants shall notify EPA's Project Coordinator orally or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Superfund Division, EPA Region 9, within three (3) working days of when Settling Work Defendants first knew that the event might cause a delay. Settling Work Defendants shall also notify the DTSC Project Coordinator as soon as practicable. Within five (5) working days thereafter, Settling Work Defendants shall provide in writing to EPA

and DTSC an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Settling Work Defendants' rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of Settling Work Defendants, such event may cause or contribute to an endangerment to public health or welfare, or the environment. Settling Work Defendants shall include with any notice all available documentation supporting their claim that the delay was attributable to a force majeure. Settling Work Defendants shall be deemed to know of any circumstance of which Settling Work Defendants, any entity controlled by Settling Work Defendants, or Settling Work Defendants' contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Settling Work Defendants from asserting any claim of force majeure regarding that event for the period of time of such failure to provide notice and for any additional delay caused by such failure, provided, however, that if EPA, despite the late or incomplete notice, is able to assess to its satisfaction whether the event is a force majeure under Paragraph 36 and whether Settling Work Defendants have exercised their best efforts under Paragraph 36, EPA may, in its unreviewable discretion, excuse in writing Settling Work Defendants' failure to submit timely or complete notices under this Paragraph.

38. If EPA, after a reasonable opportunity for review and comment by DTSC, agrees that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this Consent Decree that are affected by the force majeure will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or

anticipated delay has been or will be caused by a force majeure, EPA will notify Settling Work Defendants and DTSC in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify Settling Work Defendants and DTSC in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

39. If Settling Work Defendants elect to invoke the dispute resolution procedures set forth in Section XIV (Dispute Resolution), they shall do so no later than fifteen (15) days after receipt of EPA's notice. In any such proceeding, Settling Work Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Work Defendants complied with the requirements of Paragraphs 36 and 37. If Settling Work Defendants carry this burden, the delay at issue shall be deemed not to be a violation by Settling Work Defendants of the affected obligation of this Consent Decree identified to EPA and the Court.

40. The failure of EPA to timely complete any obligation under the Consent Decree, or any plan, report, or other deliverable approved by EPA under the Consent Decree, is not a violation of the Consent Decree, provided, however, that if such failure prevents Settling Work Defendants from meeting one or more deadlines established by or approved under the Consent Decree, Settling Work Defendants may seek relief under this Section.

XIV. DISPUTE RESOLUTION

41. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes regarding this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States or DTSC to enforce

obligations of Settling Work Defendants that have not been disputed in accordance with this Section.

42. A dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute. Any dispute regarding this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed thirty (30) days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. During informal negotiations, EPA shall provide DTSC a reasonable opportunity for review and comment on the dispute.

43. Statements of Position.

a. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless, within thirty (30) days after the conclusion of the informal negotiation period, Settling Work Defendants invoke the formal dispute resolution procedures of this Section by serving on the United States and DTSC a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by Settling Work Defendants. The Statement of Position shall specify Settling Work Defendants' position as to whether formal dispute resolution should proceed under Paragraph 44 (Record Review) or Paragraph 45.

b. Within thirty (30) days after receipt of Settling Work Defendants' Statement of Position, EPA will serve on Settling Work Defendants its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 44 (Record Review) or

Paragraph 45. Within fourteen (14) days after receipt of EPA's Statement of Position, Settling Work Defendants may submit a Reply.

c. If there is disagreement between EPA and Settling Work Defendants as to whether dispute resolution should proceed under Paragraph 44 (Record Review) or Paragraph 45, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if Settling Work Defendants ultimately appeal to the Court to resolve the dispute, the Court shall determine which paragraph is applicable in accordance with the standards of applicability set forth in Paragraphs 44 and 45.

44. Record Review. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation, the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree, and the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Work Defendants regarding the validity of the ROD's provisions.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this Section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

b. The Director of the Superfund Division, EPA Region 9, will issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 44.a. This decision shall be binding

upon Settling Work Defendants, subject only to the right to seek judicial review pursuant to Paragraphs 44.c and 44.d.

c. Any administrative decision made by EPA pursuant to Paragraph 44.b shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by Settling Work Defendants with the Court and served on all Parties within thirty (30) days after receipt of EPA's decision. The motion shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Settling Work Defendants' motion.

d. In proceedings on any dispute governed by this Paragraph, Settling Work Defendants shall have the burden of demonstrating that the decision of the Superfund Division Director is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to Paragraph 44.a.

45. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this Paragraph.

a. The Director of the Superfund Division, EPA Region 9, will issue a final decision resolving the dispute based on the statements of position and reply, if any, served under Paragraph 43. The Superfund Division Director's decision shall be binding on Settling Work Defendants unless, within thirty (30) days after receipt of the decision, Settling Work Defendants file with the Court and serve on the parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure

orderly implementation of the Consent Decree. The United States may file a response to Settling Work Defendants' motion.

b. Notwithstanding Paragraph I.N of Section I (Background), judicial review of any dispute governed by this Paragraph shall be governed by applicable principles of law.

46. The invocation of formal dispute resolution procedures under this Section does not extend, postpone, or affect in any way any obligation of Settling Work Defendants under this Consent Decree, not directly in dispute, except as provided in Paragraph 31 (Contesting Future Response Costs and DTSC Future Response Costs), as agreed by EPA, or as determined by the Court. Stipulated penalties with respect to the disputed matter shall continue to accrue as applicable but payment shall be stayed pending resolution of the dispute as provided in Paragraph 54. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that Settling Work Defendants do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XV (Stipulated Penalties).

XV. STIPULATED PENALTIES

47. Settling Work Defendants shall be liable for stipulated penalties in the amounts set forth in Paragraphs 48, 49, and 50 to the United States for failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XIII (Force Majeure). "Compliance" by Settling Work Defendants shall include completion of all payments and activities required under this Consent Decree, or any plan, report, or other deliverable approved under this Consent Decree, in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any plans, reports, or other deliverables approved under this Consent Decree and within the specified time schedules established by and approved under this Consent Decree.

48. Stipulated Penalty Amounts – Work, Financial Assurance, and Payments.

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 48.b:

Penalty Per Violation Per Day	Period of Noncompliance
$2,500	1st through 14th day
$5,000	15th through 30th day
$10,000	31st day and beyond

b. Compliance Milestones.

(1) Failure to comply with the following Work schedule milestones:

a) Pre-Design Investigation

b) Start of RA Implementation

c) Completion of all outstanding construction items identified in the Pre-final Inspection

(2) Failure to establish and maintain financial assurance in compliance with the timelines and other substantive and procedural requirements of Section IX (Performance Guarantee).

c. The following stipulated penalties shall accrue per violation per day for failure to comply with the requirements of Paragraph 48.d. below:

Penalty Per Violation Per Day	Period of Noncompliance
$1,000	1st through 14th day
$2,500	15th through 30th day
$7,500	31st day and beyond

d. Compliance Milestones.

(1) Failure to comply with the following Work schedule milestones: all Work schedule milestones listed in Section 8 of the SOW that are not described in Paragraph 48.b.(1) above.

(2) Failure to make timely payment of Future Response Costs, DTSC Future Response Costs, Past Response Costs, or DTSC Past Response Costs.

49. Stipulated Penalty Amounts – Deliverables.

a. Material Defects. If an initially submitted or resubmitted deliverable contains a material defect, and the deliverable is disapproved or modified by EPA under Paragraph 7.6(a) (Initial Submissions) or Paragraph 7.6(b) (Resubmissions) of the SOW due to such material defect, then the material defect shall constitute a lack of compliance for purposes of Paragraph 47. The provisions of Section XIV (Dispute Resolution) and Section XV (Stipulated Penalties) shall govern the accrual and payment of any stipulated penalties regarding Settling Work Defendants' submissions under this Consent Decree.

b. The following stipulated penalties shall accrue per violation per day for failure to comply with the requirements of Paragraph 49.c. below:

Penalty Per Violation Per Day	Period of Noncompliance
$2,500	1st through 14th day
$5,000	15th through 30th day
$10,000	31st day and beyond

c. Compliance Milestones.

1) Failure to submit the following deliverables in a timely and adequate fashion:

a) Groundwater Flow Modeling Work Plan

b) Groundwater Flow Model Development and Calibration Report

c) Groundwater Flow Model Predictive Simulations Report
d) Remedial Design Work Plan
e) Pre-Design Investigation Report
f) Preliminary Remedial Design
g) Pre-final Remedial Design
h) Final Remedial Design
i) Compliance Monitoring Plan
j) Remedial Action Work Plan
k) Leading Edge Investigation Work Plan
l) Leading Edge Investigation Report

d. The following stipulated penalties shall accrue per violation per day for failure to comply with the requirements of Paragraph 49.e. below:

Penalty Per Violation Per Day	Period of Noncompliance
$1,000	1st through 14th day
$2,500	15th through 30th day
$7,500	31st day and beyond

e. Compliance Milestones.

1) Failure to submit the following deliverables in a timely and adequate fashion: all deliverables listed in Section 8 of the SOW that are not described in Paragraph 49.c.(1) above.

50. Stipulated Penalty Amount – Work Takeover. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 63 (Work Takeover), Settling Work Defendants shall be liable for a stipulated penalty in the amount of the lesser of three million dollars ($3,000,000) or three (3) times the Response Costs (as defined in CERCLA Sections 107(a) and 101(25), 42 U.S.C. §§ 9607(a) and 9601(25)) incurred in performance of all such Work. Stipulated penalties under this Paragraph are in addition to the remedies available under Paragraphs 25 (Funding for Work Takeover) and 63 (Work Takeover).

51. Stipulated Penalty Accrual. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Paragraph 7.6 of the SOW (Approval of Deliverables), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Settling Work Defendants of any deficiency; (b) with respect to a decision by the Director of the Superfund Division, EPA Region 9, under Paragraph 44.b or 45.a of Section XIV (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that Settling Work Defendants' reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute; or (c) with respect to judicial review by this Court of any dispute under Section XIV (Dispute Resolution), during the period, if any, beginning on the 31st day after the Court's receipt of the final submission regarding the dispute until the date that the Court issues a final decision regarding such dispute. Nothing in this Consent Decree shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

52. Following EPA's determination (after providing DTSC with a reasonable opportunity for review and comment) that Settling Work Defendants have failed to comply with a requirement of this Consent Decree set forth in Paragraphs 48, 49, or 50, EPA may give Settling Work Defendants written notification of the same and describe the noncompliance. EPA may send Settling Work Defendants a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Settling Work Defendants of a violation.

53. All penalties accruing under this Section shall be due and payable to the United States within thirty (30) days after Settling Work Defendants' receipt

from EPA of a demand for payment of the penalties, unless Settling Work Defendants invoke the Dispute Resolution procedures under Section XIV (Dispute Resolution) within the 30-day period. All payments to the United States under this Section shall indicate that the payment is for stipulated penalties and shall be made in accordance with Paragraph 30.b (Instructions for Future Response Costs Payments and Stipulated Penalties).

54. Penalties shall continue to accrue as provided in Paragraph 51 during any dispute resolution period, but need not be paid until the following:

a. If the dispute is resolved by agreement of the Parties or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owed shall be paid to EPA within thirty (30) days after the agreement or the receipt of EPA's decision or order;

b. If the dispute is appealed to this Court and the United States prevails in whole or in part, Settling Work Defendants shall pay all accrued penalties determined by the Court to be owed to EPA within sixty (60) days after receipt of the Court's decision or order, except as provided in Paragraph 54.c;

c. If the District Court's decision is appealed by any Party, Settling Work Defendants shall pay all accrued penalties determined by the District Court to be owed to the United States into an interest-bearing escrow account, established at a duly chartered bank or trust company that is insured by the FDIC, within sixty (60) days after receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days after receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to Settling Work Defendants to the extent that they prevail.

55. If Settling Work Defendants fail to pay stipulated penalties when due, Settling Work Defendants shall pay Interest on the unpaid stipulated penalties as follows: (a) if Settling Work Defendants have timely invoked dispute resolution

such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are due pursuant to Paragraph 54 until the date of payment; and (b) if Settling Work Defendants fail to timely invoke dispute resolution, Interest shall accrue from the date of demand under Paragraph 53 until the date of payment. If Settling Work Defendants fail to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the penalties and Interest.

56. The payment of penalties and Interest, if any, shall not alter in any way Settling Work Defendants' obligation to complete the performance of the Work required under this Consent Decree.

57. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States or DTSC to seek any other remedies or sanctions available by virtue of Settling Work Defendants' violation of this Consent Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), provided, however, that the United States shall not seek civil penalties pursuant to Section 122(l) of CERCLA for any violation for which a stipulated penalty is provided in this Consent Decree, except in the case of a willful violation of this Consent Decree.

58. Notwithstanding any other provision of this Section, the United States may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Consent Decree.

XVI. <u>COVENANTS BY PLAINTIFFS</u>

59. <u>Covenants for Settling Defendants by United States</u>.

a. In consideration of the actions that will be performed and the payments that will be made by Settling Work Defendants under this Consent Decree, and except as specifically provided in Paragraph 61 (General Reservations of Rights as to the Settling Work Defendants) of this Section, the United States

covenants not to sue or to take administrative action against Settling Work Defendants pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), and Section 7003 of RCRA, 42 U.S.C. § 6973, for the performance of the Work, for recovery of Past Response Costs, and for recovery of Future Response Costs. These covenants shall take effect upon the Effective Date, for those Settling Work Defendants who have already signed this Consent Decree as of that date. As to any Settling Work Defendants who join this Consent Decree after the Effective Date, these covenants shall take effect when the Court enters a modified or amended Consent Decree including them as Settling Work Defendants; or, if no such judicial entry is required, the date that the United States indicates in writing that the Consent Decree has been modified pursuant to Paragraph 95 to add those defendants as Settling Work Defendants. These covenants are conditioned upon the satisfactory performance by Settling Work Defendants of their obligations under this Consent Decree. These covenants extend only to Settling Work Defendants and do not extend to any other person.

b. In consideration of the payments made and costs incurred to date, including payments made or to be made pursuant to this Consent Decree by or on behalf of each Settling Cash Defendant, and except as specifically provided in Paragraph 62 (General Reservations of Rights as to the Settling Cash Defendants) of this Section, the United States covenants not to sue or to take administrative action against Settling Cash Defendants pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), and Section 7003 of RCRA, 42 U.S.C. § 6973, for performance of the Work, for recovery of Past Response Costs, and for recovery of Future Response Costs. These covenants shall take effect upon the Effective Date, for those Settling Cash Defendants who have already signed this Consent Decree as of that date. As to any Settling Cash Defendants who join this Consent Decree after the Effective Date, these covenants shall take effect when the Court enters a modified or amended Consent Decree

including them as Settling Cash Defendants; or, if no such judicial entry is required, the date that the United States indicates in writing that the Consent Decree has been modified pursuant to Paragraph 95 to add those defendants as Settling Cash Defendants. These covenants are conditioned upon the satisfactory performance by each individual Settling Cash Defendant of its respective obligations under this Consent Decree. These covenants extend only to Settling Cash Defendants and do not extend to any other person.

60. Covenants for Settling Defendants by DTSC.

a. In consideration of the actions that will be performed and the payments that will be made by Settling Work Defendants under the terms of this Consent Decree, and except as specifically provided in Paragraph 61 (General Reservations of Rights as to the Settling Work Defendants) of this Section, DTSC covenants not to sue Settling Work Defendants pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and California Health and Safety Code sections 25355.5, 25358.3, and 25360, or to take administrative action against Settling Work Defendants under California Health and Safety Code section 25358.3, for the Work, DTSC Past Response Costs, and DTSC Future Response Costs. These covenants shall take effect upon the Effective Date, for those Settling Work Defendants who have already signed this Consent Decree as of that date. As to any Settling Work Defendants who join this Consent Decree after the Effective Date, these covenants shall take effect when the Court enters a modified or amended Consent Decree including them as Settling Work Defendants; or, if no such judicial entry is required, the date that the United States indicates in writing that the Consent Decree has been modified pursuant to Paragraph 95 to add those defendants as Settling Work Defendants. These covenants are conditioned upon the satisfactory performance by Settling Work Defendants of their obligations under this Consent Decree. These covenants extend only to Settling Work Defendants and do not extend to any other person.

b. In consideration of the actions that will be performed and the payments that will be made by Settling Cash Defendants under the terms of this Consent Decree, and except as specifically provided in Paragraph 62 (General Reservations of Rights as to the Settling Cash Defendants) of this Section, DTSC covenants not to sue Settling Cash Defendants pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and California Health and Safety Code sections 25355.5, 25358.3, and 25360, or to take administrative action against Settling Cash Defendants under California Health and Safety Code section 25358.3, for the Work, DTSC Past Response Costs, and DTSC Future Response Costs. These covenants shall take effect upon the Effective Date, for those Settling Cash Defendants who have already signed this Consent Decree as of that date. As to any Settling Cash Defendants who join this Consent Decree after the Effective Date, these covenants shall take effect when the Court enters a modified or amended Consent Decree including them as Settling Cash Defendants; or, if no such judicial entry is required, the date that the United States indicates in writing that the Consent Decree has been modified pursuant to Paragraph 95 to add those defendants as Settling Cash Defendants. These covenants are conditioned upon the satisfactory performance by Settling Cash Defendants of their obligations under this Consent Decree. These covenants extend only to Settling Cash Defendants and do not extend to any other person.

61. General Reservations of Rights as to the Settling Work Defendants. The United States and DTSC reserve, and this Consent Decree is without prejudice to, all rights against Settling Work Defendants with respect to all matters not expressly included within Plaintiffs' covenants. Areas of the Site outside the Work Area are generally not encompassed within the scope of this Consent Decree; therefore, the United States' and DTSC's rights regarding areas of the Site outside the Work Area are generally reserved, unless expressly included within Plaintiffs' covenants. Notwithstanding any other provision of this Consent Decree, the

United States and DTSC reserves all rights against Settling Work Defendants with respect to:

a. liability for failure by Settling Work Defendants to meet a requirement of this Consent Decree;

b. liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Work Area;

c. liability based on the ownership of any real property within the Work Area by any Settling Work Defendant when such ownership commences after signature of this Consent Decree by that Settling Work Defendant and does not arise solely from Settling Work Defendants' performance of the Work;

d. liability based on the operation of any facilities within the Work Area by any Settling Work Defendant when such operation commences after signature of this Consent Decree by that Settling Work Defendant and does not arise solely from Settling Work Defendants' performance of the Work;

e. liability based on any Settling Work Defendant's transportation, treatment, storage, or disposal, or arrangement for transportation, treatment, storage, or disposal of Waste Material at or in connection with the Work Area, other than as provided in the ROD, the Work, or otherwise ordered by EPA or DTSC, after signature of this Consent Decree by that Settling Work Defendant;

f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

g. criminal liability;

h. liability for violations of federal or state law that occur during or after implementation of the Work;

i. liability, prior to Certification of Work Completion (as described in Paragraph 4.7 of the SOW), for additional response actions that EPA determines are necessary to achieve and maintain Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, but

that cannot be required pursuant to Paragraph 14 (Modification of SOW or Related Deliverables);

j. liability for additional operable units at the Site or the final response action for OU2; and

k. liability for costs that the United States or DTSC will incur or has incurred regarding OU2 but that are not within the definition of Past Response Costs, DTSC Past Response Costs, Future Response Costs, or DTSC Future Response Costs; however, this Subparagraph k. does not alter any previous agreements reached in the documents listed in Section I, Paragraph H of this Consent Decree.

62. General Reservations of Rights as to the Settling Cash Defendants. The United States and DTSC reserve, and this Consent Decree is without prejudice to, all rights against Settling Cash Defendants with respect to all matters not expressly included within Plaintiffs' covenants. Areas of the Site outside the Work Area are generally not encompassed within the scope of this Consent Decree; therefore, the United States' and DTSC's rights regarding areas of the Site outside the Work Area are generally reserved, unless expressly included within Plaintiffs' covenants. Notwithstanding any other provision of this Consent Decree, the United States and DTSC reserve all rights against Settling Cash Defendants with respect to:

a. liability for failure by Settling Cash Defendants to meet a requirement of this Consent Decree;

b. liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Work Area;

c. liability based on the ownership of any real property within the Work Area by any Settling Cash Defendant when such ownership commences after signature of this Consent Decree by that Settling Cash Defendant;

d. liability based on the operation of any facilities within the Work Area by any Settling Cash Defendant when such operation commences after signature of this Consent Decree by that Settling Cash Defendant;

e. liability based on any Settling Cash Defendant's transportation, treatment, storage, or disposal, or arrangement for transportation, treatment, storage, or disposal of Waste Material at or in connection with the Work Area, other than as provided in the ROD, the Work, or otherwise ordered by EPA or DTSC, after signature of this Consent Decree by that Settling Cash Defendant;

f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

g. criminal liability;

h. liability for implementing Source Control;

i. liability for additional operable units at the Site or the final response action for OU2; and

j. liability for costs that the United States or DTSC will incur or has incurred regarding OU2 but that are not within the definition of Past Response Costs, DTSC Past Response Costs, Future Response Costs, or DTSC Future Response Costs; however, this Subparagraph j. does not alter any previous agreements reached in the documents listed in Section I, Paragraph H of this Consent Decree.

63. Work Takeover.

a. In the event EPA (after providing DTSC with a reasonable opportunity for review and comment) determines that Settling Work Defendants (1) have ceased implementation of any portion of the Work, (2) are seriously or repeatedly deficient or late in their performance of the Work, or (3) are implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Work Takeover Notice") to Settling Work Defendants. Any Work Takeover Notice issued by EPA

will specify the grounds upon which such notice was issued and will provide Settling Work Defendants a period of fifteen (15) working days within which to remedy the circumstances giving rise to EPA's issuance of such notice.

b. If, after expiration of the fifteen (15) working-day notice period specified in Paragraph 63.a, Settling Work Defendants have not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portion(s) of the Work as EPA deems necessary ("Work Takeover"). EPA will notify Settling Work Defendants in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this Paragraph 63.b. Funding of Work Takeover costs is addressed under Paragraph 25.

c. Settling Work Defendants may invoke the dispute resolution procedures set forth in Section XIV (Dispute Resolution) to dispute EPA's implementation of a Work Takeover under Paragraph 63.b. However, notwithstanding Settling Work Defendants' invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under Paragraph 63.b until the earlier of (1) the date that Settling Work Defendants remedy, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, or (2) the date that a final decision is rendered in accordance with the dispute resolution provisions of Section XIV requiring EPA to terminate such Work Takeover.

64. Notwithstanding any other provision of this Consent Decree, the United States and DTSC retain all authority and reserve all rights to take any and all response actions authorized by law.

XVII. COVENANTS BY SETTLING DEFENDANTS

65. Covenants by Settling Defendants. Subject to the reservations in Paragraph 67, Settling Defendants covenant not to sue and agree not to assert any claims or causes of action against the United States or DTSC with respect to the Work, past response actions regarding OU2, Past Response Costs, DTSC Past Response Costs, Future Response Costs, DTSC Future Response Costs, and this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund through CERCLA Sections 106(b)(2), 107, 111, 112 or 113 (42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613), or any other provision of law;

b. any claims under CERCLA Sections 107 or 113, 42 U.S.C. §§ 9607 or 9613, RCRA Section 7002(a), 42 U.S.C. § 6972(a), or state law regarding the Work, past response actions regarding OU2, Past Response Costs, DTSC Past Response Costs, Future Response Costs, DTSC Future Response Costs, and this Consent Decree; or

c. any claims arising out of past response actions at or in connection with OU2, including any claim under the United States Constitution, the California Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, or at common law.

66. Except as provided in Paragraph 69 (Claims Against *De Micromis* Parties), Paragraph 71 (Claims Against Previously and Further Settling *De Minimis* Parties and Ability to Pay Parties), and Paragraph 85 (*Res Judicata* and Other Defenses), the covenants in this Section shall not apply if the United States or DTSC brings a cause of action or issues an order pursuant to any of the reservations in Section XVI (Covenants by Plaintiffs), other than in Paragraphs 61.a or 62.a (claims for failure to meet a requirement of the Consent Decree), 61.g or 62.g (criminal liability), and 61.h (violations of federal/state law during or after

implementation of the Work), but only to the extent that Settling Defendants' claims arise from the same response action, response costs, or damages that the United States or DTSC is seeking pursuant to the applicable reservation.

67. Settling Defendants reserve, and this Consent Decree is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, or DTSC, subject to the provisions of Division 3.6 of the California Government Code, section 810 *et seq.* and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, or any employee of DTSC, as that term is defined in California Government Code section 19815, while acting within the scope of his or her office or employment under circumstances where the United States or DTSC, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the foregoing shall not include any claim based on EPA's or DTSC's selection of response actions, or the oversight or approval of Settling Defendants' plans, reports, other deliverables or activities.

68. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

69. Claims Against *De Micromis* Parties. Settling Defendants agree not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) and 113 of CERCLA, 42 U.S.C. §§ 9607(a) and 9613) that they may have for all matters relating to the Site against any *De Micromis* Parties.

70. The waiver in Paragraph 69 (Claims Against *De Micromis* Parties) shall not apply with respect to any defense, claim, or cause of action that a Settling Defendant may have against any person meeting the criteria in Paragraph 69 if such person asserts a claim or cause of action relating to the Site against such Settling Defendant. This waiver also shall not apply to any claim or cause of action against any person meeting the criteria in Paragraph 69 if EPA determines:

a. that such person has failed to comply with any EPA requests for information or administrative subpoenas issued pursuant to Section 104(e) or 122(e) of CERCLA, 42 U.S.C. § 9604(e) or 9622(e), or Section 3007 of RCRA, 42 U.S.C. § 6927, or has impeded or is impeding, through action or inaction, the performance of a response action or natural resource restoration with respect to the Site, or has been convicted of a criminal violation for the conduct to which this waiver would apply and that conviction has not been vitiated on appeal or otherwise; or

b. that the materials containing hazardous substances sent to the Omega Property by such person have contributed significantly, or could contribute significantly, either individually or in the aggregate, to the cost of response action or natural resource restoration at the Site.

71. Claims Against Previously and Further Settling *De Minimis* Parties and Ability to Pay Parties. Settling Defendants agree not to assert any claims or causes of action and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) and 113 of CERCLA, 42 U.S.C. §§ 9607(a) and 9613) that they may have for response costs relating to the Site against any Previously and Further Settling *De Minimis* Parties, or any parties that have entered into a final settlement based on limited ability to pay, with EPA with respect to the Site. This waiver shall not apply with respect to any defense, claim, or cause of action that a Settling Defendant may have against any person if such person asserts a claim or cause of action relating to the Site against

such Settling Defendant. Further, this waiver shall not apply with respect to any claim or cause of action a Settling Defendant could raise against insurers or guarantors of performance of Ability to Pay Parties, unless such insurer or guarantor has settled potential liability with EPA or the Settling Work Defendants.

72. Settling Defendants' Release and Covenant Not To Sue. Except as specifically provided in Paragraph 73 (Reservations of Rights Among Defendants), each Settling Defendant releases and covenants not to sue each other Settling Defendant, pursuant to Sections 107(a) or 113 of CERCLA, 42 U.S.C. §§ 9607(a) and 9613, Section 7002 of RCRA, 42 U.S.C. § 6972, or any other federal or state statute or common law with respect to all claims of any kind, known and unknown, against other Settling Defendants in connection with the alleged release or threatened release of any Contaminants of Concern (as that term is defined in the ROD) at, on, or under the portions of the Site that are within the scope of Matters Addressed in this Consent Decree. This covenant shall take effect upon the Effective Date, for those Settling Defendants who have already signed this Consent Decree as of that date. As to any Settling Defendants who join this Consent Decree after the Effective Date, this covenant shall take effect when the Court enters a modified or amended Consent Decree including them as Settling Defendants; or, if no such judicial entry is required, the date that the United States indicates in writing that the Consent Decree has been modified pursuant to Paragraph 95 to add those defendants as Settling Defendants. This covenant is conditioned upon the satisfactory performance by Settling Defendants of their obligations under this Consent Decree and under any cost sharing or settlement agreements to resolve liabilities for the Matters Addressed in this Consent Decree that such parties have entered into among themselves ("Other Settlement Agreements").

73. Reservations of Rights Among Defendants. Settling Defendants reserve, and this Consent Decree is without prejudice to, claims against other Settling Defendants (a) to enforce obligations under this Consent Decree or Other Settlement Agreements and (b) for matters that are not Matters Addressed by this Consent Decree and which are excluded from or not subject to any Other Settlement Agreements, including, but not limited to, claims or causes of actions under federal or state law Settling Defendants may have for natural resource damages, common law claims, Proposition 65 and California Unfair Business Practices, and Source Control.

74. Claims Against Other Settling Defendants in Certain Other Site Litigation. For Certain Other Site Litigation, each Settling Defendant agrees not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) and 113 of CERCLA, 42 U.S.C. §§ 9607(a) and 9613) that that Settling Defendant may have against other Settling Defendants for response costs relating to Matters Addressed in this Consent Decree.

75. Agreement Between the United States and OPOG Regarding Sharing of Costs Recovered From Certain Noticed PRPs. For purposes of this Paragraph, "Certain Noticed PRPs" shall mean the parties listed in Appendix G, as well as their corporate successors, each of which parties were sent Special and/or General Notice Letters by EPA.

a. If OPOG receives payment(s) from one or more Certain Noticed PRPs for all or part of OPOG's claims against those parties, OPOG shall pay 30% of the gross recovered payment(s) to EPA, plus Interest on such payment(s) calculated from the date of OPOG's receipt of each payment to December 31st of the calendar year of such receipt. OPOG shall provide to the United States (in accordance with Section XXI (Notices and Submissions)) notice

of OPOG's receipt of all such payments within fourteen (14) days of such receipt. OPOG shall make such payments to EPA under this Paragraph no later than March 1 of the year immediately following the calendar year in which OPOG received such gross recovered payment(s). EPA may transmit a bill for such payment (including Interest), but is not required to do so.

b. The requirement to remit 30% of such gross recovered payments to EPA shall not begin unless and until OPOG has recovered $6 million gross, collectively from one or more Certain Noticed PRPs, and such requirement shall terminate after EPA has received $7 million (exclusive of Interest payments related to the $7 million) pursuant to this Paragraph. OPOG will provide appropriate covenants and releases of their cost recovery claims and other related claims, substantially similar to the covenants and releases provided in Paragraphs 72 and 74 of this Consent Decree and, if fair, reasonable, and in the public interest to do so, EPA will extend an appropriate covenant and contribution protection to those PRPs, as provided in Paragraphs 59 and 81 of this Decree.

c. The 70%/30% cost-sharing ratio, the $6 million trigger for remittances to EPA, and the $7 million cap on remittances to EPA described in subparagraphs a. and b. of this Paragraph also will apply to payments that EPA recovers directly from one or more Certain Noticed PRPs pursuant to a settlement agreement between EPA and such Certain Noticed PRP(s) for response costs relating to Matters Addressed in this Consent Decree. In such settlement agreement(s) with Certain Noticed PRP(s), if any, EPA will endeavor to provide for OPOG's 70% share to be remitted directly to OPOG from any such settling party.

76. <u>Agreement Between the United States and OPOG Regarding Sharing of Costs Recovered From Further Settling *De Minimis* Parties</u>. OPOG will work cooperatively with EPA to prepare a CERCLA § 122(g) (42 U.S.C. § 9622(g)) *de minimis* settlement for Further Settling *De Minimis* Parties. If EPA receives

payment(s) from one or more Further Settling *De Minimis* Parties, EPA shall pay 70% of the gross recovered payment(s) to OPOG, plus Interest on such payment(s) calculated from the date of receipt of each payment to December 31st of the calendar year of such receipt. EPA shall provide to OPOG, in accordance with Section XXI (Notices and Submissions), notice of EPA's receipt of all such payments within thirty (30) days of such receipt. EPA shall make such payments to OPOG under this Paragraph no later than March 1 of the year immediately following the calendar year in which EPA received such gross recovered payment(s).

77. Agreement Between the United States and OPOG Regarding Costs Recovered from Reichhold Bankruptcy. Reichhold Holdings US, Inc., and related debtors ("Reichhold"), filed for Bankruptcy Court protection on September 30, 2014 (Bankr. No. 14-12237-MFW (USBC D. Del.)). The United States filed a Proof of Claim in the bankruptcy asserting that Reichhold was liable as a potentially responsible party ("PRP") at the Site pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607. OPOG also filed a Proof of Claim asserting that Reichhold was liable as a PRP at the Site, but withdrew its claim when it became apparent that the United States was negotiating a settlement that would provide funds, *inter alia*, for Work under this Consent Decree. Under the terms of a proposed Bankruptcy Settlement Agreement, if such settlement is approved by the Bankruptcy Court, OPOG shall have an allowed claim, as provided therein. Any funds received by OPOG as a result of its allowed claim in the Reichhold bankruptcy shall be used by OPOG to perform the Work. Such funds shall not be subject to the cost sharing ratio set forth in Paragraph 75.a, but shall be counted toward the $6 million trigger for remittances to EPA set forth in Paragraph 75.b.

78. Further Settlors. Settling Defendants agree that in the event that: (a) on or after April 1, 2015, the United States and/or EPA reaches or has reached settlement with any other potentially responsible party at OU2 who is not a

signatory to this Consent Decree, and (b) the United States gives notice in accordance with Section XXI (Notices and Submissions) that such party has become a Further Settlor; then upon Court approval of a future settlement, Settling Defendants commit that they shall extend to any such Further Settlor identical releases and covenants not to sue to those set forth in Paragraphs 72 and 74, without further monetary consideration except as described in Paragraphs 75 and 76, subject to the reservations of rights in Paragraph 73, and in exchange for mutual releases of claims and appeals by that Further Settlor against Settling Defendants identical to the releases and covenants not to sue set forth in Paragraphs 72 and 74. The commitments of Settling Defendants to provide such covenants not to sue shall not take effect as to any Further Settlor unless and until the settlement with such Further Settlor becomes a final judgment. The United States, on behalf of EPA, has sole discretion to determine whether a party is to be deemed a "Further Settlor" for purposes of this Paragraph, and may include parties whom EPA identifies as potentially responsible parties after the Effective Date of this Decree. Notwithstanding the foregoing, the United States and the Settling Work Defendants agree that no Further Settlor shall be deemed a Settling Work Defendant to perform Work and to implement this Consent Decree without the prior consent of the Settling Work Defendants, which consent shall not be unreasonably withheld.

79. The United States and Settling Work Defendants may, by agreement, modify this Consent Decree after its Effective Date by enlarging the list of Settling Cash Defendants and/or the list of Certain Noticed PRPs.

XVIII. EFFECT OF SETTLEMENT; CONTRIBUTION

80. Except as provided in Paragraph 78 (Further Settlors), Paragraph 71 (Claims Against Previously and Further Settling *De Minimis* Parties and Ability to Pay Parties) and Paragraph 69 (Claims Against *De Micromis* Parties), nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of

action to, any person not a Party to this Consent Decree. Except as provided in Paragraph 71 (Claims Against Previously and Further Settling *De Minimis* Parties and Ability to Pay Parties) and Paragraph 69 (Claims Against *De Micromis* Parties), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613, and Section 7002 of RCRA, 42 U.S.C. § 6972), defenses, claims, demands, and causes of action that each Party may have with respect to any matter (including but not limited to Source Control), transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Consent Decree diminishes the right of the United States or DTSC, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

81. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially-approved settlement pursuant to which each Settling Defendant who is a Settling Defendant at the time of the Effective Date has, as of the Effective Date, resolved liability to the United States and DTSC within the meaning of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA, or as may be otherwise provided by law, for Matters Addressed in this Consent Decree. For Settling Defendants, if any, who join this Consent Decree after the Effective Date, the date on which that defendant shall have "resolved liability to the United States and DTSC" within the meaning of this Paragraph is the date on which the Court enters a modified or amended Consent Decree including that defendant as a Settling Defendant, or, if no such judicial entry is required, the date that the United States indicates in writing that the Consent Decree has been modified pursuant to Paragraph 95 to add those defendants as Settling Defendants.

82. The Parties further agree, and by entering this Consent Decree this Court finds, that the complaint filed by the United States and by DTSC in this action is a civil action within the meaning of Section 113(f)(1) of CERCLA, 42 U.S.C. § 9613(f)(1), and that this Consent Decree constitutes a judicially-approved settlement pursuant to which each Settling Defendant who is a Settling Defendant at the time of the Effective Date has, as of the Effective Date, resolved liability to the United States and DTSC within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B). For Settling Defendants, if any, who join this Consent Decree after the Effective Date, the date on which that defendant shall have "resolved liability to the United States and DTSC" within the meaning of this Paragraph is the date on which the Court enters a modified or amended Consent Decree including that defendant as a Settling Defendant, or, if no such judicial entry is required, the date that the United States indicates in writing that the Consent Decree has been modified pursuant to Paragraph 95 to add those defendants as Settling Defendants.

83. Each Settling Defendant shall, with respect to any suit or claim brought by it for matters related to this Consent Decree, notify the United States and DTSC in writing no later than sixty (60) days prior to the initiation of such suit or claim.

84. Each Settling Defendant shall, with respect to any suit or claim brought against it for matters related to this Consent Decree, notify in writing the United States and DTSC within ten (10) days after service of the complaint on such Settling Defendant. In addition, each Settling Defendant shall notify the United States and DTSC within ten (10) days after service or receipt of any Motion for Summary Judgment and within ten days after receipt of any order from a court setting a case for trial.

85. *Res Judicata* and Other Defenses. In any subsequent administrative or judicial proceeding initiated by the United States or DTSC for injunctive relief,

recovery of response costs, or other appropriate relief relating to the Site, Settling Defendants shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, *res judicata*, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or DTSC in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XVI (Covenants by Plaintiffs).

XIX. ACCESS TO INFORMATION

86. Settling Defendants shall provide to EPA and DTSC, upon request, subject to the provisions of Paragraph 87 (Business Confidential and Privileged Documents), copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within their possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. With respect to requests for information regarding the Work, such requests shall be made through Settling Work Defendants' Project Coordinator in the first instance. Settling Work Defendants shall also make available to EPA and DTSC, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work. This Paragraph does not create any requirement that Settling Defendants retain Records beyond any Records they are already required to retain pursuant to Section XX (Retention of Records) or any other applicable requirements.

87. Business Confidential and Privileged Documents.

a. Settling Defendants may assert business confidentiality claims covering part or all of the Records submitted to Plaintiffs under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). A Settling Defendant asserting business confidentiality claims shall segregate and clearly identify all Records or parts thereof submitted under this Consent Decree for which that Settling Defendant asserts business confidentiality claims. Records determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA and DTSC, or if EPA has notified the Settling Defendant asserting such business confidentiality claims that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Settling Defendants.

b. Settling Defendants may assert that all or part of a Record is privileged or protected as provided under federal or state law. If any such Settling Defendant asserts such a privilege in lieu of providing Records, it shall provide Plaintiffs with the following: (1) the title of the Record; (2) the date of the Record; (3) the name, title, affiliation (*e.g.*, company or firm), and address of the author of the Record; (4) the name and title of each addressee and recipient; (5) a description of the contents of the Record; and (6) the privilege asserted by Settling Defendant. If a claim of privilege applies only to a portion of a Record, the Record shall be provided to the United States and DTSC in redacted form to mask the privileged portion only. Settling Defendants shall retain all Records that they claim to be privileged until the United States has had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in the Settling Defendants' favor.

c. Settling Work Defendants asserting business confidentiality or privilege claims pursuant to Paragraphs 87.a. or 87.b. may do so through the Settling Work Defendants' Project Coordinator.

88. No claim of privilege or protection shall be made with respect to (a) any data regarding the Site, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, radiological, or engineering data, or (b) the portion of any other Record that Settling Work Defendants are required to create or generate pursuant to this Consent Decree.

XX. RETENTION OF RECORDS

89. Records.

a. Liability Records. Until five (5) years after EPA's Certification of Work Completion under Paragraph 4.7 of the SOW, each Settling Defendant shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to its liability under CERCLA with respect to OU2, provided, however, that Settling Defendants who are potentially liable as owners or operators of property within the OU2 boundary must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect to such property. As to Records that relate to the potential liability of Settling Defendants who arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous substances, at the Omega Property, or who accepted for transport for disposal or treatment of hazardous substances at the Omega Property, and who are members of OPOG, the requirement for Settling Defendants to preserve and retain such Records in this Paragraph may be satisfied by preservation and retention of such Records by OPOG or its contractors. The requirements of this Paragraph do not extend to or encompass Records protected under privilege and Records independently created for, or exchanged in connection with, Certain Other Site Litigation.

b. Records Related to Performance of Work and Implementation of this Consent Decree. If not preserved and retained by the Settling Work Defendants' Project Coordinator, each Settling Defendant must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above in Paragraph 89.a, all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to the performance of the Work or implementation of this Consent Decree, provided, however, that each Settling Defendant (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary. As to Records that relate to the performance of the Work and copies of data as referred to in the preceding sentences, but not as to any other Records, the requirement for Settling Defendants to preserve and retain and to instruct their contractors and agents to preserve such Records may be satisfied by preservation and retention of such Records by the Settling Work Defendants' Project Coordinator, to which the requirements of this Paragraph shall apply.

90. At the conclusion of this record retention period, Settling Defendants shall notify the United States and DTSC at least ninety (90) days prior to the destruction of any such Records, and, upon request by the United States or DTSC, Settling Defendants shall deliver any such Records to EPA or DTSC. Settling Defendants may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendants assert such a privilege, they shall provide Plaintiffs with the following: (a) the title of the Record; (b) the date of the Record; (c) the name, title, affiliation (*e.g.*, company or firm), and address of the author of the Record; (d) the name and title of each addressee and recipient; (e) a description of the subject of the Record; and

(f) the privilege asserted by Settling Defendants. If a claim of privilege applies only to a portion of a Record, the Record shall be provided to the United States and DTSC in redacted form to mask the privileged portion only. Settling Defendants shall retain all Records that they claim to be privileged until the United States and DTSC have had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in the Settling Defendants' favor. However, no Records created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged or confidential.

91. Each Settling Defendant certifies individually that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding OU2 since the earlier of notification of potential liability by the United States or the filing of suit against it regarding OU2 and that it has fully complied with any and all EPA requests for information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XXI. NOTICES AND SUBMISSIONS

92. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Notices required to be sent to EPA, and not to the United States, under the terms of this Consent Decree should not be sent to the U.S. Department of Justice. Except as otherwise provided, notice to a Party by electronic means (if an email address is provided below) or by regular mail in accordance with this Section satisfies any notice requirement of the Consent Decree regarding such Party.

As to the United States:

EES Case Management Unit
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, DC 20044-7611
Re: DJ #90-11-3-06529/10

Wayne Praskins
EPA Project Coordinator
United States Environmental Protection Agency, Region 9
75 Hawthorne Street, SFD-7
San Francisco, CA 94105
Praskins.Wayne@epa.gov

With copies to:

Deborah Gitin
U.S. Department of Justice
Environmental Enforcement Section
301 Howard St., Suite 1050
San Francisco, CA 94105
Re: DJ #90-11-3-06529/10
Deborah.Gitin@usdoj.gov

As to EPA:

Wayne Praskins
EPA Project Coordinator
United States Environmental Protection Agency, Region 9
75 Hawthorne Street, SFD-7
San Francisco, CA 94105
Praskins.Wayne@epa.gov

As to the Regional Financial Management Officer:

Regional Financial Management Officer
United States Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

As to DTSC Counsel:

Chief Counsel
California Department of Toxic Substances Control

	Office of Legal Counsel 1001 I Street, P.O. Box 806 Sacramento, CA 95812
As to DTSC:	Don Indermill DTSC Project Coordinator California Department of Toxic Substances Control 9211 Oakdale Avenue Chatsworth, CA 91311 Don.Indermill@dtsc.ca.gov
As to Settling Work Defendants:	de maximis Settling Work Defendants' Project Coordinator 1322 Scott Street, Suite 104 San Diego, CA 92106 jkeener@demaximis.com

XXII. RETENTION OF JURISDICTION

93. This Court retains jurisdiction over both the subject matter of this Consent Decree and Settling Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIV (Dispute Resolution).

XXIII. APPENDICES

94. The following appendices are attached to and incorporated into this Consent Decree:

"Appendix A" is the ROD.

"Appendix B" is the SOW.

"Appendix C" is a map of the Site. It includes the general locations of key Work components as compared with ROD remedy locations.

"Appendix D" is the list of Settling Cash Defendants.

"Appendix E" is the list of Settling Work Defendants.

"Appendix F" is the list of parties that collectively comprise OPOG.

"Appendix G" is the list of Certain Noticed PRPs.

"Appendix H" is the CERCLA Performance Guarantee Sample Letter.

XXIV. MODIFICATION

95. Except as provided in Paragraph 14 (Modification of SOW or Related Deliverables), material modifications to this Consent Decree, including the SOW, shall be in writing, signed by the United States, DTSC, and Settling Work Defendants, and shall be effective upon approval by the Court. Except as provided in Paragraph 14, non-material modifications to this Consent Decree, including the SOW, shall be in writing and shall be effective when signed by duly authorized representatives of the United States, DTSC, and Settling Work Defendants. A modification to the SOW shall be considered material if it implements a ROD amendment that fundamentally alters the basic features of the selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(ii). Before providing its approval to any modification to the SOW, the United States will provide DTSC with a reasonable opportunity to review and comment on the proposed modification.

96. Modifications (non-material or material) that affect the obligations of or the protections afforded to any Settling Cash Defendant must be signed by the affected Settling Cash Defendant in order to be effective.

97. Nothing in this Consent Decree shall be deemed to alter the Court's power to enforce, supervise, or approve modifications to this Consent Decree.

XXV. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

98. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States and DTSC reserve the right to withdraw or withhold their consent if the comments regarding the Consent Decree disclose facts or considerations that

indicate that the Consent Decree is inappropriate, improper, or inadequate. Settling Defendants consent to the entry of this Consent Decree without further notice.

99. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XXVI. SIGNATORIES/SERVICE

100. Each undersigned representative of a Settling Defendant and DTSC to this Consent Decree, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice, certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

101. Each Settling Defendant agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified Settling Defendants in writing that it no longer supports entry of the Consent Decree.

102. Each Settling Defendant shall identify, on the attached signature page, the name, address, and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. Settling Defendants agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons. Settling Defendants need not file an answer to the complaint in this action unless or until the Court expressly declines to enter this Consent Decree.

XXVII. FINAL JUDGMENT

103. This Consent Decree and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties regarding the settlement embodied in the Consent Decree. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

104. Upon entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between and among the United States, DTSC, and Settling Defendants. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

SO ORDERED THIS ____ DAY OF _____, 2016.

_____
United States District Judge

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR THE UNITED STATES OF AMERICA:

4/19/16
Date

JOHN C. CRUDEN
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, DC 20530

DEBORAH A. GITIN
KARL J. FINGERHOOD
Senior Counsel
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
301 Howard St., Suite 1050
San Francisco, CA 94105

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

Date 3/17/16

ENRIQUE MANZANILLA
Director, Superfund Division
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

Date 3/17/16

HOPE SCHMELTZER
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR PLAINTIFF STATE OF CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL:

Date Feb 11, 2016

SAYAREH AMIREBRAHIMI
Branch Chief, Brownfields and Environmental Restoration Program

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SETTLING CASH DEFENDANTS LISTED IN APPENDIX D AS BEING ASSOCIATED WITH FACILITY 1 IN APPENDIX D

April 6, 2016
Date

Gene Lucero
GENE LUCERO as Steering Counsel for OPOG
1462 Claridge Drive
Beverly Hills, CA 90210

Agent Authorized to Accept Service on Behalf of Above-signed Parties:

Gene Lucero
Steering Counsel for OPOG
1462 Claridge Drive
Beverly Hills, CA 90210
Phone: (310) 278-3585
genelucero213@gmail.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR ALCOA INC. on behalf of Alcoa Electronic Packaging, Inc., Alcoa Global Fasteners for TRE/Weslock, and Alumax for Amerimax Building Products for Admiral Aluminum

12/15/2015
Date

Name (print): John Kenna
Title: Vice President - Tax
Address: 201 Isabella Street
Pittsburgh, PA 15212

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): C T Corporation System
Title: 818 West Seventh Street, Suite 930
Address: Los Angeles County
Los Angeles, CA 90017
Phone: (213) 337-4615
email:

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR ALPHA THERAPEUTIC CORPORATION.

Dec. 18, 2015
Date

Jennifer S Fischman
Name (print): Jennifer S. Fischman
Title: Secretary
Address: 655 Third Ave, 15th fl.
New York, N.Y. 10017

Agent Authorized to Accept Service on Behalf of Above-signed Party:

C T Corporation System
818 West Seventh Street
Los Angeles, California 90017
Phone: (213) 627-8252
cls-losangelesteam@wolterskluwer.com

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR APPLIED MICRO CIRCUITS CORPORATION.

December 17, 2015
Date

L. William Caraccio
Name (print): L. William Caraccio
Title: VP
Address: 4555 Great America Parkway
Santa Clara, CA 95054

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): John J. Lormon, Partner
Title: john.lormon@procopio.com
Address: (619) 515-3217
Phone:
email: Kevin M. Davis, Associate
kevin.davis@procopio.com
(619) 515-3293

Procopio, Cory, Hargreaves & Savitch, LLP
525 B Street, Suite 2200
San Diego, CA 92101

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR ARLON PRODUCTS INC.

12-17-2015
Date

Name (print): Donald A. Herner
Title: Authorized Agent
Address: 105 Danbury Road
Ridgefield, CT 06877

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Donald A Herner
Title: Authorized Agent
Address: Kiernan Herner LLP
105 Danbury Road
Ridgefield, CT 06877
Phone: 203 975 8818
email: dherner@kiernanherner.com

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR ASTRO ALUMINUM TREATING CO. INC.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR ATLANTIC RICHFIELD COMPANY.

December 18, 2015
Date

Name (print): Cynthia D. Kezos
Title: Liability Business Manager
Address: 4 Centerpointe Drive
2nd Floor
La Palma, CA, 90623

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Cynthia D. Kezos
Title: Liability Business Manager
Address: 4 Centerpointe Drive
2nd Floor
La Palma, CA 90623
Phone: 657-529-4520
email: cindy.kezos@bp.com

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR BASF CORPORATION.

12/16/15
Date

Name (print): Steven J. Goldberg
Title: Vice President & Deputy General Counsel, Regulatory & Government Affairs
Address: 100 Park Avenue
Florham Park, NJ 07932

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Bonni Kaufman
Title: Counsel for BASF
Address: 800 17th st. N.W, Suite 1100, Washington, DC 20006
Phone: (202) 419-2547
email: bonni.kaufman@hklaw.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR BAXTER HEALTHCARE CORPORATION.

12/16/15
Date

Name (print): JOSEPH SPIEGLER
Title: VICE PRESIDENT, ETHICS & COMPLIANCE
Address: ONE BAXTER PARKWAY
DEERFIELD, IL 60015

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): CT Corporation
Title:
Address: 818 West Seventh St., Suite 930, Los Angeles, CA 90017
Phone:
email:

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR BP AMOCO CHEMICAL COMPANY.

December 18, 2015
Date

Cynthia D Kezos

Name (print): Cynthia D. Kezos
Title: Liability Business Manager
Address: 4 Centerpointe Drive
2nd Floor
La Palma, CA, 90623

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Cynthia D. Kezos
Title: Liability Business Manager
Address: 4 Centerpointe Drive
2nd Floor
La Palma, CA 90623
Phone: 657-529-4520
email: cindy.kezos@bp.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR BURKE STREET LLC AND THE STADLER FAMILY LIMITED PARTNERSHIP:

3/15/2016
Date

MICHAEL STADLER
12215 Warmside Avenue
Torrance, CA 90505

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Summer L. Nastich

Contact Information Updated on October 6, 2016:

Summer L. Nastich
Nastich Law
2341 Derby Street
Berkeley, CA 94705
Tel: (415) 794-4210
Email: Summer@NastichLaw.com

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR C.T.L. PRINTING INDUSTRIES, INC.

12-15-15
Date

Name (print): James Hudson
Title: President
Address: 1741 W. Lincoln Ave
Anaheim CA 92801

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

11

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR CALIFORNIA HYDROFORMING COMPANY, INC.

December 16, 2005
Date

Name (print): DAVE BONAFEDE
Title: PRESIDENT
Address: CALIFORNIA HYDROFORMING CO., INC

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): LYNDA L. BROTHERS, ESQ
Title: Attorney
Address: P.O. BOX 5433 San Mateo, CA 94402
Phone: 650-458-3400
email: LBROTHERS@LBROTHERSLAW.COM

12

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR CINTAS CORPORATION (SUCCESSOR TO UNITOG COMPANY).

12/14/15
Date

Name (print): Thomas Terp
Title: Counsel
Address:

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Thomas Terp
Title:
Address: 425 Walnut Street Suite 1800 Cincinnati OH 45202
Phone: 513-357-9354
email: terp@taftlaw.com

13

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR COLUMBIA SHOWCASE & CABINET COMPANY, INCORPORATED.

12/16/2015
Date

Name (print): JOSEPH PATTERSON
Title: SENIOR VP
Address: 11034A SHERMAN WAY
SUN VALLEY, CA 91352

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR COUNTY OF LOS ANGELES

1-11-16
Date

Name: Bradford Bolger
Title: Senior Manager
Chief Executive Office
Address: 754 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Agent Authorized to Accept Service on Behalf of Above-signed Party

Name: Casey Yourn
Title: Deputy County Counsel
Address: 652 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

15

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR CROSBY & OVERTON, INC.

December 15, 2015
Date

Name (print): JOHN J. ALLEN
Title: Counsel for Crosby & Overton, Inc.
Address: 515 S. Figueroa St.
Los Angeles, CA 90071

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): JOHN J. ALLEN
Title: Counsel for Crosby & Overton, Inc.
Address: 515 S. Figueroa St., 9th Floor
Los Angeles, CA 90071
Phone: 213-955-5548
email: jallen@allenmatkins.com

16

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR DISNEY ENTERPRISES INC.

12-14-15
Date

Name (print): Marsha L. Reed
Title: V.P. - Secretary
Address: 500 S. Buena Vista St.
Burbank, CA 91521-0105

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Robert A. Antonoplis
Title: Assistant General Counsel
Address: 500 S. Buena Vista St., Burbank CA 91521
Phone: 818-560-8943
email: bob.antonoplis@disney.com

17

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR FHL GROUP.

December 15, 2015
Date

Name (print): Ernest J. Hahn
Title: Counsel
Address: 2945 Townsgate Road, Suite 200
Westlake Village, CA 91361

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Ernest J. Hahn
Title: Counsel
Address: 2945 Townsgate Road, Suite 200
Westlake Village, CA 91361
Phone: Tel: +1.805.719.2795
email: ehahn@millhousehahn.com

18

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR FORENCO, INC.

Dec. 16, 2015
Date

Name (print): David M. Rubin
Title: Vice President
Address: 222 N. LaSalle Street, #1000
Chicago, IL 60601

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Brian B. Gilbert
Title: Attorney
Address: 222 N. LaSalle Street, Suite 800, Chicago, IL 60601
Phone: 312 236-3003
email: bgilbert@gouldratner.com

19

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR GENERAL DYNAMICS CORPORATION.

Dec 15, 2015
Date

Name (print):
Title:
Address:

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): E. Lynn Grayson
Title: Partner, Jenner & Block LLP
Address: 353 N. Clark Street, Chicago, IL 60654
Phone: (312) 923-2756
email: lgrayson@jenner.com

20

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR GULFSTREAM AEROSPACE CORPORATION.

12/16/2015
Date

Name (print): John Jay Neely III
Title: Vice President, Law & Public Affairs
Address: Gulfstream Aerospace Corporation
500 Gulfstream Road
Mail Stop B-06
Savannah, GA 31402

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): E. Lynn Grayson
Title: Partner
Address: Jenner & Block LLP, 353 N. Clark Street, Chicago, IL 60654
Phone: (312) 923-2756
email: Lgrayson@jenner.com

21

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR HERCULES INCORPORATED.

12/17/15
Date

Name (print): Richmond L. Williams
Title: Chief Counsel, Environmental Litigation
Address: 500 Hercules Rd.
Wilmington, DE 19808

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Richmond L. Williams
Title: Chief Counsel, Environmental Litigation
Address: 500 Hercules Rd., Wilm., DE 19808
Phone: 302 594-7020
email: rlwilliams@ASHLAND.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR HEXCEL CORPORATION.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

23

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR HITACHI HOME ELECTRONICS (AMERICA), INC.

Dec. 17, 2015
Date

Name (print): Neal Svalstad
Title: General Counsel
Address: 2420 Fenton Street, Suite 200
Chula Vista, CA 91914

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): John Lormon, Esq.
Title: Procopio, Cory, Hargreaves & Savitch, LLP
Address: 525 B Street, Suite 2200
San Diego, CA 92101
Phone: (619) 515-3217
email: john.lormon@procopio.com

25

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR HONEYWELL INTERNATIONAL INC.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

26

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR HOWMET ALUMINUM CASTING, INC.

W J Adams

Dec 16, 2015
Date

William J Adams
Name (print):
Title: President
Address: 4700 Daybreak Parkway
South Jordan, UT 84009

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): William J Adams
Title:
Address: 4700 Daybreak Parkway
South Jordan, UT 84009
Phone: 801-558-0222
email: William.adams@riotinto.com

27

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR INTERNATIONAL PAPER COMPANY.

12-17-15
Date

Name (print): David M. Kiser
Title: Vice-President, EH&S
Address: 6400 Poplar Ave, Memphis, TN 38197

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Brian Heim
Title: Chief Counsel
Address: 6400 Poplar Ave, Memphis TN 38197
Phone: 901-419-3824
email: brian.heim@ipaper.com

28

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR JOHNS MANVILLE (FOR ITSELF AND CELITE CORPORATION).

12-17-15
Date

Name (print): Cynthia Ryan
Title: Sr. VP & General Counsel
Address: Johns Manville
717 17th St.
Denver, CO 80202

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Brent Tracy
Title: Associate General Counsel, EHS
Address: Johns Manville
717 17th St.
Denver, CO 80202
Phone: 303-978-3268
email: brent.tracy@jm.com

29

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR KIMBERLY CLARK WORLDWIDE INC., FULLERTON MILL.

16th December 2015
Date

Sandra M Quill

Name (print): Sandra MacQuillan
Title: Sr. Vice President & Chief Supply Chain Officer
Address: 1400 Holcomb Bridge Rd
Roswell, GA 30076

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Susan L. Gaynor
Title: Sr. Paralegal II
Address: 1400 Holcomb Bridge Rd.
Roswell, GA 30076
Phone: 770.587.8662
email: sgaynor@kcc.com

30

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR KINDER MORGAN LIQUIDS TERMINALS LLC.

12/14/2015
Date

Name (print): Nancy E. VanBurgel
Title: Assistant General Counsel
Address: 370 VanGordon Street
Lakewood, Colorado
80228

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): LAURA J. CARROLL, ESQ.
Title: OUTSIDE COUNSEL FOR KINDER MORGAN LIQUIDS TERMINALS, LLC
Address: 815 MORAGA DR., LOS ANGELES, CA 90049
Phone: 310.497.2310
email: lauracarroll@ljcfirm.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR LA COUNTY MTA (SO. CALIFORNIA RTD).

12/11/15
Date

Ronald W. Stamm
Name (print): Ronald W. Stamm
Title: Principal Deputy County Counsel
Address: One Gateway Plaza
Los Angeles, CA 90012

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Ronald Stamm
Title: Principal Deputy County Counsel
Address: One Gateway Plaza, Los Angeles, CA 90012
Phone: 213-922-2525
email: stammr@metro.net

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR LUXFER USA LIMITED BY BRITISH ALCAN ALUMINUM PLC.

Dec 16, 2015
Date

W J Adams

Name (print): William J Adams
Title: President
Address: 4700 Daybreak Parkway
South Jordan, UT 84009

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): William J. Adams
Title: President
Address: 4700 Daybreak Parkway
Phone: South Jordan, UT 84009
email: 801-558-0222
William.adams@riotinto.com

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR MASCO BUILDING PRODUCTS CORP.

12/16/15
Date

Scott Halpert

Name (print): Scott A. Halpert
Title: Senior Corporate Counsel
Address: 21001 Van Born Road, Taylor, Michigan 48180

Agent Authorized to Accept Service on Behalf of Above-Signed Party:

Name (print): Scott A. Halpert
Title: Senior Corporate Counsel
Address: 21001 Van Born Road, Taylor, Michigan 48180
Phone: (313) 792-6641
Email: Scott_Halpert@mascohq.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR MATTEL, INC.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

36

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR MERCK SHARP & DOHME CORP.,
as Successor in Interest to SCHERING CORPORATION

12/17/15
Date

Mark Benevenia
Name (print): Mark Benevenia, Esq.
Title: Managing Counsel – Safety & Environmental Law
Address: 2000 Galloping Hill Road
Kenilworth, NJ 07033

Agent Authorized to Accept Service on Behalf of Above-Signed Party:

Name (print): The Corporation Trust Company
Title:
Address: 820 Bear Tavern Road
3rd Floor
West Trenton, NJ 08628
Phone: (609) 538-1818
Email: CTCorporationEastTeam1@wolterskluwer.com
cc: kathy.widdoes@wolterskluwer.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

APPROVED AS TO FORM

By: CATHERINE M. STITES
Deputy General Counsel

December 16, 2015
Date

FOR METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA.

Name (print): Jeffrey Kightlinger
Title: General Manager
Address: The Metropolitan Water District of Southern California
700 North Alameda Street, 12th Floor
Los Angeles, CA 90012

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Dawn Chin
Title: Board of Directors Executive Secretary
Address: 700 North Alameda Street, 12th Floor, LA, CA 90012
Phone: 213.217.6291
email: dchin@mwdh2o.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR PACIFIC BELL TELEPHONE COMPANY.

December 18 2015
Date

Name (print): Paul E. Shorb
Title: General Attorney, AT&T Services, Inc.
Address: AT&T Services, Inc.
1 AT&T Way, Room 3A138
Bedminster, NJ 07921

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Patricia M. O'Toole
Title: Counsel to Pacific Bell Telephone Company
Address: The O'Toole Law Firm
P.O. Box 352348
Los Angeles, CA 90035-0260
Phone: 213-630-4200
email: otoolelaw@earthlink.net

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR PFIZER INC. ON BEHALF OF ITS SUBSIDIARIES AND AFFILIATES

12-17-15
Date

Name (print): Merrill E. Fliederbaum
Title: Assistant General Counsel, Pfizer Inc.
Address: 235 East 42nd Street
New York, NY 10017

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company
Title:
Address: Corporation Trust Center
1209 Orange Street
Wilmington, DE 19801
Phone: (302) 658-7581
email:

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR PILKINGTON GROUP LIMITED.

December 18, 2015

Alan Graham
Authorized Representative
811 Madison Ave
Toledo, OH 43604

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR QUEST DIAGNOSTICS CLINICAL LABORATORIES, INC.

12/18/15
Date

Paul L. Kattas

Name (print): Paul L. Kattas
Title: Senior Corporate Counsel
Address: 3 Giralda Farms
Madison, NJ 07940

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

42

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR RAYTHEON COMPANY.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR ROBISON PREZIOSO INC.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SAFETY-KLEEN SYSTEMS, INC.

12/15/15
Date

Name (print): Michael R. McDonald
Title: Vice President and Assistant General Counsel
Address: 42 Longwater Dr. Norwell, MA 02061

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): CT Corporation System
Title:
Address: 818 West 7th Street, Los Angeles, CA 90017
Phone: (213) 337-4015
email:

45

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SCRIPTO-TOKAI CORPORATION.

12-16-15
Date

Name (print): LAURIE HON
Title: DIRECTOR
Address: 2055 S. HAVEN AVE
ONTARIO, CA 91761

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): LAWRENCE H. GOLKIN, ESQ.
Title: ATTORNEY
Address: 315 BATH ST., SUITE 11
SANTA BARBARA, CA 93101
Phone: 805-403-9900
email: larry@golkinlaw.com

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SEMPRA ENERGY SOLUTIONS.

Sempra Global as Successor to Sempra Energy Solutions'/Central Plants, Inc.'s Liability Related to Omega

Dec. 18, 2015
Date

Name (print): Justin C. Bird
Title: Vice President
Address: 488 8th Avenue
San Diego, CA 92101

Agent Authorized to Accept Service on Behalf of Above-Signed Party:

Name (print): Corporation Service Company
Title:
Address: 2711 Centerville Road, Ste. 400
Wilmington, DE19808
Phone: (800) 927-9800
email: cvalle@csinfo.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SIGNET ARMORLITE, INC.

12/17/15
Date

M Kathryn Bernard
Name (print): M Kathryn Bernard
Title: Vice President, Finance
Address: 5803 Newton Dr. Suite A
Carlsbad, CA 92008

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): John J. Lormon, Partner
Title: john.lormon@procopio.com
Address: (619) 515-3217
Phone:
email: Kevin M. Davis, Associate
kevin.davis@procopio.com
(619) 515-3293

Procopio, Cory, Hargreaves & Savitch, LLP 525 B Street, Suite 2200
San Diego, CA 92101

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SOCO WEST, INC. AS SUCCESSOR TO HOLCHEM, INC.

12/16/11
Date

Name (print): RAJ MEHTA
Title: PRESIDENT
Address: 100 FIRST STAMFORD PLACE
STAMFORD, CT 06902

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SONOCO PRODUCTS COMPANY.

16 DECEMBER 2015
Date

Name (print): LARRY PATTERGILL
Title: DIRECTOR, GLOBAL ENVIRONMENT
Address: 1 NORTH SECOND ST
HARTSVILLE, SC 29550

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): JOHN FLORENCE
Title: CORPORATE ATTORNEY
Address: SONOCO PRODUCTS COMPANY
Phone: 1 NORTH SECOND STREET
email: HARTSVILLE, SC 29550
843.383.7346
john.florence@sonoco.com

50

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR SPARTON TECHNOLOGY, INC.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

51

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR STATE OF CALIFORNIA DOT.

12/18/15
Date

Katrina C. Pierce
Name: Katrina Pierce
Title: Chief, Division of Environmental Analysis
Address: 1120 N Street
Sacramento, California 95814

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): N/A
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR TEXACO INC.

12 January, 2016
Date

Name (print): Frank G. Soler
Title: Vice President and Secretary

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR TEXAS INSTRUMENTS INCORPORATED.

___12/21/15___
Date

Name (print): David W. Thomas
Title: Vice President
Address: 12500 TI Blvd., Dallas, TX 75243

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR THE BOEING COMPANY, ON BEHALF OF ITSELF, BOEING SATELLITE SYSTEMS, INC., AND MCDONNELL DOUGLAS HELICOPTER COMPANY.

2/11/16
Date

David Cohen
Name (print): David Cohen
Title: Senior Counsel

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): CSC – Lawyers Incorporating Service
Title:
Address: 2710 Gateway Oaks Drive, Suite 150 N, Sacramento, CA 95833
Phone: (916) 641-5100
email:

55

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR THE DOW CHEMICAL COMPANY.

12-14-15
Date

Mary F Draves
Name (print): Mary F. Draves
Title: Global Director, Enviromental Remediation and Restoration
Address: 1790 Bldg
Midland MI 48674

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Corporation Trust Center
Title:
Address: 1209 Orange st
Phone: Wilmington, DE 19801
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR THE REGENTS OF THE UNIVERSITY OF CALIFORNIA.

12/18/15
Date

Charles F. Robinson
General Counsel and Vice President
University of California
Office of the General Counsel
1111 Franklin Street, 8th Floor
Oakland, CA 94607

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR THE SHERWIN-WILLIAMS COMPANY.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR TRANE U.S., INC.

December 14, 2015

Date

Name (print):Heather Foran
Title:Associate General Counsel
Address: One Centennial Avenue, Piscataway, NJ 08854

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Heather Foran
Title:Associate General Counsel
Address: 1 Centennial Avenue, Piscataway, NJ 008854
Phone: 732-652-7040
Email: hforan@irco.com

59

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR TRIMAS CORPORATION.

12/14/2015
Date

Name (print): Albert Bostain
Title: V.P. EH&S
Address: 500 W. 7th Street
Auburn, IN 46706

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Josh Sherbin
Title: V.P & General Counsel
Address: 39400 Woodward Ave.; Bloomfield Hills MI 48304
Phone: 248 631-5497
email: JoshSherbin@TRIMAS Corp.Com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR UNION OIL COMPANY OF CALIFORNIA.

January 12, 2016
Date

Name (print): Grace P. Nerona
Title: Assistant Secretary
Address:

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
Title:
Address:
Phone:
email:

61

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR UNIVAR INC. (F/K/A UNIVAR CORPORATION, VOPAK DISTRIBUTION AMERICAS INC.) AND UNIVAR USA INC. (F/K/A VAN WATERS & ROGERS INC., VOPAK USA INC.)

12/14/2015
Date

Name (print): Craig M. Lawson
Title: Vice President – Associate General Counsel of Univar
Address: 17411 NE Union Hill Road
Redmond, WA 98052

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Michelle Ulick Rosenthal
Title: Outside counsel, Univar USA Inc.
Address: Veris Law Group
1801 Seventh Avenue, Suite 1400
Seattle, WA 98101
Phone: (206) 535-6006
email: michelle@verislawgroup.com

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR: UNIVERSAL CITY STUDIOS LLC, F/K/A UNIVERSAL CITY STUDIOS LLLP, UNIVERSAL CITY STUDIOS LLLP, LP, UNIVERSAL CITY STUDIOS LP, UNIVERSAL CITY STUDIOS LLC, AND UNIVERSAL CITY STUDIOS, INC.; INCLUDING THE FOLLOWING FICTITIOUS BUSINESS NAMES, AFFILIATES, DIVISIONS OR DEPARTMENTS: UNIVERSAL CITY STUDIOS; UNIVERSAL STUDIOS; UNIVERSAL STUDIOS, INC., F/K/A MCA INC.; MCA/UNIVERSAL STUDIOS; MCA/UNIVERSAL; UNIVERSAL TITLE & OPTICAL;

NBCUNIVERSAL MEDIA, LLC, F/K/A NBCUNIVERSAL, INC., NATIONAL BROADCASTING COMPANY, INC.; INCLUDING THE FOLLOWING FICTITIOUS BUSINESS NAMES, DIVISIONS OR DEPARTMENTS: NBC STUDIOS, N.B.C. STUDIOS, NBC AND N.B.C.).

Date: December __, 2015

Name (Print): David L. Burg, Esq.
Title: Senior Vice President & Associate General Counsel, Assistant Secretary
Address: NBCUniversal Media, LLC
100 University City Plaza
Building 1280-6
Universal City, CA 91608

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Donald C. Nanney, Esq.
Title: Partner
Address: Gilchrist & Rutter Prof. Corp.
1299 Ocean Avenue, Ste 900
Santa Monica, CA 90401
Phone: (310) 393-4000
email: dnanney@gilchristrutter.com

Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

FOR WEBER AIRCRAFT CORP.

12/21/2015
Date

Gene A. Lucero
Name (print): Gene A. Lucero
Title: Authorized OPOG Representative

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):
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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

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Signature Page for Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site

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Appendix A

ROD

EPA Superfund
Interim Action Record of Decision

Omega Chemical Corporation Superfund Site

Operable Unit 2

Los Angeles County, California

EPA ID: CAD042245001

September 20, 2011

Interim Action Record of Decision

for

Operable Unit 2

Omega Chemical Corporation Superfund Site

Los Angeles County, California

EPA ID: CAD042245001

September 20, 2011

United States Environmental Protection Agency

Region IX – San Francisco, California

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Acronyms and Abbreviations

µg/L	microgram(s) per liter
µg/m^3	microgram(s) per cubic meter
AMK	Angeles Chemical Company and McKesson Corporation facilities
AOC	Administrative Order on Consent
AOP	advanced oxidation process
ARAR	Applicable or Relevant and Appropriate Requirement
BACT	best available control technology
bgs	below ground surface
BMP	best management practice
Cal-EPA	California Environmental Protection Agency
CBMWD	Central Basin Municipal Water District
CCR	California Code of Regulations
CD	Consent Decree
CDPH	California Department of Public Health
CDWR	California Department of Water Resources
CE	central extraction
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	*Code of Federal Regulations*
COC	contaminant of concern
CWA	Clean Water Act
DCA	dichloroethane
DCE	dichloroethene
DEHP	bis(2-ethylhexyl)phthalate
DTSC	California Department of Toxic Substances Control
ELCR	excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
Fe	iron
FS	feasibility study
GAC	granular activated carbon
GHG	greenhouse gas
gpm	gallon(s) per minute
GSWC	Golden State Water Company
GWTP	groundwater treatment plant
H&S Code	Health and Safety Code
HEAST	Health Effects Assessment Summary Tables

HI	hazard index
HHRA	human health risk assessment
HQ	hazard quotient
HVAC	heating, ventilation, and air conditioning
kW	kilowatt(s)
IC	institutional control
IRIS	Integrated Risk Information System
IX	ion exchange
LACDHS	Los Angeles County Department of Health Services
LACSD	Los Angeles County Sanitation District
LE	leading edge
LGAC	liquid-phase granular activated carbon
MCL	maximum contaminant level
mg/L	milligram(s) per liter
Mn	manganese
msl	mean sea level
MTBE	methyl-tert-butyl-ether
NAPLs	non-aqueous phase liquids
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	non-detect
NDMA	N-Nitrosodimethylamine
NE	northern extraction
NF	nano-filtration
NL	notification level
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPV	net present value
NSF	NSF International
NWU	nonconsumptive water use
O&M	operation and maintenance
OEHHA	Office of Environmental Health Hazard Assessment
OPOG	Omega Chemical Site PRP Organized Group
OSHA	U.S. Occupational Safety and Health Administration
OSVOG	Omega Small Volume Group
OU	Operable Unit
PCE	tetrachloroethylene
PHG	public health goal
PM	particulate matter
POTW	publicly-owned treatment works
ppb	part(s) per billion

ppm	part(s) per million
PRG	preliminary remediation goal
PRP	potentially responsible party
RA	remedial action
RAO	remedial action objective
RD	remedial design
RfD	reference dose
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
RME	reasonable maximum exposure
RO	reverse osmosis
ROD	Record of Decision
RWQCB	Los Angeles Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SCAQMD	South Coast Air Quality Management District
SDWA	Safe Drinking Water Act
SIP	state implementation plan
Site	Omega Chemical Corporation Superfund Site
SO_4	sulfate
SOx	sulfur oxides
SOW	Statement of Work
State	State of California
SVE	soil vapor extraction
SVOC	semivolatile organic compound
SWRCB	State Water Resources Control Board
T-BACT	best available control technology for toxics
TBC	to-be-considered
TCA	trichloroethane
TCE	trichloroethylene
TDS	total dissolved solids
UAO	Unilateral Administrative Order
UCL	upper confidence limit
USC	United States Code
USGS	U.S. Geological Survey
UST	underground storage tank
UV	ultraviolet
VFD	variable frequency drive
VOC	volatile organic compound
WQO	water quality objective
WRD	Water Replenishment District

Part 1
Declaration

Part 1 – Declaration

1.1 Site Name and Location

The Omega Chemical Corporation Superfund Site (Site) is located in Los Angeles County, California (Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS] ID No. CAD042245001). Operable Unit (OU) 2 of the Site is the contamination in groundwater generally downgradient and originating from the former Omega Chemical Corporation (Omega Chemical) facility in Whittier, California, much of which has commingled with chemicals released at other areas overlaying the OU2 groundwater plume. See Figure 1 for the location of OU2.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD), issued by the United States Environmental Protection Agency, Region IX (EPA), selects an Interim Remedy for OU2 of the Omega Chemical Corporation Superfund Site, in Los Angeles County, California. The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Contingency Plan (NCP). This decision is based on the Administrative Record (AR) for the Site. The State of California (State), represented by the Department of Toxic Substances Control (DTSC), concurs with the Interim Remedy.

1.3 Assessment of the Site

EPA has determined that hazardous substances, pollutants or contaminants have been released into groundwater within OU2, and that a substantial threat of spreading of the release into unimpacted portions of the aquifer exists. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 Description of the Selected Remedy

EPA's selected Interim Remedy for OU2 of the Site is a groundwater pump and treat system intended to limit the movement of contaminated groundwater. The overall objective of the Interim Remedy is to protect human health and environment by preventing further spreading of the contaminated groundwater to as yet uncontaminated portions of the aquifer and nearby production wells. Following selection of the remedial action for OU2, EPA will conduct further studies and expects to propose additional remedial actions for the OU2 plume as part of the final cleanup remedy for the Site. As part of those studies, EPA will work with the State to identify and address all significant sources within the OU2 plume area that have contributed to the groundwater contamination. Most of the known sources are currently being addressed by State-led actions. EPA expects that the rest of the sources will be addressed by the combined efforts of the State and EPA.

There are three primary goals, or Remedial Action Objectives (RAOs), developed for the Interim Remedy for OU2:

1. Prevent unacceptable human exposure to groundwater contaminated by contaminants of concern (COCs);
2. Prevent lateral and vertical spreading of COCs in groundwater at OU2 to protect current and future uses of groundwater; and
3. Prevent lateral and vertical migration of groundwater with high concentrations of COCs into zones with currently lower concentrations of COCs to optimize the treatment of extracted groundwater.

In addition, the Interim Remedy is expected to begin the process of restoring the contaminated aquifer by removing contaminant mass from the groundwater.

Because this action is considered ―interim", EPA is not setting numeric cleanup goals for the groundwater in the aquifer (i.e., ―in situ" cleanup goals) at this time.

The scope of the Interim Remedy does not include restoration of the aquifer, in part because of the following:

- There are known sources that have contributed to groundwater contamination within OU2 other than the former Omega Chemical facility at 12504 and 12512 Whittier Boulevard, and cleanup actions have not yet been selected for some of those sources. Most of the known sources are currently being addressed by State-led actions. In addition, there are other potential but unconfirmed source areas contributing to the OU2 groundwater contamination, which necessitate continued coordination with the State and possible further investigation to evaluate restoration of the aquifer. EPA will continue to work with the State to identify and address these other source areas.
- Additional data are needed in some areas of the aquifer where the extent of contamination will need to be better defined before EPA can determine whether any additional actions are needed to address these other areas of groundwater contamination.

EPA will continue to work closely with the State to ensure that contaminant source areas within OU2 have been addressed. Collaboration with the State will ensure that the plume containment achieved by this Interim Remedy will be sustained and that source control actions are consistent with the final remedy for the OU2 plume. The area of highly contaminated groundwater within OU1 of the Site is currently being controlled by a pump-and-treat system that began operation in July 2009. In addition, the work for design and construction of the soil remedy for OU1 (soil vapor extraction [SVE] throughout the vadose zone) began in 2010.

Components of the Interim Remedy for OU2 include the following:

- Installation of extraction wells;
- Construction of groundwater treatment facilities and associated piping;
- Delivery of treated water to one or more local drinking water purveyors, pending future stakeholder negotiations, or, if EPA determines the required agreement(s) cannot be reached in a timely manner, reinjection of the treated water into the aquifer;

- Institutional controls (ICs) for the purpose of minimizing the risk that future pumping from production wells would interfere with the containment objectives of this Interim Remedy; and
- Installation of new groundwater monitoring wells.

1.5 Statutory Determinations

The selected remedial action is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost effective, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable.

This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment).

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining onsite (i.e., in groundwater) above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

1.6 ROD Certification Checklist

The following information is presented in the Decision Summary section (Part 2 of this ROD). Additional information can be found in the administrative record file for the Site.

- COCs and their respective concentrations (see Sections 2.5 and 2.7).
- Baseline risk represented by the COCs (see Section 2.7).
- How source materials constituting principal threats are addressed (see Section 2.11).
- Current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (see Sections 2.6 and 2.7).
- Potential groundwater use that will be available at the Site as a result of the selected remedy (see Section 2.12).
- Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see Section 2.12).
- Key factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) (see Section 2.12).

This ROD does not establish cleanup levels for the COCs in the aquifer and the basis for these levels because the selected remedy is an Interim Remedy.

1.7 Authorizing Signature

This ROD documents the selected Interim Remedy for contaminated groundwater at OU2 of the Site. This remedy was selected with the concurrence of DTSC. The Assistant Director of the EPA Region IX Superfund Division has been delegated the authority to approve and sign this ROD.

Kathleen Salyer 9/20/11

Kathleen Salyer
Assistant Director, Superfund Division
California Site Cleanup Branch

Date

Part 2
Decision Summary

Part 2 – Decision Summary

2.1 Site Name, Location, and Description

The Omega Chemical Corporation Superfund Site (Site) includes the location of the former Omega Chemical Corporation (Omega Chemical), a refrigerant and solvent recycling and treatment facility located in Whittier, California, a community of approximately 85,000 people. Omega Chemical was located at 12504 and 12512 Whittier Boulevard (two adjoining parcels, referred to collectively as the Omega property), across the street from a residential neighborhood and within one mile of several schools, including three elementary schools and two high schools. The Omega property occupies Los Angeles County Assessor Tract Number 13486 (Lots 3 and 4). The facility operated from approximately 1976 to 1991, handling primarily chlorinated hydrocarbons and chlorofluorocarbons. Drums and bulk loads of waste solvents and chemicals from various industrial activities were processed at the facility. Chemical, thermal, and physical treatment processes reportedly were used to recycle the waste materials. Wastes generated from treatment and recycling activities included distillation column (still) bottoms, aqueous fractions, and non-recoverable solvents.

As a result of these operations, subsurface soil and groundwater have high concentrations of tetrachloroethylene (PCE), trichloroethylene (TCE), other chlorinated hydrocarbons, Freons, and other contaminants. PCE, TCE, and Freons also have been found in groundwater contamination extending more than 4 miles downgradient of the Omega property.

For the purpose of responding to contamination at the Site, EPA has divided it into three OUs (OU1, OU2, and OU3) as discussed in Section 2.4. OU1 includes the former Omega Chemical facility and immediate vicinity. OU2 is the contamination in groundwater generally downgradient of OU1 that originated from the former Omega Chemical facility, much of which has commingled with chemicals released at certain source areas/facilities into a continuous plume that is approximately 4 ½ miles long and 1 ½ miles wide, as shown in Figure 2 . OU3 refers to vapor intrusion from subsurface contamination that has occurred in several buildings on and near the Omega property.

EPA is the lead agency for the current and planned future groundwater remedial activities at OU2. EPA's response activities at OU2 are and have been conducted under the authority established in CERCLA, as amended, 42 United States Code (USC) Section 9601 et seq. (also known as Superfund). The lead State agency for OU2 is DTSC. The Los Angeles Regional Water Quality Control Board (RWQCB) has provided and continues to provide substantial support, particularly with the investigation and cleanup of sources of contamination in the OU2 area. To date, the source of cleanup monies for the Site as a whole has been a mix of the Superfund trust fund and settlements with potentially responsible parties (PRPs). The expected source of cleanup monies for implementation of the selected remedy for OU2 is a settlement with PRPs.

2.2 Site History and Enforcement Activities

2.2.1 Site History

Historical Use of the Former Omega Property

The following summarizes ownership and use of the Omega property:

- Late 1930s – The property was undeveloped or used for agricultural purposes.
- 1951 – The property was developed; office and warehouse were constructed for Sierra Manufacturing Company. In December 1958, the Sierra Manufacturing Company sold the property to Sierra Bullets, Inc., a California corporation. Operations included manufacturing of metal-jacketed rifle and pistol projectiles and metal cups for detonation devices. A 500-gallon underground storage tank (UST) was used for storage of kerosene. TCE also was reportedly used at the site.
- 1962 - 1966 – The northern parcel (12504 Whittier Boulevard) was owned by Fred R. Rippy, Inc. (Rippy Inc.), which used the parcel for the purposes of die-making and operation of a stamping machine shop.
- 1966 - 1974 – The northern parcel was used to convert vans to ambulances. Fred R. Rippy, as an individual, was the owner of this parcel from 1966 until transferring ownership to the Fred R. Rippy Trust in 1986.
- 1974 - 1976 – The northern parcel was occupied by Bachelor Chemical Processing. Operations reportedly included the recycling of Freons.
- 1976 – Omega Chemical began leasing 12504 Whittier Boulevard.
- 1986 –The property was transferred from Fred R. Rippy, as an individual, to the Fred R. Rippy Trust.
- 1987 – Omega Chemical purchased the leased northern parcel and adjoining southern parcel (12512 Whittier Boulevard) from the Fred R. Rippy Trust.
- April 11, 1991 – Omega Chemical was ordered by the Superior Court of the County of Los Angeles to cease operation, remove all hazardous wastes, and close the facility.
- September 1991 – Omega Chemical filed Chapter 11 bankruptcy, which was dismissed on September 7, 1993.

The former Omega Chemical Corporation operated a refrigerant and solvent recycling, reformulation, and treatment facility. Drums and bulk loads of waste solvents and other chemicals from various industrial activities were treated, stored, disposed of, and/or processed at the facility to form commercial products, which sometimes were sold in the marketplace.

According to its October 29, 1990 Operation Plan for Hazardous Waste Recovery, the Omega Chemical facility maintained 11 treatment units comprising distillation columns, reactors, a wipe film processor, a liquid extractor, and a solid waste grinder. The facility also maintained 22 stainless steel tanks with capacities ranging from 500 to 10,000 gallons, and five carbon steel

tanks with capacities of 5,000 gallons. Manifest records indicate approximately 18,000 tons of waste were delivered to the facility during its years of operation. The majority of the waste consisted of industrial solvents and refrigerants.

From approximately 1999 through 2002, the northern parcel (12504 Whittier Boulevard) continued under the ownership of Omega Chemical Inc. and was leased by Mr. Nicholas Stymuiank, who occupied the warehouse and stored miscellaneous equipment and materials in the warehouse and service yards.

Van Owen Holdings LLC, of Los Angeles, California, purchased the Omega property in 2003 and continues to own it. The warehouse on the northern parcel (12504 Whittier Blvd.) was converted and used by Star City Auto Body for auto body repair. Star City Auto Body continues to lease the property and uses it for automotive body repair and painting. The auto body shop also leases the small paved parking lot north of the warehouse building for automobile parking.

During the past few years, several tenants have operated at the former administrative building and the concrete-paved exterior yard / parking area south of the warehouse on the southern parcel (12512 Whittier Boulevard). C&I Electric used the property for equipment and billboard storage. Following the termination of the C&I Electric lease, Three Kings Construction occupied the property. In December 2006, L&M Pallets leased the exterior yard for pallet storage and continued to use the yard through 2007. A stone countertop/tile business leased the property thereafter for a very short time. Both the administrative building and the exterior yard were vacant as of August 2011.

Historical Use of the OU2 Area

The majority of the OU2 area was irrigated agricultural land in the early 1900s and agricultural use persisted through the 1950s. Commercial, industrial, and residential development started in the 1920s and 1930s. The historical industrial facilities included a number of chemical manufacturing and processing plants; an oil refinery; oil production facilities, including wells and pipelines; machine shops; and other businesses.

Current Use of the OU2 Area

Current industrial facilities within the OU2 area include chemical manufacturing and processing plants, a closed oil refinery, oil production wells and pipelines, railroad yard, machine shops, and other businesses. There is some residential use in the area. Land uses are not expected to change significantly in the next 20 years or longer.

The groundwater basin is an important source of drinking water for the metropolitan area east of Los Angeles, including the cities of Whittier, Santa Fe Springs and Norwalk. The use of groundwater in the basin is subject to adjudicated water rights administered by the California Department of Water Resources (CDWR), which serves as the Watermaster for the Central Basin.

2.2.2 Federal, State, and Local Site Investigations and Response Actions

Between 1984 and 1988, Omega Chemical received several notices of violations from the Los Angeles County Department of Health Services. In the 1990s, DTSC and EPA actively pursued the owner/operator of Omega Chemical to remove drums of contaminants and clean up the site.

At the request of DTSC, EPA conducted assessments of the Omega Chemical facility and property in 1993 and early 1995 to evaluate the condition of approximately 3,000 drums of unprocessed hazardous waste present on most of the available storage area on the property. In January 1995, EPA observed approximately 3,000 drums in various stages of deterioration, many of which were corroded and leaking. The drums were situated on pallets, in some cases three high, and many were weathered from years of outside storage. Leaking substances were migrating to other portions of the Omega property and offsite.

During 1995 and 1996, a group of PRPs (that later formed the Omega Chemical Site PRP Organized Group [OPOG]) undertook several response actions at the former Omega Chemical facility, including the removal of drums and collection of soil and groundwater samples.

In 2001, EPA started investigations of the extent of groundwater contamination at OU2, including periodic groundwater monitoring. The results of the initial investigations were documented in reports completed in 2002 and 2003.

In May 2004, indoor air was sampled within several buildings near the former Omega property, including Skateland, an indoor roller skating rink. The results indicated intrusion of PCE and TCE vapors into several buildings, from soil and groundwater at the Omega property. The highest levels were found in the Skateland building, where PCE measured 1,100 micrograms per cubic meter ($\mu g/m^3$), well exceeding EPA's health-protective range for long-term PCE exposure in an industrial/commercial use scenario (2.1 to 210 $\mu g/m^3$). OPOG members implemented an EPA-approved response action at Skateland by ultimately funding the purchase and demolition of the Skateland building. Indoor air monitoring of several buildings in the area near the former Omega property continues.

In 2005 and 2006, PRP members of the Omega Small Volume Group (OSVOG) installed and sampled additional groundwater monitoring wells to help characterize the plume of contaminated groundwater emanating from the Omega property.

In November 2007, with EPA oversight, OPOG completed a Remedial Investigation (RI) for OU1 soils. OPOG completed the OU1 Feasibility Study (FS) for soils in May 2008.

EPA installed additional groundwater monitoring wells, performed aquifer testing, and collected discrete groundwater, soil, and soil gas samples within the OU2 area in 2006 and 2007. In March 2009, EPA completed a draft OU2 RI Report. EPA completed the OU2 RI/FS and issued a Proposed Plan in August 2010. EPA presented the proposed Interim Remedy in a public meeting held on August 31, 2010, in Whittier, California, and held a 90-day public comment period.

EPA continues to monitor the extent of contamination in OU2, and to investigate other potential sources of contamination.

Additional Investigations and Actions at OU2 Source Areas

State and local regulatory agencies have identified numerous instances of releases of hazardous substances at facilities in and near the OU2 area. In an effort to identify whether or not these source areas have contributed contamination to the OU2 plume, EPA has searched and reviewed records and agency files, and performed field investigations at several of the confirmed and potential source areas identified in the OU2 plume area. EPA has determined that many source areas of significantly contaminated soils and groundwater have likely contributed contaminants

to the OU2 plume. Most of the source area investigations have been performed under the oversight of State agencies (DTSC & RWQCB). EPA expects that all of the sources will be addressed by the combined efforts of the State and EPA. EPA will continue to work closely with the State to ensure that contaminant source areas within OU2 have been addressed. Collaboration with the State will ensure that the plume containment achieved by this Interim Remedy will be sustained and that source control actions are consistent with the final remedy for the OU2 plume.

History of CERCLA and State Enforcement Actions at the Site

Between 1984 and 1988, Omega Chemical received several notices of violations from the Los Angeles County Department of Health Services.

On May 9, 1995, EPA issued a Unilateral Administrative Order (UAO) to the Omega Chemical Corporation, its President, Dennis O'Meara, and to ―major" generators (i.e., PRPs that sent at least 10 tons of hazardous substances to the Omega Chemical facility). The 1995 UAO was amended in September 1995, and issued to additional PRPs. Among other things, the UAO required: the removal of containers of materials and decommissioning of certain equipment at the Omega property; an investigation of the extent of soil and groundwater contamination at or from the Omega property; and removal of hazardous substances from the property. A total of 147 parties performed work under the 1995 UAO.

In September 1998, EPA proposed the Site for listing on the National Priorities List (NPL) and, on January 19, 1999, placed the Site on the NPL (64 Fed. Reg. 2950). DTSC has supported and continues to support EPA and represents the State regarding site investigation issues.

On April 1, 1999, EPA issued special notice letters to PRPs and commenced negotiation of a consent decree (CD) ultimately entered by the U.S. District Court in 2001, which required PRPs to perform a non-time-critical removal action addressing groundwater in the area of the former Omega property and an RI/FS addressing soils located at or near the Omega property. On September 30, 2005, following OPOG's completion of an engineering evaluation/cost analysis (EE/CA) report for OU1 groundwater, EPA issued an action memorandum describing the required removal action, which included groundwater extraction and treatment at or near the Omega property for purposes of containing contaminated groundwater. The 2001 CD also required payments from other defendants, in lieu of participation in the work required thereunder. OPOG has implemented the groundwater containment action pursuant to the 2001 CD.

On January 5, 2004, EPA issued a separate UAO to OSVOG, a group of 19 other major generator PRPs who sent at least 10 tons of hazardous waste to Omega Chemical. The UAO required OSVOG to install and sample additional groundwater monitoring wells to help characterize the plume of contaminated groundwater emanating from the Omega property. OSVOG complied with the UAO.

In 2005, EPA settled with 171 de minimis parties, which sent between 3 and 10 tons of hazardous substances to the former Omega Chemical facility. In 2006, EPA settled with 12 parties deemed to have limited ability to pay response costs incurred and to be incurred at the Omega Chemical Site.

In June 2008, EPA released for public comment a Proposed Plan for soil cleanup at OU1, and issued the ROD for OU1 soils on September 30, 2008. The remedy includes a soil vapor

extraction (SVE) system and ICs. In 2009, EPA sent special notice letters to PRPs soliciting an offer to perform the OU1 RD/RA identified in the ROD and payment of EPA's unreimbursed response costs. In 2010, EPA signed a CD with OPOG that requires the PRP group to design, construct and operate the OU1 soil remedy, and to pay a portion of EPA's response costs.

In November 2009, EPA signed an Administrative Order on Consent (AOC) with OPOG to mitigate the vapor intrusion into buildings at OU3. The AOC has been modified twice to encompass additional buildings and response work. OPOG initiated the AOC work in December 2009; these mitigation efforts are ongoing. EPA presently oversees the ongoing OPOG OU1 and OU3 activities.

Additional Enforcement Actions at OU2 Sources Areas

Most of the known sources that have contributed to the OU2 groundwater contamination are currently under State oversight (DTSC or RWQCB) and are currently being addressed by State-led actions. EPA has issued general notice letters to PRPs at nine of these OU2 source areas. EPA assumes that the State will require source control actions at these facilities as needed and expects that, if and when additional source areas are identified, they will be addressed by the combined efforts of the State and EPA. Investigation of additional potential OU2 source areas continues.

2.3 Community Participation

Document Repositories

Site-related documents can be found in the Administrative Record file at the EPA Region 9 Superfund Records Center, located at 95 Hawthorne Street (4th Floor) in San Francisco, and at the information repository located at the Whittier Public Library at 7344 S. Washington Avenue in Whittier, California.

OU1

In June 2008, the Proposed Plan for OU1 soils and the related RI, FS, and Human Health Risk Assessment (HHRA) reports were made available to the public. A public notice was published on June 6, 2008 in the *Whittier Daily News* to notify community members about the availability of the Proposed Plan, the upcoming public meeting and the public comment period. The Proposed Plan was also mailed to the community.

The public meeting for the Proposed Plan was held June 24, 2008. At this meeting, EPA representatives presented the Proposed Plan and answered questions about the preferred alternative and issues regarding contamination at OU1. No comments or objections concerning the preferred alternative were raised at the meeting. The transcript for the public meeting is part of the Administrative Record file at the information repositories.

OU2

A fact sheet presenting a summary of the draft OU2 RI results was issued and distributed to the public in September 2009. EPA made the draft RI Report available by posting it on a file transfer protocol (FTP) site for public access. The final RI/FS was completed in August 2010 and was made available to the public. These documents also can be found in the AR file at the EPA

Region 9 Superfund Records Center, located at 95 Hawthorne Street (4th Floor) in San Francisco, and at the information repository located at the Whittier Public Library at 7344 S. Washington Avenue in Whittier, California. A public notice was published on August 12, 2010, in the *Whittier Daily News* to notify community members about the availability of the Proposed Plan, the public meeting and the duration of the public comment period. The Proposed Plan was also mailed to the community. After receiving a request from Golden State Water Company for a 30-day extension of the public comment period, EPA extended the review period through October 23, 2010, and notified the public of the extension via a notice on EPA's web page for the Site and through a public notice in the *Whittier Daily News.* After receiving a subsequent request from the office of Congresswoman Grace Napolitano for a 30-day extension of the public comment period, EPA extended the review period through November 22, 2010, and again notified the public of the extension via information posted on EPA's web page for the Site and a public notice in the *Whittier Daily News.*

The public meeting for the OU2 Proposed Plan was held August 31, 2010. At this meeting, EPA representatives presented the Proposed Plan and answered questions about the preferred alternative and contamination at OU2. Comments made on the preferred alternative during the public meeting were later included in formal comment letters submitted during the public comment period. The transcript for the public meeting is part of the Administrative Record file at the information repositories. EPA's responses to comments on its proposed cleanup plan are included in the Responsiveness Summary, which is Part 3 of this ROD.

2.4 Scope and Role of Operable Unit

2.4.1 Role of Operable Unit

This section briefly describes the Operable Units (OUs) to provide context for this Record of Decision. As is the case at many Superfund sites, the issues at the Omega Chemical Corporation Superfund Site are complex. Because of this complexity, EPA manages the Site as three OUs.

- OU1 includes the contaminated soil and groundwater at and in the immediate vicinity of the former Omega property;
- OU2 is composed of groundwater contamination outside and generally downgradient (generally south-southwest) of OU1; and
- OU3 is composed of indoor air contamination at buildings located on and near the former Omega Chemical property.

OPOG is leading the investigation and cleanup of OU1 and OU3, with EPA oversight. EPA has conducted the RI/FS for OU2, which is the subject of this ROD.

Under the 2001 CD, OPOG has designed and implemented a groundwater containment and mass removal treatment system for OU1 groundwater, which is currently operating. Construction of the groundwater treatment system was completed and full operation began in July 2009. The system consists of five extraction wells and a treatment plant. The treated water is discharged to a sanitary sewer line. From July 2009 through March 2011, the system extracted and treated approximately 11,150,000 gallons of water and removed 440 pounds of VOCs. The groundwater

extraction system is monitored monthly, and quarterly reports are provided to ensure performance standards are met.

The September 2008 ROD selected a remedy to address soil and soil vapor contamination within OU1. The soil remedy will use an SVE system to remove soil contamination to reduce risk associated with exposure to contaminated soils and contaminant vapors, and to reduce the impact of the soil contamination on groundwater. OPOG began pilot studies and field testing for remedial design of the SVE system in late 2010.

In addition, under the November 2009 AOC, as modified, OPOG has undertaken a variety of measures, including the installation of an interim SVE system and a sub slab depressurization system, to address vapor intrusion at a number of buildings adjacent to the former Omega property. The vapor intrusion mitigation efforts are ongoing. EPA presently oversees the ongoing OPOG OU1 and OU3 activities.

2.4.2 Scope of Response Action

Selection and implementation of the Interim Remedy for OU2 is intended to address the contaminated groundwater in the area generally downgradient of the former Omega Chemical facility. Because the area overlying the OU2 plume is highly industrialized, the OU2 plume from the Omega property, which contains significant volatile organic compound (VOC), Freon, and 1,4-dioxane contamination, is commingled with other groundwater contaminants (including chromium, perchlorate, selenium, and fuel hydrocarbons) that are not believed to have been part of the Omega Chemical facility's operations but have been released at facilities within the OU2 area. These contaminants and others are present in OU2 groundwater at levels that exceed the maximum contaminant levels (MCLs) or State notification levels for drinking water and pose a current and potential risk to human health.

The area of highly contaminated groundwater within OU1 is controlled by an interim pump-and-treat system that began operation in July 2009, and RD/RA work on the soil remedy for OU1 (SVE throughout the vadose zone) began in 2010. The investigation and cleanup work at numerous source areas of significantly contaminated soils and groundwater at OU2 that were identified in the RI are under State oversight (DTSC or RWQCB). EPA will continue to work closely with the State to ensure that contaminant source areas within OU2 are addressed. Collaboration with the State will ensure that the plume containment achieved by this Interim Remedy will be sustained and that source control actions are consistent with the final remedy for the OU2 plume.

In this ROD, EPA is selecting an interim containment remedy for the contaminated groundwater at OU2. This will protect human health and environment by preventing further spreading of the contaminated groundwater to as yet uncontaminated portions of the aquifer and nearby production wells. Following implementation of the OU2 Interim Remedy, EPA will evaluate and, as appropriate, select additional cleanup actions for the contaminated groundwater at the Site as part of a final ROD.

The Interim Remedy will work in parallel with the actions at OU1 (soil cleanup and interim groundwater containment remedy) and the State-led cleanup actions at the source areas overlying the OU2 plume (Figure 3). This approach will allow cleanup to move forward under the State-led actions for the source areas and under EPA-led action for the commingled OU2 plume. The

Interim Remedy is expected to be consistent with the State-led actions and with the final remedy for the Site.

2.5 Site Characteristics

2.5.1 Conceptual Site Model

The conceptual site model for OU2 takes into account past spills, leaks, or other releases of hazardous contaminants that have occurred at the former Omega Chemical facility and known source areas within OU2, which have resulted in significant groundwater contamination that poses a potential risk to human health via the use of contaminated groundwater for potable water supply. The contamination from these source areas commingled into a continuous plume in groundwater.

Contaminated groundwater at OU2 is known to be present from about 40 to 100 feet below ground surface (bgs) and extends to about 200 feet bgs. The plume of contaminated groundwater extends approximately 4.5 miles generally south-southwest from the Omega property in the City of Whittier, through the City of Santa Fe Springs, and into the City of Norwalk. Within the OU2 plume, there are two mostly distinct high concentration areas of contamination where PCE concentrations exceed 500 micrograms per liter (µg/L). The RI/FS data indicate that the first high concentration area originates at the former Omega Chemical facility and extends for a distance of approximately 1 mile downgradient. The second high concentration area starts within a short distance downgradient of the first and continues for about one half mile (see Figure 2).

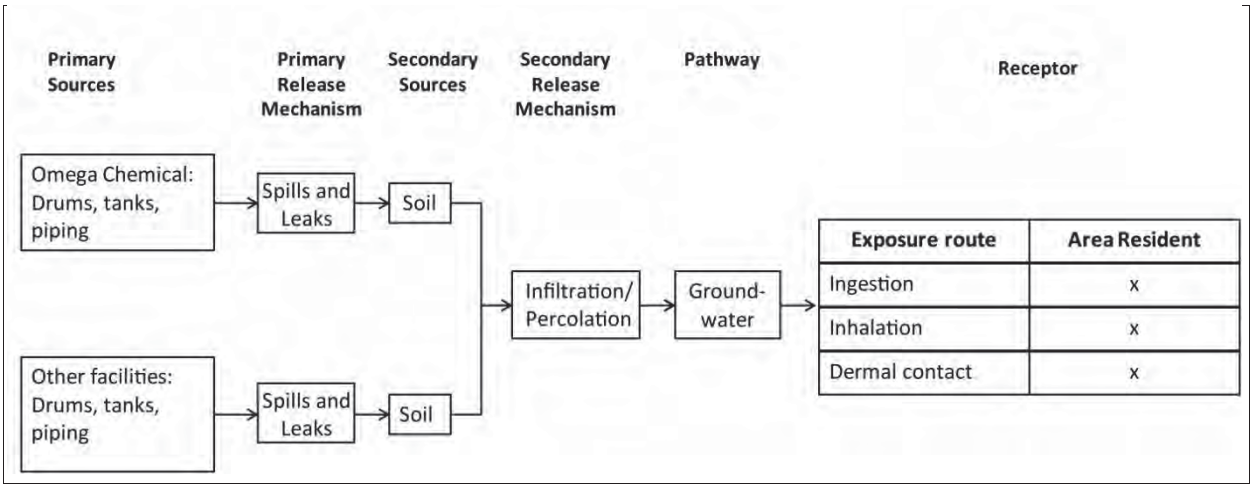
Groundwater at OU2 generally flows south and southwest. The groundwater within the OU2 area is used as a source of drinking water by several municipal and private water purveyors. Most of the drinking water wells located in the OU2 area draw water primarily from deeper portions of the aquifer at depths of 200 feet bgs or greater and are not currently impacted by groundwater contamination. However, a few drinking water wells in the area draw water at about the 200 feet bgs level and have had some contaminants detected. These wells are currently equipped with **wellhead treatment units** which consist of granular activated carbon (GAC) filters. The GAC filter removes the contaminants from the water to ensure that it meets drinking water standards. Drinking water for the cities of Whittier, Santa Fe Springs and Norwalk is tested regularly prior to distribution to the public, and, based on information EPA has been provided, all tap water meets State and Federal drinking water standards.

The HHRA results indicated that the OU2 contaminated groundwater does not pose a current or immediate risk to human health but could pose a significant potential future risk through domestic use of contaminated groundwater. Delaying action could result in the increased likelihood that additional water supply wells in the area would have to be modified, removed from service, operated intermittently, or would require treatment to remove contaminants. The conceptual site model is graphically illustrated in Figure 4.

The risk to ecological receptors from contaminants in OU2 groundwater is negligible due to the depth of groundwater. All surface water drains are at substantially higher elevations than the water table at OU2; thus, groundwater does not discharge to surface water bodies where exposure of ecological receptors otherwise could occur.

The Site and surrounding areas are nearly completely developed with a mix of predominantly commercial/industrial and minor residential land use. EPA does not expect the future land or resource uses in this area to change.

Figure 4: Conceptual Site Model for OU2



2.5.2 Overview of the Site

The former Omega Chemical Corporation was located at 12504 and 12512 Whittier Boulevard, Whittier, California. The former Omega property is approximately 41,000 square feet in area (200 ft x 205 ft) and contains two structures—a 140- by 50-foot warehouse and an 80- by 30-foot administrative building. A loading dock is attached to the rear of the warehouse. The Omega property is paved with concrete and secured with a 7-foot-high perimeter fence and locking gate. The fence is topped with razor wire.

The plume of contaminated groundwater that comprises OU2 extends from the Omega property for approximately 4.5 miles in a south-southwesterly direction (see Figure 2). The width of the contaminated groundwater plume varies from approximately 0.5 to 1 mile, and the area covered by the plume is approximately 3.3 square miles. The Omega Chemical Site and the vast majority of surrounding areas are developed with residential, industrial, or commercial facilities; very little undeveloped property remains in this area. The plume has expanded at a rate of at least 540 feet per year since 1976.

The ground surface slopes southwest from the former Omega Chemical facility at approximately 220 feet above mean sea level (msl) to approximately 150 to 160 feet above msl in the southwestern portion of OU2. Groundwater flow velocity at OU2 is approximately 620 feet per year.

2.5.3 Surface and Subsurface Features

No drums, tanks, or other features related to the operation of the former Omega Chemical Corporation remain on the property. Throughout OU2, the area is very industrialized with many facilities utilizing various containers for chemical storage.

No areas of archaeological or historical importance have been identified at the Site.

The Site is located in the Montebello Forebay and the Whittier area of the Central Basin, a subbasin of the Coastal Plain of Los Angeles County, California. According to Bulletin 104 published by CDWR, water-bearing sediments identified in the Whittier area extend to an approximate depth of at least 1,000 feet bgs. The main geologic units consist of recent alluvium, the upper Pleistocene Lakewood formation, and the lower Pleistocene San Pedro formation. The area downstream of the Whittier Narrows is known as the Montebello Forebay, where surface water could freely percolate into the groundwater system.

Most of the surface streams in the Central Basin are concrete lined (e.g., the Sorenson Drain) and recharge through the bottoms of these stream channels is assumed to be negligible. Exceptions to this are engineered recharge zones, the Rio Hondo and San Gabriel spreading basins and the unlined section of the San Gabriel River downgradient of the spreading basin extending approximately to Florence Avenue (Figure 5). There are no groundwater discharges to surface water bodies within OU2.

The San Gabriel and the Rio Hondo spreading basins are the major groundwater replenishment sources for the Central Basin. Numerous production wells are located within the Central Basin. Most of these production wells are screened in the deeper portion of the aquifer at depths generally greater than 200 feet bgs. Groundwater flows generally to the southwest in the Montebello Forebay and then turns to the south-southwest in the Central Basin pressure area. The groundwater flow in the Central Basin is mainly controlled by natural and artificial recharge in the Montebello Forebay and production pumping. Despite water level fluctuation over time, the general groundwater flow direction and gradient of the upper (water table) aquifer have remained relatively constant at OU2.

Shallow deposits at OU2 consist of unconsolidated sands and silts.

A numerical groundwater flow and solute transport model for OU2 was developed using FEFLOW. The model simulates groundwater flow in the study area for a period of 36 years, between water years 1971 and 2007 (October 1970 to September 2007).

The numerical modeling results support the conceptual understanding of groundwater flow and contaminant transport at OU2. The Site groundwater flow model simulated the groundwater flow conditions at OU2 and the development of the PCE plume during the historical period of operations at Omega Chemical.

The Site model was used to estimate the minimum extraction rates needed to achieve containment under two pumping scenarios. The targeted area of hydraulic containment is the footprint of the OU2 plume, and the targeted depth is the known contaminated portion of the OU2 aquifer; that is, to a depth of about 200 feet bgs.

2.5.4 Sampling Strategy

EPA began the remedial investigation at OU2 in 2001, with the majority of the groundwater data collected in 2007. One-time discrete groundwater samples were collected during the initial investigations and permanent wells were subsequently installed near the plume edges and for the characterization of source areas at OU2. Semi-annual groundwater monitoring and additional investigation of additional potential sources of contamination continues.

EPA has installed 30 monitoring well clusters, each consisting of one to four wells for a total of 62 well screens. Under EPA direction, OPOG installed 14 additional monitoring wells. Historical sampling included a wide range of analytes including semivolatile organic compounds (SVOCs), metals, inorganics, pesticides, and emergent contaminants. All monitoring wells are currently sampled semiannually for VOCs.

Over 200 one-time HydroPunch® groundwater samples were collected at OU2.

Eleven pumping tests and over 60 slug tests were conducted on the monitoring wells to characterize the aquifer properties at OU2.

In addition to groundwater sampling performed for Site investigations, there are several facility-specific investigations that have been performed in the OU2 area, under the direction of EPA, RWQCB, and/or DTSC. Many of these investigations included collection and analysis of groundwater, soil, and soil vapor samples to delineate contamination in the shallow aquifer, and near-surface and deep soils at facilities identified as potential source areas for COCs.

EPA completed the RI/FS for OU2 and issued an RI/FS Report in 2010 that presents the results of OU2 investigations.

2.5.5 Contaminant Source Areas

The Omega Chemical contaminants are chemicals found at concentrations exceeding their screening levels at OU1 area monitoring wells, including OW1A, OW1B, OW2, OW3A, OW3B, OW8A, and OW8B located in the immediate vicinity of the former Omega Chemical facility. The Omega Chemical contaminants are believed to have been introduced to groundwater as a result of the release of hazardous substances at the former Omega Chemical facility. The hazardous substances released at the Omega property have entered into the aquifer, and while migrating with groundwater flow, have commingled with contaminants resulting from releases of hazardous substances at other source areas. Numerous confirmed and potential source areas are described in the RI Report. Many of the investigations and source remediation activities are still in progress and will continue because they are important to ensure that the groundwater remedy is maximally effective and the groundwater quality improvements gained by the remedy are sustained over time. As source areas are more fully delineated or if more are identified, EPA will coordinate with the State to identify the appropriate lead agency for investigation and cleanup work. Most of the major chemical constituents in the releases at Omega Chemical and the releases from downgradient sources are the same (e.g., PCE and TCE). Freon 11 and Freon 113, however, are considered signature Omega Chemical contaminants because the former Omega Chemical facility is the only confirmed source of Freon releases that have impacted OU2 groundwater.

COCs for OU2 are defined as chemicals found at OU1 and OU2 at concentrations exceeding their screening levels (e.g., Federal or California primary MCL or California Department of Public Health [CDPH] Notification Level) (Table 5-5 of the RI Report). They may have originated from the former Omega Chemical facility or from other known and unknown sources. Regardless of their origins, the COCs in extracted groundwater must be addressed by the OU2 Interim Remedy. For example, a potential remedy based on groundwater extraction would require the treatment for most if not all of these compounds in order to meet the requirements associated with the end use of the treated water.

Omega Chemical contaminants in groundwater generally extend laterally up to about 4.5 miles south-southwest from the Omega property. The plume extents vary among the different COCs.

2.5.6 Types of Contamination and Affected Media

The Omega Chemical Corporation operated a refrigerant and solvent recycling, reformulation, and treatment facility. Drums and bulk loads of waste solvents and other chemicals from various industrial activities were processed at the facility.

Wastes accepted by Omega Chemical included organic solvents and chemicals and aqueous wastes with organic waste constituents. The incoming wastes were generated by a wide assortment of manufacturing and industrial processes (such as petroleum refining, rubber and plastics, chemical, paper and allied products, furniture and fixture products, lumber and wood products, printing and publishing, textile mill products, and food and kindred products).

As a result of the operations, and spills and leaks of various chemicals, the soil and groundwater beneath the Omega property became contaminated with high concentrations of tetrachloroethylene (PCE), trichloroethylene (TCE), Freons 11 and 113 and other contaminants including 1,4-dioxane. The contaminated groundwater extends four and one-half miles generally downgradient (south / southwest) of the Omega property.

The target medium for EPA's Interim Remedy for OU2 is contaminated groundwater. The chemicals of concern are mobile in groundwater, toxic, and many of them are known or suspected human carcinogens.

The OU2 plume covers an area of approximately 3.3 square miles and extends from the water table that occurs at approximately 40 to 100 feet bgs to more than 200 feet bgs in some places. Assuming an average thickness of 100 feet for the purposes of estimating the contaminated zone, the volume of the contaminated aquifer is approximately 340,000,000 cubic yards.

Among all the COCs at the Site, PCE and TCE have the greatest plume extents with the highest contaminant concentrations. PCE, a human carcinogen, is the main risk driver associated with the potential ingestion of the contaminated groundwater (the risk is summarized in Section 2.7) and is the most widely present contaminant at OU2. The Freons are considered signature chemicals of the Omega Chemical facility; their plume extents are smaller than those of PCE and TCE. The greater extents of PCE and TCE plumes than those of Freon plumes are attributed to their higher source concentrations relative to the concentrations of Freons (at OU1) and also to the contributions from other sources of PCE and TCE present within OU2.

A detailed discussion of the groundwater contamination at OU2 is presented in the RI Report. The RI/FS is based on OU2 groundwater monitoring data through July 2007 (and includes some

limited supplemental information gathered in early 2010 from third parties and EPA sampling). Since issuing the RI/FS report, EPA has continued routine semiannual groundwater monitoring at OU2, and the data through 2010 indicate there are no substantial changes in the overall distribution of contaminants throughout OU2 as described in the RI/FS.

A brief summary of the 14 main COCs detected during the July through August 2007 sampling event is presented as follows:

- The maximum PCE detection of 90,000 µg/L was found in Well OW1A located at the former Omega property. The PCE plume with concentrations greater than 5 µg/L extends approximately 4.5 miles downgradient south-southwest of the former Omega Chemical facility (Figure 6). PCE concentrations exceeding 100 µg/L form a relatively narrow zone that extends from the Omega property to west of the former CENCO Refinery. Two mostly distinct zones of concentrations exceeding 500 µg/L are present. One originates at the Omega property and extends approximately 1 mile southwest; the second zone is directly downgradient of the Angeles Chemical and the McKesson Corporation (AMK) sites and extends about 0.5 mile. These two facilities are adjacent and have documented releases of similar contaminants to groundwater; they are treated as one source area (AMK) in the FS. Other, more localized and much smaller zones of high PCE concentrations present west of AMK are associated with other industrial facilities.

- The maximum TCE detection of 2,600 µg/L was found in Well OW1A. TCE is also a human carcinogen. The extent and characteristics of the observed TCE plume are similar to those of the PCE plume (Figure 7). TCE concentrations up to 100 times the MCL were found to be associated with the Omega property and AMK and extend about 1 mile and 0.5 mile from each respective source area. A distinct lobe of TCE concentrations greater than 500 µg/L west of the Omega property is associated with a source area at Whittier Boulevard. Other, more localized, and much smaller zones of high TCE concentrations present west of AMK and generally co-located with zones of high PCE are associated with other industrial facilities.

- The maximum Freon 11 detection of 210 µg/L was found in Well OW5 about 0.5 mile from the former Omega property. The Freon 11 plume is narrower than PCE or TCE plumes, and it does not extend as far downgradient. No source for Freon 11 in groundwater other than the former Omega Chemical facility has been identified; Freon 11 is therefore considered a tracer compound for contamination originating at the Omega property. However, because Freon 11 is present at much lower concentrations than PCE and TCE at OU1 (i.e., the Omega Chemical contaminants source area), its extent in groundwater at OU2 is smaller than the extent of other hazardous substances from the Omega property

- The maximum Freon 113 detection of 730 µg/L was found in Well OW8A just southwest of the former Omega property. The Freon 113 plume extent is similar to the extent of the Freon 11 plume. No source for Freon 113 in groundwater other than the former Omega Chemical facility has been identified; Freon 113 is therefore considered a tracer compound for contamination originating at the Omega property. However, because Freon 113 is present at much lower concentrations than PCE and TCE at OU1 (i.e., the source area), its extent in groundwater at OU2 is smaller than the extent of other hazardous substances from the Omega property.

- The maximum 1,4-dioxane detection of 290 µg/L was found in Well OW1A. The extent of 1,4-dioxane is similar to the extent of PCE and TCE, except that it is wider. The 1,4-dioxane concentrations decrease rapidly downgradient from the Omega property; a separate zone of high concentrations extends from the AMK area.
- The maximum hexavalent chromium detection found was 200 µg/L. The extent of hexavalent chromium does not follow a pattern similar to the VOC plumes. Historical concentrations near the Omega property have been low, suggesting that the Omega Chemical facility is probably not a significant source for hexavalent chromium contamination. Separate zones of concentrations exceeding 50 µg/L extend from the Foss Plating and Phibro-Tech, Inc. facility properties.
- The maximum 1,1-dichloroethene (DCE) detection found was 710 µg/L. The extent of 1,1-DCE in groundwater was found to be similar to that of PCE and TCE, including the relatively high concentrations associated with the Omega property and the AMK area.
- The maximum cis-1,2-DCE detection found was 300J µg/L (J = estimated). Three separate zones of cis-1,2-DCE contamination above the MCL (6 µg/L) were identified, indicating the possibility of multiple sources.
- The maximum chloroform detection found was 170 µg/L. Chloroform is present at low concentrations, generally less than 1 µg/L, throughout OU2.
- The maximum carbon tetrachloride detection found was 4.7 µg/L. Detections for carbon tetrachloride extend from the Omega property about 2.5 miles to the southwest.
- The maximum 1,1-dichloroethane (DCA) detection found was 170 µg/L. Detections for 1,1-DCA extend from the Omega property about 2.7 miles to the southwest. Concentrations decrease quickly downgradient of the Omega property and are much higher at AMK.
- The maximum 1,2-DCA detection of 39 µg/L was found at Well OW8A. The 1,2-DCA plume extends about 4.5 miles from Well OW8A.
- The maximum 1,1,1-trichloroethane (TCA) detection of 2,200 µg/L was found at Well OW1A. Detections of 1,1,1-TCA extend from the Omega property about 2.5 miles southwest. High concentrations of 1,1,1-TCA are found at AMK, Site B, and Site C.

2.5.7 Location of Contamination and Potential Routes of Migration

Groundwater contamination within OU2 is known to be present from the water table (that occurs at approximately 40 to 100 feet bgs) to depths of about 200 feet bgs, although contaminants could have migrated into deeper aquifer units that exist below 200 bgs. The OU2 plume extends about 4.5 miles south of the former Omega Chemical facility and is up to about 1 mile wide.

The Site is located in the Montebello Forebay and the Whittier area of the Central Basin, a subbasin of the Coastal Plain of Los Angeles County, California. The Coastal Plain is underlain by an extensive groundwater basin in Los Angeles and Orange counties. Water-bearing sediments identified in the Whittier area extend to an approximate depth of at least 1,000 feet bgs. The main geologic units consist of recent alluvium, the upper Pleistocene Lakewood Formation, and the lower Pleistocene San Pedro Formation. The area downstream of the Whittier

Narrows is known as the Montebello Forebay, where surface water could freely percolate into the groundwater system. The non-forebay part of the Central Basin, where such percolation is restricted by shallow fine-grained sediments, is often referred to as the Pressure Area.

The groundwater flow in the Central Basin is mainly controlled by natural and artificial recharge in the Montebello Forebay and production pumping. Groundwater flows generally to the southwest in the Montebello Forebay, and then turns to the south-southwest in the Central Basin pressure area. Piezometric heads measured in OU1 and OU2 wells generally, but not always, decline with the depth of the hydrostratigraphic unit that the well is screened in, suggesting a generally downward vertical gradient.

The contaminants at OU2 are present in the dissolved phase and will continue to migrate with the regional hydraulic gradient. The contamination at OU2 has advanced at an apparent plume expansion rate of at least 540 feet per year; this rate is an estimated minimum rate and includes the combined effects of advection, sorption, dispersion, and degradation. This plume expansion rate is consistent with estimates of advective velocity of 620 feet per year. The main migration pathway starts at the former Omega property and continues generally southwest for about 2 miles, then turns more southerly. Contamination from other source areas within OU2 follows a parallel pathway. The contamination from the former Omega Chemical facility is commingled with contamination released from these other sources.

COCs are present in groundwater primarily within the coarser, more-permeable units. There is no evidence to suggest that non-aqueous phase liquids (NAPLs) are present in the subsurface within OU2, except possibly at some of the source areas.

Groundwater within the OU2 area is used as a source of drinking water by several municipal and private water purveyors. Most of the drinking water wells located in the OU2 area draw water primarily from deeper portions of the aquifer from depths at or greater than 200 feet bgs and are not currently impacted by groundwater contamination. However, a few drinking water wells in the area draw water at about the 200 feet bgs level and have had some contaminants detected. PCE and other VOC contaminants have been detected historically at five drinking water supply wells that have screens starting at 200 feet bgs (SFS Well #1, and the Golden State Water Company [GSWC] wells Pioneer #1, Pioneer #2, Pioneer #3, and Dace #1). These wells are currently equipped with wellhead treatment units which consist of granular activated carbon (GAC) filters. The GAC filter removes the contaminants from the water to ensure that it meets drinking water standards. Drinking water for the Cities of Whittier, Santa Fe Springs and Norwalk is tested regularly prior to distribution to the public and, based on information EPA has been provided, all tap water meets State and Federal drinking water standards.

2.6 Current and Potential Future Land and Water Uses

The Site and surrounding areas are almost completely developed with a mix of predominantly commercial/industrial and minor residential land use. Residential buildings are present in the southern portion of OU2 (south of Lakeland Road and west of Balsam Street), north of Washington Boulevard near its intersection with Crowndale Avenue, and west of the intersection of Lambert Road and Santa Fe Springs Road. A number of residential buildings also border OU2 on the southeast, northwest, and west. Land uses are not expected to change significantly in the next 20 years or longer.

Groundwater within the OU2 area is used as a source of drinking water by several municipal and private water purveyors. Twelve production wells are known to exist at OU2. Five of the production wells in the OU2 area (see Figure 8) are known to have been impacted by VOCs. The nearest impacted well is located 1.3 miles to the west-southwest of the Omega Chemical facility, and is owned and operated by the City of Santa Fe Springs. Four other impacted active production wells are located near the leading edge (LE) of OU2. These wells are owned and operated by GSWC.

Additional production wells exist outside (generally south and west) of OU2. Those located downgradient of OU2 are likely to become impacted by the Omega Chemical plume in the absence of a remedy that contains the plume. Contamination from sources other than the Omega Chemical plume may also be present in these wells. The use of groundwater in this basin is subject to adjudicated water rights administered by CDWR, the Watermaster for the Central Basin. The groundwater basin is an important source of drinking water for the metropolitan area east of Los Angeles, including the cities of Whittier, Santa Fe Springs and Norwalk. EPA anticipates that the need for drinking water development is expected to increase, and as restrictions on importing water to Southern California increase and imported water becomes more expensive, additional production wells will be installed in the OU2 area.

Controls on groundwater extraction and use are in effect in the Central Basin. One such control is the judgment by the Superior Court of California, County of Los Angeles (Superior Court Case No. 786,656) (—adjudication"), which established rights to extract groundwater in the Central Basin, as well as a court-appointed Watermaster with authority to administer the adjudication, including monitoring such rights and performing other functions.

In addition, entities that administer a public drinking water system are regulated by the CDPH. In general, production wells and associated water treatment and delivery facilities that supply drinking water to the public are subject to the approval by, and water quality reporting to, the CDPH. CDPH's Policy Memo 97-005 (Policy Guidance for Direct Domestic Use of Extremely Impaired Sources) establishes a process to be followed before an extremely impaired water source can be used as a drinking water supply.

Further, a permit from Los Angeles County Department of Health Services (LACDHS) is required prior to installing any well in the OU2 area. The permit covers well construction specifications and location.

These well permit requirements, drinking water regulatory controls, and the Watermaster's authority to regulate and allocate water resources, provide a degree of centralized control over groundwater use in the OU2 area.

2.7 Summary of Site Risks

At OU2, there are no potentially significant complete exposure pathways for ecological receptors. Furthermore, because the OU2 area is nearly fully developed, protected species are not present. Therefore, this section focuses on human-health risks.

As part of the OU2 RI, EPA conducted a baseline human health risk assessment. The baseline risk assessment estimates what risks the Site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be

addressed by the remedial action. This section of the ROD summarizes the baseline risk assessment for OU2.

2.7.1 Identification of COCs

The COCs that were identified at OU2 are summarized in Table 1. This table presents analytical results from EPA and OPOG monitoring wells from March 2004 to September 2006 that were evaluated for the risk assessment conducted in 2007. The 95%, 97.5% or 99% upper confidence level limit (UCL) on the arithmetic mean as recommended by EPA's 2007 ProUCL 4 User Guide was used as the exposure point concentration for all COCs. Table 1 presents the range of concentrations detected for each COC, the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the exposure point concentration (EPC) and how the EPC was derived. PCE, TCE, and 1,1-DCE are the most frequently detected COCs in OU2 groundwater.

Table 1. Summary of Chemicals of Concern and Medium Specific Exposure Point Concentrations
Omega Chemical Superfund Site – OU2
Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Concern	Drinking Water Standard (µg/L)	Minimum Detected Concentration (Qualifier)		Maximum Detected Concentration (Qualifier)		Units	Frequency of Detection	Exposure Point Concentration (µg/L)	Statistical Measure
Ingestion, Dermal, and Inhalation	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,200	11		2800		µg/L	83/88	992	95% KM (Chebyshev) UCL
	1,1-Dichloroethene (1,1-DCE)	6	14		5100		µg/L	88/88	1044	95% Approximate Gamma UCL
	1,2-Dichloroethane (1,2-DCA)	0.5	0.3	J	1300		µg/L	59/88	245	97.5% KM (Chebyshev) UCL
	1,4-Dioxane (p-dioxane)	1**	0.5	J	26000		µg/L	79/88	3563	97.5% KM (Chebyshev) UCL
	Chloroform	80	2.9	J	2800		µg/L	85/88	582	97.5% KM (Chebyshev) UCL
	Tetrachloroethylene (PCE)	5	12		210000	J	µg/L	88/88	65020	99% Chebyshev (Mean, Sd) UCL
	Trichloroethylene (TCE)	5	8.4		10000		µg/L	88/88	1320	95% H-UCL
	Trichlorofluoromethane (Freon 11)	150	7		1000		µg/L	83/88	358	95% KM (Chebyshev) UCL
	1,1,2-Trichloroethane (1,1,2-TCA)	5	0.1	J	2000		µg/L	35/87	179	97.5% KM (Chebyshev) UCL
	1,1-Dichloroethane (1,1-DCA)	5	0.4	J	150	J	µg/L	62/88	37.8	97.5% KM (Chebyshev) UCL
	Carbon tetrachloride	0.5	0.1	J	1		µg/L	16/88	0.3	95% KM (t) UCL
	cis-1,2-Dichloroethene (cis-1,2-DCE)	22	0.4	J	48		µg/L	54/88	14.4	95% KM (Chebyshev) UCL
	Hexavalent chromium	50*	0.6		23.1		µg/L	45/49	9.3	95% KM (BCA) UCL

Notes:

UCL = Upper Confidence Limit on the mean

µg/L = micrograms per liter

*No MCL – value shown is the State Total Chromium MCL

**No MCL – value shown is the State notification level

KM (Chebyshev) UCL – UCL based upon Kaplan Meier estimates using the Chebyshev inequality

KM (t) UCL - UCL based upon Kaplan Meier estimates using the student t-distribution cut off value

KM (BCA) UCL – UCL based upon bias corrected accelerated bootstrap method

H – UCL – UCL based upon Land's H- statistic

Chebyshev (Mean, Sd) UCL – UCL based upon sample mean and standard deviation

2.7.2 Exposure Assessment

The major exposure pathways evaluated in the HHRA were those associated with use of contaminated groundwater as a source of domestic water supply. Receptors that could potentially be exposed to the contaminated groundwater include current and future residents that receive drinking water.

Potential use of the OU2 groundwater for domestic water supply presents risks to human health through the following pathways:

- **Ingestion** - exposure to the contaminants through ingestion of drinking water and use in food (primary exposure route for VOCs, SVOCs, and metals).

- **Inhalation** — exposure to VOCs through inhalation during activities such as bathing and dishwashing (primary exposure route for VOCs).
- **Dermal** — exposure to VOCs, SVOCs, and metals through skin during activities such as bathing (not a primary exposure pathway for VOCs).

Exposure and potential associated health risks from soil gas vapor intrusion are in general possible due to volatilization of contaminants from groundwater. EPA performed a screening level risk assessment for soil gas vapor intrusion into indoor air at one representative location for adult receptors.

2.7.3 Toxicity Assessment

Several EPA and California Environmental Protection Agency (Cal-EPA) sources were used to obtain toxicity criteria (i.e., cancer slope factors and non-carcinogenic reference doses) in this risk assessment. The list of sources includes the following:

- Integrated Risk Information System (IRIS)
- Health Effects Assessment Summary Tables (HEAST)
- Provisional National Center for Environmental Assessment, TCE Toxicity Value (from the Region 9 preliminary remediation goal [PRG] tables)
- Cal-EPA Office of Environmental Health Hazard Assessment (OEHHA), Toxicity Criteria Database

Cancer toxicity criteria (i.e., cancer slope factors) for COCs in groundwater are presented in Tables 2.1A and 2.1B. These tables present oral cancer slope factors, dermal cancer slope factors, and inhalation unit risks for COCs.

At the time of the 2007 risk assessment, eight of the COCs were considered to be carcinogenic via ingestion: 1,2-DCA, 1,4-dioxane, chloroform, PCE, TCE, 1,1,2-TCA, 1,1-DCA, and carbon tetrachloride. Toxicity values for these carcinogens are presented in Table 2.1A. Since the time of the 2007 risk assessment, OEHHA has identified hexavalent chromium as posing a potential cancer risk via ingestion as described in the 2011 Public Health Goal (PHG) document for this chemical.Therefore, for completeness, Table 2.1A includes the new oral toxicity values for hexavalent chromium.

At this time, slope factors are not available for the dermal route of exposure. Thus, the dermal slope factors used in the assessment have been extrapolated from oral values. An adjustment factor is sometimes applied and is dependent upon how well the chemical is absorbed via the oral route. Adjustments are particularly important for chemicals with less than 50% absorption via the ingestion route. However, adjustments are not necessary for the chemicals evaluated at this site. Therefore, the same values presented were used as the dermal carcinogenic slope factors for these contaminants. Eight of the COCs are also carcinogenic via inhalation. These COCs include 1,2-DCA, 1,4-dioxane, PCE, TCE, 1,1,2-TCA, 1,1-DCA, carbon tetrachloride, and hexavalent chromium.

Table 2.1A. Cancer Toxicity Data
Omega Chemical Superfund Site – OU2
Pathway: Ingestion, Dermal

Chemical of Concern	Oral Cancer Slope Factor	Dermal Cancer Slope Factor (1)	Slope Factor Units	Weight of Evidence/ Cancer Guideline Description	Source(s)	Date(s) (MM/DD/YYYY)
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene (1,1-DCE)	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane (1,2-DCA)	9.1E-02	9.1E-02	1/mg/kg/day	B2	IRIS	8/27/2007
1,4-Dioxane (p-dioxane)	2.7E-02	2.7E-02	1/mg/kg/day	NA	OEHHA	8/10/2005
Chloroform	3.1E-02	3.1E-02	1/mg/kg/day	B2	OEHHA	8/10/2005
Tetrachloroethylene (PCE)	5.4E-01	5.4E-01	1/mg/kg/day	NA	OEHHA	8/10/2005
Trichloroethylene (TCE)	1.3E-02	1.3E-02	1/mg/kg/day	B2	OEHHA	6/12/2007
Trichlorofluoromethane (Freon 11)	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane (1,1,2-TCA)	7.2E-02	7.2E-02	1/mg/kg/day	NA	OEHHA	8/10/2005
1,1-Dichloroethane (1,1-DCA)	5.7E-03	5.7E-03	1/mg/kg/day	C	OEHHA	8/10/2005
Carbon tetrachloride	1.5E-01	1.5E-01	1/mg/kg/day	B2	OEHHA	8/10/2005
cis-1,2-Dichloroethene (cis-1,2-DCE)	NA	NA	NA	NA	NA	NA
Hexavalent chromium (2)	5.0E-01	5.0E-01	1/mg/kg/day	NA	OEHHA	7/27/2011

Table 2.1B. Cancer Toxicity Data
Omega Chemical Superfund Site – OU2
Pathway: Inhalation

Chemical of Concern	Unit Risk	Units	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Source(s)	Date(s) (MM/DD/YYYY)
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene (1,1-DCE)	NA	NA	NA	NA	C	IRIS	8/27/2007
1,2-Dichloroethane (1,2-DCA)	2.6E-05	µg/m3	9.1E-02	1/mg/kg/day	B2	IRIS	8/27/2007
1,4-Dioxane (p-dioxane)	7.7E-06	µg/m3	2.7E-02	1/mg/kg/day	NA	OEHHA	8/10/2005
Chloroform	NA	NA	8.1E-02	1/mg/kg/day	B2	IRIS	8/27/2007
Tetrachloroethylene (PCE)	5.9E-06	µg/m3	2.1E-02	1/mg/kg/day	NA	OEHHA	8/10/2005
Trichloroethylene (TCE)	2.0E-06	µg/m3	7.0E-03	1/mg/kg/day	B2	OEHHA	6/12/2007
Trichlorofluoromethane (Freon 11)	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane (1,1,2-TCA)	1.6E-05	µg/m3	5.7E-02	1/mg/kg/day	NA	OEHHA	8/10/2005
1,1-Dichloroethane (1,1-DCA)	1.6E-06	µg/m3	5.7E-03	1/mg/kg/day	C	OEHHA	8/10/2005
Carbon tetrachloride	4.2E-05	µg/m3	1.5E-01	1/mg/kg/day	B2	OEHHA	8/10/2005
cis-1,2-Dichloroethene (cis-1,2-DCE)	NA	NA	NA	NA	D	IRIS	8/27/2007
Hexavalent chromium	1.5E-01	µg/m3	5.1E+02	1/mg/kg/day	A	OEHHA	8/27/2007

Notes for Tables 2.1A and 2.1B:

(1) Dermal slope factor is based on oral slope factor assuming 100% absorption efficiency.

(2) Values shown reflect the OEHHA Public Health Goal adopted on July 27, 2011

NA = Not available or not applicable

IRIS = Integrated Risk Information System; available at http://www.epa.gov/iris/

HEAST = Health Effects Assessment Summary Table(s); Values from EPA Region 9 PRG Table, October 2004

OEHHA = Office of Environmental Health Hazard Assessment; Online database http://www.oehha.ca.gov/risk/ChemicalDB/index.asp

Route extrapolation: Values from EPA Region 9 PRG Table, October 2004

Weight of Evidence Classification:

A - Human carcinogen

B1 - Probable human carcinogen - indicate that limited human data are available

B2 - Probable human carcinogen - indicate that sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as human carcinogen

E - Evidence of noncarcinogenecity

Non-cancer toxicity criteria (i.e., reference doses) for COCs in groundwater are presented in Tables 2.2A and 2.2B. These tables present oral, dermal, and inhalation reference doses (RfDs), and target organs for COCs. The chronic oral toxicity data are available for all COCs except 1,4-dioxane. Similar to carcinogenic data, dermal RfDs can be extrapolated from the oral RfDs applying an adjustment factor as appropriate; however, for all OU2 COCs, no adjustment was necessary. The chronic inhalation toxicity data were available for all COCs except 1,1,2-TCA, carbon tetrachloride, and cis-1,2-DCE. Oral to inhalation route extrapolation was used for 1,1,2-TCA, carbon tetrachloride, and cis-1,2-DCE toxicity values.

Table 2.2A. Non-Cancer Toxicity Data
Omega Chemical Superfund Site – OU2
Pathway: Ingestion, Dermal

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD	Oral RfD Units	Dermal RfD (1)	Dermal RfD Units	Primary Target Organ(s)	Combined Uncertainty/ Modifying Factors (2)	RfD:Target Organ(s)	
								Source(s)	Date(s) (MM/DD/YYYY)
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Chronic	3.0E+01	mg/kg/day	3.0E+01	mg/kg/day	Neurological	10/1	IRIS	8/27/2007
1,1-Dichloroethene (1,1-DCE)	Chronic	5.0E-02	mg/kg/day	5.0E-02	mg/kg/day	Liver	100/1	IRIS	9/13/2007
1,2-Dichloroethane (1,2-DCA)	Chronic	2.0E-02	mg/kg/day	2.0E-02	mg/kg/day	Decreased survival	NA	NCEA	10/20/2004
1,4-Dioxane (p-dioxane)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	Chronic	1.0E-02	mg/kg/day	1.0E-02	mg/kg/day	Liver	1000/1	IRIS	8/27/2007
Tetrachloroethylene (PCE)	Chronic	1.0E-02	mg/kg/day	1.0E-02	mg/kg/day	Liver	1000/1	IRIS	8/27/2007
Trichloroethylene (TCE)	Chronic	3.0E-04	mg/kg/day	3.0E-04	mg/kg/day	Liver	NA	NCEA	10/20/2004
Trichlorofluoromethane (Freon 11)	Chronic	3.0E-01	mg/kg/day	3.0E-01	mg/kg/day	General	1000/1	IRIS	8/27/2007
1,1,2-Trichloroethane (1,1,2-TCA)	Chronic	4.0E-03	mg/kg/day	4.0E-03	mg/kg/day	Blood	1000/1	IRIS	8/27/2007
1,1-Dichloroethane (1,1-DCA)	Chronic	1.0E-01	mg/kg/day	1.0E-01	mg/kg/day	None	1000/1	HEAST	7/31/1997
Carbon tetrachloride	Chronic	7.0E-04	mg/kg/day	7.0E-04	mg/kg/day	Liver	1000/1	IRIS	8/27/2007
cis-1,2-Dichloroethene (cis-1,2-DCE)	Chronic	1.0E-02	mg/kg/day	1.0E-02	mg/kg/day	Liver	NA	PPRTV	10/20/2004
Hexavalent chromium	Chronic	3.0E-03	mg/kg/day	3.0E-03	mg/kg/day	None	300/3	IRIS	8/27/2007

Table 2.2B. Non-Cancer Toxicity Data
Omega Chemical Superfund Site – OU2
Pathway: Inhalation

Chemical of Concern	Chronic/ Subchronic	Inhalation RfD	Inhalation RfD Units	Primary Target Organ(s)	Combined Uncertainty/ Modifying Factors	RfD: Target Organ(s)	
						Source(s)	Date(s) (MM/DD/YYYY)
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Chronic	8.6E+00	mg/kg/day	Neurological	10/1	HEAST	7/31/1997
1,1-Dichloroethene (1,1-DCE)	Chronic	2.0E-02	mg/kg/day	Liver	100/1	OEHHA	6/12/2007
1,2-Dichloroethane (1,2-DCA)	Chronic	1.4E-03	mg/kg/day	Decreased survival	NA	NCEA	10/20/2004
1,4-Dioxane (p-dioxane)	Chronic	8.6E-01	mg/kg/day	NA	NA	OEHHA	12/XX/2000
Chloroform	Chronic	1.4E-02	mg/kg/day	Liver	1000/1	NCEA	10/20/2004
Tetrachloroethylene (PCE)	Chronic	1.0E-02	mg/kg/day	Liver	1000/1	OEHHA	08/XX/1991
Trichloroethylene (TCE)	Chronic	1.7E-01	mg/kg/day	Liver	NA	OEHHA	6/12/2007
Trichlorofluoromethane (Freon 11)	Chronic	2.0E-01	mg/kg/day	General	1000/1	HEAST	7/31/1997
1,1,2-Trichloroethane (1,1,2-TCA)	Chronic	4.0E-03	mg/kg/day	Blood	1000/1	Route Extrapolation	10/20/2004
1,1-Dichloroethane (1,1-DCA)	Chronic	1.4E-01	mg/kg/day	Kidney	1000/1	HEAST	7/31/1997
Carbon tetrachloride	Chronic	7.0E-04	mg/kg/day	Liver	1000/1	Route Extrapolation	10/20/2004
cis-1,2-Dichloroethene (cis-1,2-DCE)	Chronic	1.0E-02	mg/kg/day	Liver	NA	Route Extrapolation	10/20/2004
Hexavalent chromium	Chronic	2.2E-06	mg/kg/day	Respiratory	90/1	IRIS	8/27/2007

Notes:

(1) Dermal RfD is based on oral RfD assuming 100 % absorption efficiency.

(2) Source: IRIS

Route extrapolation: Values from EPA Region 9 PRG Table, October 2004

NA = Not available or not applicable

IRIS = Integrated Risk Information System; available at http://www.epa.gov/iris/

NCEA = National Center for Environmental Assessment; Values from EPA Region 9 PRG Table, October 2004

OEHHA = Office of Environmental Health Hazard Assessment

2.7.4 Risk Characterization

For carcinogens, risk is expressed as the incremental probability of an individual's developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk (ELCR) was estimated from the following equation:

$$\text{Risk} = \text{CDI} \times \text{CSF}$$

where:

risk	=	a unitless probability (e.g., 2 x 10-5) of an individual's developing cancer
CDI	=	Chronic daily intake averaged over 70 years (mg/kg-day)
CSF	=	Cancer slope factor $(\text{mg/kg-day})^{-1}$

An ELCR of 1×10^{-6} indicates that an individual experiencing the reasonable maximum exposure estimate has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. The ELCR would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual's developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally accepted risk range for site-related exposures is 10^{-4} (1 in 10,000) to 10^{-6}(1 in 1000,000).

For non-carcinogens, the potential for a receptor to develop an adverse health effect is estimated by comparing the predicted level of exposure for a particular chemical (e.g., chronic daily intake) with the highest level of exposure that is considered protective (that is, its reference dose [RfD]). The ratio of the chronic daily intake (i.e., exposure) to RfD (i.e., toxicity) is termed the hazard quotient (HQ) and is calculated as follows:

$$HQ = CDI/RfD$$

where:

HQ	=	Hazard quotient
RfD	=	Reference dose (mg/kg-day)
CDI	=	Chronic daily intake (mg/kg-day)

CDI and RfD represent the same exposure period (i.e., chronic, subchronic, or short-term).

The Hazard Index (HI) is generated by adding the HQs for all chemical(s) of concern that affect the same target organ (e.g., liver) or that act through the same mechanism of action within a medium or across all media to which a given individual may reasonably be exposed. An HI<1 indicates that, based on the sum of all HQ's from different contaminants and exposure routes, toxic non-carcinogenic effects from all contaminants are unlikely. An HI > 1 indicates that site-related exposures may present a risk to human health.

2.7.4.1 Carcinogenic Risks

Potential future carcinogenic risks are estimated for the domestic use of untreated OU2 groundwater as tap water. The HHRA evaluated the RME scenario for an adult, child, and lifetime (adult plus child) resident due to ingestion, inhalation, and dermal exposure to COCs in groundwater. Table 3.1A, Table 3.2A, and Table 3.3A, provide risk estimates for each route of exposure for adult, child, and lifetime (adult plus child) resident, respectively.

The total risks from exposure to groundwater for adult, child, and lifetime (adult plus child) resident are 6 x 10^{-1}, 3 x 10^{-1}, and 9 x 10^{-1}, respectively. The COC contributing most to the risk is PCE in groundwater. Other COCs that contribute 1x10^{-4} or more risk to the total risk are 1,2-DCE, 1,4-dioxane, chloroform, TCE, and 1,1,2-TCA. The risk assessment indicates that if no clean-up action is taken, and an individual were to use the more highly contaminated OU2 groundwater for drinking and bathing throughout his or her lifetime, that person could have as much as a 9 out of 10 (or 90%) chance of developing cancer as a result of site-related exposure to the COCs.

2.7.4.2 Non-Carcinogenic Health Hazards

Potential future non-carcinogenic health hazards are estimated for the domestic use of OU2 untreated groundwater. The HHRA evaluated a scenario of RME for an adult and child resident due to ingestion, inhalation, and dermal exposure of COCs in groundwater. Table 3.1B and Table 3.2B provide hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients for routes of exposure) for adult and child resident respectively.

The estimated HIs for adult and child resident are greater than 1, which indicates the potential for adverse non-cancer health effects. The estimated HIs of 1,364 for an adult resident and 3,172 for a child resident indicate that the potential for adverse non-cancer effects could occur from exposure to contaminated groundwater containing 1,2-DCA, chloroform, PCE, TCE, and 1,1,2-TCA. Of these COCs, the COC contributing most to the hazard is PCE (HQ = 1,173 for an adult resident and HQ = 2,730 for a child resident).

2.7.4.3 Indoor Air Risk Summary

The screening level risk evaluation for inhalation exposure to contaminants in soil gas that are present in indoor air as a result of vapor intrusion found that the potential health risk to residents is low.

The risk evaluation was based on conditions at the Whispering Fountains Apartments, which are located in an area of OU2 where COC concentrations in groundwater are relatively high and the depth to groundwater is relatively low. These conditions are believed to present the greatest potential within the OU2 area for the migration of volatile COCs from groundwater up through the overlying soil and into residential buildings. The estimate of risk was done by using soil gas data from this location to predict the levels of soil gas COCs that could be present in indoor air as a result of vapor intrusion. Cancer risks and non-cancer health hazards were estimated for an adult receptor.

The estimated potential cancer risk for an adult resident of the Whispering Fountains Apartments ranges from 3x10^{-8} to 3x10^{-7}. These risk levels are not considered to be significant by EPA.

Estimated non-cancer hazard quotients for an adult resident of the Whispering Fountains Apartments range from 0.0002 to 0.004.

Uncertainty

The main uncertainties in the HHRA are associated with data quality, exposure estimation, and toxicological data. Given the simple potential routes for exposure in the conceptual site model, data quality control, and high COC concentrations in groundwater at OU2, these uncertainties are low for the OU2 HHRA. The uncertainties of the HHRA are discussed in detail in the RI/FS.

Table 3.1A. Risk Characterization Summary – Carcinogens
Omega Chemical Superfund Site – OU2
Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Groundwater	Groundwater	Groundwater	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	NA	--
			1,1-Dichloroethene (1,1-DCE)	--	--	--	NA	--
			1,2-Dichloroethane (1,2-DCA)	2.1×10^{-4}	1.0×10^{-3}	1.6×10^{-5}	NA	1.3×10^{-3}
			1,4-Dioxane (p-dioxane)	9×10^{-4}	--	3.2×10^{-6}	NA	9.1×10^{-4}
			Chloroform	1.7×10^{-4}	2.2×10^{-3}	1.5×10^{-5}	NA	2.4×10^{-3}
			Tetrachloroethylene (PCE)	3.3×10^{-1}	6.3×10^{-2}	1.9×10^{-1}	NA	5.9×10^{-1}
			Trichloroethylene (TCE)	1.6×10^{-4}	4.3×10^{-4}	2.8×10^{-5}	NA	6.2×10^{-4}
			Trichlorofluoromethane (Freon 11)	--	--	--	NA	--
			1,1,2-Trichloroethane (1,1,2-TCA)	1.2×10^{-4}	4.8×10^{-4}	1.1×10^{-5}	NA	6.1×10^{-4}
			1,1-Dichloroethane (1,1-DCA)	2.0×10^{-6}	1×10^{-5}	1.6×10^{-7}	NA	1.2×10^{-5}
			Carbon tetrachloride	4.4×10^{-7}	2.2×10^{-6}	1.2×10^{-7}	NA	2.7×10^{-6}
			cis-1,2-Dichloroethene (cis-1,2-DCE)	--	--	--	NA	--
			Hexavalent chromium (1)	--	--	--	NA	--
							Groundwater Risk Total =	6×10^{-1}
							Total Risk =	6×10^{-1}

Notes:

NA - Not applicable

(1) The cancer risk estimates shown in this table do not incorporate the cancer risks posed by hexavalent chromium. Since the time of the 2007 risk assessment, hexavalent chromium has been identified by OEHHA as posing a potential cancer risk via ingestion. Using the EPC of 9.3 ug/L and the new OEHHA toxicity factors, the ingestion risk from hexavalent chromium is about 4×10^{-4}.

Table 3.1B. Risk Characterization Summary - Non-Carcinogens
Omega Chemical Superfund Site – OU2
Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Non-Carcinogenic Hazard				
				Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Groundwater	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Neurological	0.0009	0.015	0.00032	0.017
			1,1-Dichloroethene (1,1-DCE)	Liver	0.57	7.2	0.078	7.8
			1,2-Dichloroethane (1,2-DCA)	Decreased survival	0.33	24	0.026	24.3
			1,4-Dioxane (p-dioxane)	NA	--	--	--	--
			Chloroform	Liver	1.6	5.7	0.14	7.4
			Tetrachloroethylene (PCE)	Liver	178	891	105	1174
			Trichloroethylene (TCE)	Liver	121	1.1	20.7	142
			Trichlorofluoromethane (Freon 11)	General	0.032	0.24	0.0061	0.28
			1,1,2-Trichloroethane (1,1,2-TCA)	Blood	1.2	6.1	0.11	7.47
			1,1-Dichloroethane (1,1-DCA)	Kidney	0.01	0.036	0.0008	0.047
			Carbon tetrachloride	Liver	0.01	0.061	0.0032	0.076
			cis-1,2-Dichloroethene (cis-1,2-DCE)	Liver	0.039	0.19	0.0049	0.24
			Hexavalent chromium	None	0.084	--	0.00088	0.085
			Liver Hazard Index =					1332
			Neurological Hazard Index=					0.017
			Kidney Hazard Index=					0.047
			Decreased Survival hazard Index =					24
			General Hazard Index=					0.28
			Blood Hazard Index =					7
			Thyroid Hazard Index =					0.12

Notes:

NA - Not applicable

Table 3.2A. Risk Characterization Summary – Carcinogens
Omega Chemical Superfund Site – OU2
Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Groundwater	Groundwater	Groundwater	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	NA	--
			1,1-Dichloroethene (1,1-DCE)	--	--	--	NA	--
			1,2-Dichloroethane (1,2-DCA)	1.2×10^{-4}	6.1×10^{-4}	9.4×10^{-6}	NA	7.4×10^{-4}
			1,4-Dioxane (p-dioxane)	5.3×10^{-4}	--	1.9×10^{-6}	NA	5.3×10^{-4}
			Chloroform	9.9×10^{-5}	1.3×10^{-3}	8.6×10^{-6}	NA	1.4×10^{-3}
			Tetrachloroethylene (PCE)	1.9×10^{-1}	3.7×10^{-2}	1.1×10^{-1}	NA	3.4×10^{-1}
			Trichloroethylene (TCE)	9.4×10^{-5}	2.5×10^{-4}	1.6×10^{-5}	NA	3.6×10^{-4}
			Trichlorofluoromethane (Freon 11)	--	--	--	NA	--
			1,1,2-Trichloroethane (1,1,2-TCA)	7.1×10^{-5}	2.8×10^{-4}	6.3×10^{-6}	NA	3.6×10^{-4}
			1,1-Dichloroethane (1,1-DCA)	1.2×10^{-6}	5.9×10^{-6}	9.1×10^{-8}	NA	7.2×10^{-6}
			Carbon tetrachloride	2.6×10^{-7}	1.3×10^{-6}	6.6×10^{-8}	NA	1.6×10^{-6}
			cis-1,2-Dichloroethene (cis-1,2-DCE)	--	--	--	NA	--
			Hexavalent chromium	--	--	--	NA	--
			Groundwater Risk Total =					3×10^{-1}
			Total Risk =					3×10^{-1}

Notes:

NA - Not applicable

Table 3.2B. Risk Characterization Summary - Non-Carcinogens
Omega Chemical Superfund Site – OU2
Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Non-Carcinogenic Hazard				
				Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Groundwater	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Neurological	0.0021	0.036	0.00072	0.039
			1,1-Dichloroethene (1,1-DCE)	Liver	1.3	16.7	0.18	18.2
			1,2-Dichloroethane (1,2-DCA)	Decreased survival	0.78	55.9	0.06	56.8
			1,4-Dioxane (p-dioxane)	NA	--	--	--	--
			Chloroform	Liver	3.7	13.3	0.32	17.3
			Tetrachloroethylene (PCE)	Liver	416	2078	236	2730
			Trichloroethylene (TCE)	Liver	281	2.5	46.6	330
			Trichlorofluoromethane (Freon 11)	General	0.076	0.57	0.013	0.66
			1,1,2-Trichloroethane (1,1,2-TCA)	Blood	2.9	14.3	0.25	17.4
			1,1-Dichloroethane (1,1-DCA)	Kidney	0.024	0.084	0.0018	0.11
			Carbon tetrachloride	Liver	0.028	0.14	0.0073	0.18
			cis-1,2-Dichloroethene (cis-1,2-DCE)	Liver	0.092	0.46	0.011	0.56
			Hexavalent chromium	None	0.19	--	0.0026	0.2
			Liver Hazard Index =					3097
			Neurological Hazard Index=					0.039
			Kidney Hazard Index=					0.11
			Decreased Survival hazard Index =					57
			General Hazard Index=					0.66
			Blood Hazard Index =					17
			Thyroid Hazard Index =					0.29

Notes:

NA - Not applicable

Table 3.3A. Risk Characterization Summary – Carcinogens
Omega Chemical Superfund Site – OU2
Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Groundwater	Groundwater	Groundwater	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	NA	--
			1,1-Dichloroethene (1,1-DCE)	--	--	--	NA	--
			1,2-Dichloroethane (1,2-DCA)	3.3×10^{-4}	1.7×10^{-3}	2.6×10^{-5}	NA	2×10^{-3}
			1,4-Dioxane (p-dioxane)	1.4×10^{-3}	--	5.1×10^{-6}	NA	1.4×10^{-3}
			Chloroform	2.7×10^{-4}	3.5×10^{-3}	2.4×10^{-5}	NA	3.8×10^{-3}
			Tetrachloroethylene (PCE)	5.2×10^{-1}	1.0×10^{-1}	3.0×10^{-1}	NA	9.3×10^{-1}
			Trichloroethylene (TCE)	2.6×10^{-4}	6.9×10^{-4}	4.3×10^{-5}	NA	9.9×10^{-4}
			Trichlorofluoromethane (Freon 11)	--	--	--	NA	--
			1,1,2-Trichloroethane (1,1,2-TCA)	1.9×10^{-4}	7.6×10^{-4}	1.8×10^{-5}	NA	9.7×10^{-4}
			1,1-Dichloroethane (1,1-DCA)	3.2×10^{-6}	1.6×10^{-5}	2.5×10^{-7}	NA	1.9×10^{-5}
			Carbon tetrachloride	7.0×10^{-7}	3.4×10^{-6}	1.8×10^{-7}	NA	4.3×10^{-6}
			cis-1,2-Dichloroethene (cis-1,2-DCE)	--	--	--	NA	--
			Hexavalent chromium	--	--	--	NA	--
							Groundwater Risk Total =	9×10^{-1}
							Total Risk =	9×10^{-1}

Notes:

NA - Not applicable

2.7.5 Basis for Action

The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment, and from actual or threatened releases of pollutants or contaminants which may present an imminent and substantial endangerment to public health or welfare.

2.8 Remedial Action Objectives

The Interim Remedy for OU2 is intended to achieve the following RAOs:

1. Prevent unacceptable human exposure to groundwater contaminated by contaminants of concern (COCs);
2. Prevent lateral and vertical spreading of COCs in groundwater at OU2 to protect current and future uses of groundwater; and

3. Prevent lateral and vertical migration of groundwater with high concentrations of COCs into zones with currently lower concentrations of COCs to optimize the treatment of extracted groundwater.

In addition, the Interim Remedy is expected to begin the process of restoring the contaminated aquifer by removing contaminant mass from the groundwater.

The RAOs are based on the current and future highest beneficial use of groundwater in the OU2 area (i.e., use as a source of drinking water).

The OU2 contaminant plume is known to be spreading into less-contaminated or uncontaminated portions of the aquifer and posing a threat to downgradient water supply wells. Delaying action could result in the following:

1. Continued contaminant migration, necessitating additional treatment, increasing costs, and complicating the operation of existing or planned production water treatment facilities as well as planned interim remedy and future final remedy treatment facilities;
2. Increased likelihood that additional water supply wells in the area would have to be modified, removed from service, operated intermittently, or would require treatment to remove contaminants; and
3. Increased cost, difficulty, and time required for containment of contaminant plumes or restoration of the aquifer because continued contaminant migration would increase the volume, contaminant concentrations, and potential COCs in that contaminated groundwater.

2.9 Description of Remedial Alternatives

EPA developed and evaluated five remedial action alternatives (Alternatives 2 through 6) to address the RAOs. A No-Action alternative (Alternative 1) was also evaluated as a baseline for comparison.

2.9.1 Description of Remedial Alternative Components

The primary objectives of Alternatives 2 through 6 are to achieve the RAOs described above.

All of the action alternatives included groundwater extraction wells, water treatment systems, conveyance systems, and groundwater monitoring wells. The principal differences between the alternatives are in the location and number of groundwater extraction wells and the end use for the treated water. The treatment processes are similar but differ slightly based on the requirements for the specific end use of the treated water (i.e., drinking water, aquifer reinjection, spreading basin discharge, and reclaimed water).

2.9.2 Common Elements and Distinguishing Features of Each Alternative

The six alternatives developed for OU2 are presented in Table 4, Summary of Remedial Alternative Components. The five action alternatives are groundwater pump-and-treat systems consisting of six key components.

1. **Extraction of Contaminated Groundwater:** Each of the alternatives assumes that contaminated groundwater is pumped from the shallow aquifer (40 to 200 feet bgs).

Extraction wells would be installed to extract from 1,800 up to 2,200 gallons per minute (gpm). The alternatives vary in terms of the number and location of groundwater extraction wells. The various extraction well locations include the leading edge (LE) of the OU2 plume, the central extraction (CE) area and in the northern extraction (NE) area of the OU2 plume. The CE and NE areas are located generally downgradient of the two major high concentration areas within the plume. These locations are depicted in Figure 8. For comparing the extraction Alternatives, 2 through 6, it is assumed that the production wells that have been impacted (SFS#1 and the four GSWC production wells) will continue to operate. However, it should be noted that the interim remedy will perform more efficiently, and operate at lower extraction rates and lower cost if those wells were to stop pumping.

2. **Treatment of Groundwater to Remove Contaminants:** The groundwater treatment requirements for each of the action alternatives are driven by the end-use requirements of the treated water. The choice of one centralized treatment plant or separate smaller treatment plants at specific extraction areas or clusters of extraction areas will be determined during remedial design depending upon which approach is more cost effective and/or easier to implement. The following treatment processes were identified in the FS as being common to all the action alternatives:

   - Advanced oxidation process (AOP) for 1,4-dioxane removal;
   - Bio-liquid-phase granular activated carbon (LGAC) and conventional LGAC treatment for VOCs; bio-LGAC treatment is used for removal of partial oxidation products formed in the AOP; LGAC treatment is used for removal of residual VOCs; and
   - Membrane treatment process (nanofiltration [NF] or reverse osmosis [RO]) for removal of total chromium, hexavalent chromium, selenium, total dissolved solids (TDS), sulfate (SO_4) and aluminum, depending on the end-use requirements.

3. **Conveyance Systems to Transport Untreated and Treated Groundwater and Waste Brine:** All the action alternatives include the construction of pipelines for conveying:

   - Extracted groundwater from the extraction wells to the OU2 treatment plant;
   - Treated water to end use points; and
   - Wastewater brine from the membrane treatment process to an industrial sewer connection.

4. **Use of Groundwater after Removal of Contaminants:** The five action alternatives differ in the assumed use of the groundwater after the contaminants are removed. Alternatives 2 and 6 include delivery to a local water utility for potable water use. Negotiations and agreements during the RD phase will determine specifically which water purveyor or purveyors would receive the treated water. Alternatives 3, 4, and 5 include treated water reuse as reclaimed water, reinjection into the aquifer, and spreading basin discharge for aquifer replenishment, respectively.

5. **Groundwater Monitoring:** All of the alternatives assume the monitoring of water levels and groundwater quality to evaluate the performance of the implemented remedy and optimize its

operation. Monitoring will be conducted using existing monitoring wells, as well as newly installed monitoring wells.

For Alternative 2, it was estimated that new monitoring wells would be installed at six locations downgradient of the extraction wells, with each monitoring well cluster comprising four monitoring wells installed at different depths within the aquifer at each location for a total of 24 new monitoring wells.

For Alternatives 3, 4, 5, and 6, it was estimated that a total of 10 clusters of wells would be installed at locations downgradient of the extraction wells in the LE, CE, and NE areas, with each monitoring well cluster comprising four wells installed at different depths within the aquifer, for a total of 40 new monitoring wells.

6. **Institutional Controls:** The ICs are essentially informational ICs to reduce the possibility that production wells in the vicinity of OU2 could become contaminated and to prevent operation of the wells from interfering with the plume containment goals of the Interim Remedy. They include (1) annual notifications to all water rights holders in the Central Basin and other stakeholders, (2) periodic meetings with State and local agencies with jurisdiction over well drilling and groundwater use within the Central Basin, and (3) contemporaneous notifications by such agencies regarding groundwater extraction and well drilling, as described below.

   The annual notification provided to all water rights holders in the Central Basin would explain the goals of the Interim Remedy, the status of the remedy's implementation, the nature and extent of OU2 groundwater contamination and the most recent available groundwater data, and discuss related State or local restrictions and prohibitions on well-drilling and groundwater use without necessary approvals and permits.

   The purpose of the periodic (e.g., annual) meetings with State and local stakeholders would be to enable the periodic exchange of all available information relevant to whether operation of any production well(s) within OU2 or its vicinity is incompatible or poses a risk of incompatibility with the groundwater contamination containment goals of the Interim Remedy. Such information would include any permit(s) for well installation that had been applied for or granted in the OU2 area or vicinity and the compatibility of such permit(s) with the RAOs of the selected OU2 remedy.

   These meetings would be supplemented by an annual review of documentation maintained by the State and local entities to determine if water supply wells have been installed, or a purveyor or other water rights holder had increased groundwater production or production capacity within OU2 or its vicinity.

   Finally, the ICs include contemporaneous notification from State and local agencies with jurisdiction over well drilling and groundwater use within the Central Basin. For example, WRD could provide EPA and the entity/entities implementing the remedy with monthly pumping totals reported by water well operators. Further, LACDHS could notify EPA and such entity/ entities whenever a permit for well construction, modification or destruction has been sought. This contemporaneous notification would further reduce the possibility of contamination of OU2 area production wells and interference of well operation with plume containment goals.

Implementation of all components of these ICs is an integral part of each alternative and will be the responsibility of the party or parties implementing the remedy.

Table 4. Summary of Remedial Alternative Components
Omega Chemical Superfund Site – OU2

Remedy Component	Remedial Alternative					
	1	2	3	4	5	6
Groundwater Extraction		✓	✓	✓	✓	✓
Pipelines and Pumps (Conveyance)		✓	✓	✓	✓	✓
Groundwater Treatment Plant (GWTP) Capacity		1,800 gpm	2,000 gpm	2,000 gpm	2,200 gpm	2,000 gpm
Ion Exchange Treatment for Hexavalent Chromium			✓		✓	
AOP for 1,4-Dioxane		✓	✓	✓	✓	✓
Bio-LGAC/LGAC for VOCs		✓	✓	✓	✓	✓
NF or RO		Chromium, Hexavalent Chromium, TDS, SO_4	TDS, SO_4, Selenium	Hexavalent Chromium, Aluminum, TDS, SO_4, Other COCs	TDS, SO_4, Aluminum, Selenium	TDS, SO_4, Aluminum
Disinfection		✓	✓			✓
Groundwater Monitoring Program		✓	✓	✓	✓	✓
Institutional Controls		✓	✓	✓	✓	✓
End Use	No Action	Drinking Water	Reclaimed Water	Reinjection	Spreading Basin	Drinking Water

Alternative 1: No Action

EPA is required to evaluate a No-Action alternative under the NCP. This alternative establishes a baseline against which other alternatives can be compared. The No-Action alternative would allow the OU2 contamination to continue to migrate, although a relatively small area would be captured and treated as part of any groundwater cleanup actions at individual sources within the OU2 area overseen by the State.

Alternative 2: LE Extraction with Drinking Water End Use

Alternative 2 consists of groundwater extraction at the leading edge of the plume to prevent further migration of contaminated groundwater into the downgradient areas. This alternative is estimated to require three extraction wells, each about 200 ft deep, located at the LE area of the OU2 plume with extraction rates of approximately 600 gpm each for a total extraction rate of 1,800 gpm. The extracted contaminated groundwater would be treated to levels that comply with drinking water standards and delivered via pipeline to one or more of the municipal or private water purveyors in the OU2 area. The specific entity or entities that would receive the treated water would be identified during the remedial design phase.

The following key treatment steps would be conducted at the groundwater treatment plant (GWTP): an AOP to remove 1,4-dioxane; biological and conventional LGAC for VOC removal; and a NF membrane process for removal of total chromium and TDS, including SO_4. The

groundwater in this area contains high levels of naturally occurring dissolved solids, which would be removed when the water is treated. The resulting high-salinity ~~"~~brine," a byproduct of the treatment process, would be discharged to a nearby industrial sewer line for disposal.

Other treatment process residuals include spent liquid phase granular activated carbon (LGAC), filter bags and dewatered sludge from periodic LGAC backwashing operations. The spent LGAC will be sent off site to a LGAC thermal reactivation facility so that the LGAC can be reused. Filter bags from influent water treatment and dewatered sludge from LGAC backwashing operations will be sent to offsite disposal, typically in a landfill.

Alternative 3: Plume-wide Extraction with Reclaimed Water End Use

Alternative 3 includes groundwater extraction at three locations and the delivery of treated water for use as reclaimed water for non-potable irrigation and industrial uses.

In addition to extracting groundwater at the leading edge (LE) of the OU2 plume, Alternative 3 would include extraction of groundwater at two additional locations (CE and NE) to prevent spreading of the high-concentration areas of the plume, more effectively remove groundwater contaminants and control vertical migration of the plume. Extracted groundwater would be treated at a centralized GWTP located in the vicinity of the CE extraction area (although the specific number and location of treatment plants would be determined during design). The treated water would be discharged to a reclaimed water line. The reclaimed water end use (for non-drinking purposes, such as irrigation or industrial use) under this alternative would be consistent with water conservation efforts in the Central Basin.

The extraction system under this alternative assumes there would be two NE wells with extraction rates of approximately 250 gpm each, two CE wells with extraction rates of approximately 250 gpm each and three LE wells with extraction rates of approximately 350 gpm each. The total extraction rate would be about 2,000 gpm for this plume-wide extraction scenario. At the GWTP, the groundwater would go through an ion exchange (IX) system to remove hexavalent chromium, AOP to remove 1,4-dioxane, biological and conventional LGAC to remove VOCs, and RO treatment to reduce selenium and TDS, including SO_4, to meet reclaimed water discharge limits. Only about 50 percent of the total water flow is treated in the RO process while 50 percent of the flow is bypassed around this treatment step. When blended together, the treated RO effluent and the RO bypass stream will meet end-use requirements. This alternative includes pipelines to convey treated water to a nearby reclaimed water line and to discharge waste brine from the GWTP to a nearby industrial sewer.

In addition to waste brine from RO treatment, other treatment process residuals include spent IX resin, LGAC, filter bags and dewatered sludge from periodic LGAC backwashing operations. Spent IX resin will be sent offsite for regeneration while spent LGAC will be sent off site to a LGAC thermal reactivation facility so that it can be reused. Filter bags from influent water treatment and dewatered sludge from LGAC backwashing operations will be sent to offsite disposal, typically in a landfill.

Mitigation of the lateral and vertical spreading of the plume would begin as soon as the system starts operating. The extraction wells will immediately begin to pull contaminated groundwater in the upgradient portion of OU2 into the wells which will prevent continued vertical and lateral groundwater migration of the plume.

Alternative 4: Plume-wide Extraction with Reinjection

Alternative 4 would have the same extraction well network as Alternative 3, but the treated water would be reinjected into the aquifer. As described in the FS, reinjection would have to be implemented in a manner that does not cause interference with containment of the plume and does not result in further spreading of existing plumes in the shallow aquifer. The replenishment of the drinking water aquifers under this alternative would be consistent with water conservation efforts in the Central Basin.

The extraction system under this alternative would be the same as for Alternative 3 and has a total extraction rate of approximately 2,000 gpm for the plume-wide extraction. The GWTP would incorporate the same treatment steps as in Alternative 2 except that it would use a more-robust RO system instead of an NF process to provide a higher degree of contaminant removal prior to injection of the groundwater (the specific number and location of treatment plants would be determined during design). The State of California's antidegradation policy has established water quality limits for reinjected water that are stricter than those for other water end uses. The treated water would be pumped to injection wells. Treatment process residuals and the manner in which they are handled are similar to Alternatives 2 and 3.

Alternative 5: Plume-wide Extraction with Spreading Basin Recharge

Alternative 5 is identical to Alternatives 3 and 4 with regard to extraction well locations but differs in that the treated water would be delivered to the nearby San Gabriel Spreading Basin for infiltration into the ground. More specifically, this treated water would be discharged to the unlined portions of the San Gabriel River that are part of the regional spreading basin area. From there, the treated water would infiltrate into the deep drinking water aquifers of the Central Basin. The replenishment of the drinking water aquifers under this alternative would be consistent with water conservation efforts in the Central Basin.

The extraction well system under this alternative would have an extraction rate that is about 10 percent higher than Alternatives 3 and 4 and 20 percent higher than Alternative 2. The spreading basin areas undergo routine maintenance and are not available for approximately 5 weeks per year. To ensure that the plume is adequately captured on overall annual basis, this system would pump at an overall extraction rate that is approximately 2,200 gpm to compensate for routine spreading basin maintenance periods.

The GWTP would incorporate the same treatment steps as Alternative 3 (although the specific number and location of treatment plants would be determined during design) and include IX, AOP, LGAC, and RO treatment units. As in Alternative 3, only about 50 percent of the total flow is estimated to need treatment in the RO process to meet end-use requirements. Treatment process residuals and the manner in which they are handled are similar to Alternative 3.

Alternative 6: Plume-wide Extraction with Drinking Water End Use

Alternative 6 was presented as the Preferred Alternative in the August 2010 Proposed Plan. It is similar to Alternatives 3, 4, and 5 in that it would incorporate the same plume-wide extraction scenario with groundwater extraction at the LE, CE, and NE areas. Alternative 6 also is similar to Alternative 2 in that groundwater would be treated and distributed to a municipal water supply system as drinking water. Extracted contaminated groundwater would be treated with a

centralized GWTP located in the vicinity of the CE area (although the specific number and location of treatment plants would be determined during design).

The extraction system under this alternative would be the same as for Alternatives 3, 4, and 5, with a total extraction rate of about 2,000 gpm for the plume-wide extraction system. The GWTP would use the same treatment technologies as those found in Alternative 2, which would include an AOP, biological and conventional LGAC, NF membrane process, and final disinfection. Treatment process residuals and the manner in which they are handled are similar to Alternative 2.

Applicable or Relevant and Appropriate Requirements

The following are the key Applicable or Relevant and Appropriate Requirements (ARARs) that would apply to the proposed alternatives; more details for these and other ARARs are provided in Tables 9 and 10:

- **Federal Safe Drinking Water Act (SDWA), 2 USC §§ 300 et seq.** Establishes MCLs to protect the quality of water in public water systems (e.g., 5 µg/L for PCE, 5 µg/L for TCE, see Tables 12 and 13).
- **State of California Domestic Water Quality and Monitoring Regulations, 22 CCR § 64431 and § 64444.** Establishes California MCLs. Only those state standards that are identified in a timely manner, are more stringent than federal requirements, and are promulgated and uniformly applied may be relevant and appropriate (e.g., 50 µg/L for total chromium, see Tables 12 and 13).
- **California Porter-Cologne Water Quality Control Act, California Water Code § 13240.** Provides standards used to determine discharge limits if treated groundwater is reinjected or temporarily discharged to surface water.

In addition, EPA is selecting the following to-be-considered (TBC) criterion as a performance standard for the Selected Remedy:

- **CDPH Drinking Water Notification Levels.** The notification level of 1 µg/L for 1,4-dioxane would serve as a performance standard with respect to the offsite delivery of treated water for use in a public water supply system.

Estimated Costs for Remedial Alternatives

A summary of the capital, annual O&M, and net present value (NPV) cost for each alternative is presented in Table 5. These cost estimates are based on a 7 percent discount rate (essentially the interest rate on investment) and 30-year O&M period. Numerous assumptions have been made in estimating these costs. Details of the cost estimates for each alternative are provided in Appendix B of the FS.

Table 5. Summary Of Estimated Costs For Remedial Alternatives
Omega Chemical Superfund Site – OU2

Alternative	Capital Costs ($)	Annual O&M Costs ($)	Total NPV of O&M ($)	Total Estimated NPV ($)
1 – No Action	0	0	0	0
2 –LE Extraction with Drinking Water End Use	29,200,000	2,000,000	24,400,000	53,600,000
3—Plume-wide Extraction and Reclaimed Water End Use	40,100,000	3,700,000	46,400,000	86,600,000
4– Plume-wide Extraction and Reinjection End Use	41,400,000	2,600,000	31,800,000	73,200,000
5 – Plume-wide Extraction with Discharge to Spreading Basin	41,600,000	3,300,000	41,300,000	82,900,000
6 – Plume-wide Extraction with Drinking Water End Use	38,400,000	2,500,000	30,800,000	69,200,000

Notes:

(1) Capital costs and NPV have been rounded to the nearest $100,000. Annual O&M costs have been rounded to the nearest $1,000. NPV calculations assumed 30 years of O&M at 7 percent discount rate.

(2) Cost estimates were prepared based on an AOP treatment process designed to exceed the previous Notification Level (NL) of 3 µg/L for 1,4-dioxane. The NL for 1,4-dioxane has since been reduced to 1 µg/L. As a result, the AOP treatment costs for Alternatives 3, 5, and 6 will increase slightly to meet lower treatment limits. The estimated costs for Alternative 4 will not be impacted since its treatment level for 1,4-dioxane was already to a concentration below its NL. Overall, the relative cost ranking would not be impacted.

2.9.3 Expected Outcomes of Each Alternative

Alternative 1

The No-Action alternative does not contain the contaminated plume to any extent and does not achieve the RAOs. Alternative 1 serves as a baseline for comparison with the other alternatives.

Alternative 2

Alternative 2 would protect downgradient production wells from future contaminant migration, but it allows the spreading of high-concentration zones within the plume to zones of lower contaminant concentrations and does not meet the remedial action objectives. Extraction at the leading edge will not prevent upgradient contamination from migrating downgradient and possibly migrating deeper into the aquifer due to existing vertical gradients. Lateral capture could be compromised if groundwater conditions in the aquifer change. Overall, this alternative is predicted to achieve less than adequate vertical (as well as lateral) capture of the contaminated groundwater.

Alternatives 3, 4, 5, and 6

Alternatives 3 through 6 would use a plume-wide extraction well network to achieve plume containment. These alternatives would also impede the spread of contamination from high to lower concentration zones within OU2.

For Alternatives 3 through 6, plume containment would begin essentially as soon as the system starts operating. The extraction wells will immediately begin to pull contaminated groundwater throughout OU2 into the wells which will prevent continued vertical and lateral groundwater migration of the plume.

Alternative 3 would provide less overall containment than Alternatives 4, 5 and 6 because the amount of water that could be extracted would be constrained during periods of little or no demand for reclaimed water. Reclaimed water demand is seasonal, with peak demand occurring during hot weather periods and much lower demand occurring during wetter winter periods. As a result, groundwater extraction and treatment operations would likely fluctuate throughout the year based on reclaimed water demand. When reclaimed water demand is high, groundwater extraction rates will be high and plume containment will be effective. When reclaimed water demand is low, groundwater extraction rates will be low and plume containment will be compromised.

2.10 Summary of Comparative Analysis of Alternatives

The following sections summarize the comparative analysis of alternatives presented in the detailed analysis section of the August 2010 RI/FS Report. A separate section addresses each of the nine remedy selection criteria, and Table 6 presents a summary of the comparative analysis.

Table 6. Comparative Analysis of Remedial Alternatives
Omega Chemical Superfund Site – OU2

Alternative	Protection of Human Health and Environment	Compliance with ARARs	Long-term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short-term Effectiveness	Implementability	Cost (millions)	
1 No-Action Alternative	**NO** – Provides no long-term protection of human health or the environment	NO	**LOW** – Would allow uninhibited migration of the contaminants in groundwater	Not Applicable	Not Applicable	Not Applicable		$0
2 Leading Edge Extraction with Drinking Water End Use	**NO** – Would not achieve complete capture of the plume by extraction at the leading edge; the capture in the vertical direction and lateral capture during changing hydrogeologic conditions would be uncertain.	**YES** – Meets all chemical-, location-, and action-specific ARARs.	**MEDIUM** – Would achieve partial capture because the vertical capture will likely be incomplete; would also allow contamination from high-concentration zones to migrate into less-contaminated zones within the plume; the overall plume size would initially increase, then decrease.	**MEDIUM** – The treatment would reduce the toxicity and mobility of contaminants removed from the extracted groundwater, but not to the extent provided by plume-wide extraction in Alternatives 3 through 6. Alternative 2 only extracts at the LE (at a lower total flow rate than Alternatives 3 through 6), where COC concentrations are much lower than within the more contaminated areas of OU2 that would be pumped by Alternatives 3 through 6.	**HIGH** – The remedy can be constructed within 1 year of completion of design with minimal expected impacts to the environment.	**MEDIUM** – This alternative is based on proven technologies for both construction and operation and can be modified in the future, if necessary. Water rights would not be an impediment assuming that the purveyor(s) receiving OU2 treated water use their water rights. Constructability is similar to the other alternatives. Complicated regulatory review and permitting process is expected as CDPH Policy Memo 97-005 requirements would have to be followed.	Capital Annual O&M NPV of O&M Total NPV	$29.2 $2.0 $24.4 $53.6
3 Plume-wide Extraction with Reclaimed Water End Use	**YES –** Would achieve capture through extraction along the longitudinal axis of the plume if there is sufficient year-round demand for reclaimed water; otherwise, overall plume capture efficiency would be impaired because of prolonged periods of little or no reclaimed water demand during which groundwater extraction rates would be significantly curtailed; it would permanently remove contamination from the extracted groundwater.	**YES** – Meets all chemical-, location-, and action-specific ARARs.	**HIGH** – Would achieve complete capture of the plume when operating; would impede the spread of contamination from highly contaminated zones; the downgradient portion of the plume size would initially increase, then decrease; the low seasonal reclaimed water demand would necessitate lower extraction rates, which would negatively affect the plume capture; as a result, the capture would likely be not as complete as Alternatives 4, 5, and 6.	**MEDIUM** – The treatment would reduce the toxicity and mobility of contaminants removed from the extracted groundwater; however, due to prolonged periods of reduced extraction due to low seasonal demand for reclaimed water, less contaminant mass would be removed compared to the other alternatives.	**HIGH** – The remedy can be constructed within 1 year of completion of design with minimal expected impacts to the environment.	**LOW** – This alternative is based on proven technologies for both construction and operation and can be modified in the future, if necessary. Water rights may be an issue and basin replenishment assessment fees may be incurred. Coordination with Water Replenishment District (WRD), Sanitation Districts of Los Angeles County (LACSD; main supplier of regional reclaimed water), and with purveyors would be necessary. Constructability is similar to other alternatives. All permits are expected to be acquired. This alternative has the lowest overall implementability as a stand-alone alternative. The possibility of combining this alternative with another end use alternative also has low implementability because regional reclaimed water supply far exceeds the current demand and there would be no incentive to provide additional reclaimed water to this region.	Capital Annual O&M NPV of O&M Total NPV	$40.1 $3.7 $46.4 $86.6

Table 6. Comparative Analysis of Remedial Alternatives
Omega Chemical Superfund Site – OU2

Alternative	Protection of Human Health and Environment	Compliance with ARARs	Long-term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short-term Effectiveness	Implementability	Cost (millions)	
4 Plume-wide Extraction with Reinjection	**YES** – Would achieve capture through extraction along the longitudinal axis of the plume Would permanently remove contamination from the extracted groundwater	**YES** – Meets all chemical-, location-, and action-specific ARARs	**HIGH** – Would achieve complete capture of the plume; the plumewide extraction can better maintain capture during changing hydrogeological conditions than the LE-only extraction under Alternative 2; would impede the spread of contamination from highly contaminated zones; the downgradient portion of the plume would initially increase in size, then decrease	**HIGH** – The treatment provided would reduce the toxicity and mobility of contaminants removed from the extracted groundwater, and the mass of contamination removed by the extraction wells would be high.	**HIGH** – The remedy can be constructed within 1 year of completion of design with minimal expected impacts to the environment.	**MEDIUM** – This alternative is based on proven technologies for both construction and operation and can be modified in the future, if necessary. Water rights would not be an impediment, but coordination with purveyors would be necessary. Constructability is similar to the other alternatives. Regulatory agencies may require more stringent treatment than assumed in the FS. Water purveyors may oppose deep aquifer injection because of the potential to spread hypothetical, yet to be identified contaminants into the aquifer.	Capital Annual O&M NPV of O&M Total NPV	$41.4 $2.6 $31.8 $73.2
5 Plume-wide Extraction with Discharge to Spreading Basins	**YES** – Would achieve capture through extraction along the longitudinal axis of the plume; would permanently remove contamination from the extracted groundwater.	**YES** – Meets all chemical-, location-, and action-specific ARARs.	**HIGH** – Would achieve complete capture of the plume; the plumewide extraction can better maintain capture during changing hydrogeological conditions than the leading edge only extraction under Alternative 2; would impede the spread of contamination from highly contaminated zones; the downgradient portion of the plume would initially increase in size, then decrease.	**HIGH** – The treatment provided would reduce the toxicity and mobility of contaminants removed from the extracted groundwater, and the mass of contamination removed by the extraction wells would be high.	**HIGH** – The remedy can be constructed within 1 year of completion of design with minimal expected impacts to the environment.	**MEDIUM** – This alternative is based on proven technologies for both construction and operation and can be modified in the future, if necessary. Water rights would not be an impediment, but coordination with purveyors would be necessary. Constructability is similar to the other alternatives. Complicated regulatory review and permitting process is expected.	Capital Annual O&M NPV of O&M Total NPV	$41.6 $3.3 $41.3 $82.9
6 Plume-wide Extraction with Drinking Water End Use	**YES** – Would achieve capture through extraction along the longitudinal axis of the plume; would permanently remove contamination from the extracted groundwater	**YES** – Meets all chemical-, location-, and action-specific ARARs	**HIGH** – Would achieve complete capture of the plume; the plumewide extraction can better maintain capture during changing hydrogeological conditions than the leading edge only extraction under Alternative 2; would impede the spread of contamination from highly contaminated zones; the downgradient portion of the plume would initially increase in size, then decrease	**HIGH** – The treatment provided would reduce the toxicity and mobility of contaminants removed from the extracted groundwater, and the mass of contamination removed by the extraction wells would be high.	**HIGH** – The remedy can be constructed within 1 year of completion of design with minimal expected impacts to the environment.	**MEDIUM –** This alternative is based on proven technologies for both construction and operation and can be modified in the future, if necessary. Water rights would not be an impediment assuming that the purveyor(s) receiving OU2 treated water use their water rights. Constructability is similar to the other alternatives. Complicated regulatory review and permitting process is expected as CDPH Policy Memo 97-005 requirements would have to be followed.	Capital Annual O&M NPV of O&M Total NPV	$38.4 $2.5 $30.8 $69.2

2.10.1 Overall Protection of Human Health and the Environment

This criterion addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls (ICs).

Alternatives 4 through 6 would reduce short-term and long-term risks to human health and the environment by containing the OU2 plume and preventing further spread of contamination to clean areas of the drinking water aquifers and to production wells outside of the OU2 plume. They would permanently remove contamination from the extracted groundwater and would allow for beneficial reuse of the treated water within the basin. Alternative 3 would achieve overall protection only if there is sufficient year-round demand for the reclaimed water. Since the demand for reclaimed water is typically cyclical, plume capture efficiency would be impaired and Alternative 3 would not achieve adequate overall protection.

Alternative 2 would not reduce long-term risks to human health because it will likely not achieve complete plume capture (vertical and lateral) and thus will not protect drinking water aquifers and production wells outside and within OU2. Alternative 2 would also allow migration of contaminants from higher concentrations areas within the plume to areas of lower concentration within the plume which would further degrade the water quality in production wells within the plume and near the plume boundary.

Under all the alternatives, it is assumed that the production wells that have been impacted (SFS1 and the four GSWC production wells) will continue to operate and that they will continue to require wellhead treatment systems.

Alternatives 2 and 6 would provide drinking water that meets all health-based state and federal requirements.

Alternative 1 would not provide long-term protection of human health and environment. It would allow uninhibited migration of the contaminants in groundwater to parts of the Central Basin that contain drinking water aquifers and production wells.

As summarized in Table 6, Alternatives 4, 5, and 6 would achieve overall protection of human health and the environment. Alternative 3 would achieve overall protection as long as there is sufficient year-round demand for the reclaimed water, otherwise it would not achieve overall protection. Alternative 2 would not achieve protection because it is predicted to achieve less than adequate vertical (as well as lateral) capture of the contaminated groundwater. Alternative 1 would not achieve overall protection.

2.10.2 Compliance with ARARs

Section 121(d) of CERCLA and NCP § 300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations, which are collectively referred to as ARARs, unless such ARARs are waived.

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state

environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

The "Compliance with ARARs" criterion addresses whether an alternative will meet all of the identified ARARs or other federal and state environmental statutes or provides a basis for invoking a waiver.

All alternatives, except the no-action alternative (Alternative 1), had common ARARs associated with the construction and operation of a pump-and-treat system for contaminated groundwater. Most of the ARARs are associated with the end use of treated groundwater, and management and disposal of treatment residuals. Alternatives 2 through 6 would meet all chemical-, location-, and action-specific ARARs for an interim action containment remedy.

Permits would not be required for the portion of the interim remedy conducted entirely onsite.

No chemical-, location-, or action-specific ARARs apply to Alternative 1.

Alternatives 2 through 6 would all equally satisfy ARARs.

2.10.3 Long-Term Effectiveness and Permanence

This criterion assesses the residual risk, and the ability of a remedy to maintain reliable protection of human health and the environment over time, once the RAOs are met. Residual risk can result from exposure to untreated waste or treatment residuals. The magnitude of the risk depends on the nature and quantity of the wastes and the adequacy and reliability of controls, if any, that are used to manage untreated waste and treatment residuals. For this Interim Remedy, untreated waste refers to the contaminated groundwater that is not removed (or treated) from the aquifer.

The performance of the alternatives in relation to this criterion was evaluated based on the extent to which each alternative removes contamination from the aquifer, contains the OU2 plume and prevents contaminated groundwater from migrating into clean and less-contaminated areas.

Alternatives 2, 3, 4, 5, and 6 would permanently remove contaminants from the extracted groundwater and would achieve varying, but generally high, degrees of long-term effectiveness and permanence. Alternative 2 would not remove as much contamination as the other alternatives because it would extract relatively low level contaminated groundwater from the leading edge only. Alternatives 3, 4, 5, and 6 are ranked High with respect to this criterion because the installation of extraction wells throughout the plume will result in immediate

containment of the more highly contaminated groundwater and provide more certainty with respect to preventing its vertical and lateral migration.

The environmental impacts of cleanup activities were assessed and found to be about the same for each alternative (except the No Action alternative) because all the alternatives have similar energy use and extent of construction activities, and they all incorporate conservation of groundwater resources. Alternative 2, with extraction only at the leading edge, had a lower environmental footprint (because it requires less piping and energy consumption) than Alternatives 3, 4, 5, and 6.

The sustainability assessment of the action alternatives is presented in detail in Appendix C of the FS.

2.10.4 Reduction of Toxicity, Mobility, or Volume through Treatment

This criterion addresses the preference, as stated in the NCP, for selecting remedial actions employing treatment technologies that permanently and significantly reduce the toxicity, mobility, or volume of the hazardous substances as a principal element of the action. This preference is satisfied when treatment is used to reduce the principal threats at a site through destruction of toxic contaminants, reduction of total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.

Alternative 1 would not provide any treatment and therefore ranks Low with respect to this criterion.

The treatment methods in Alternatives 2 through 6 would permanently remove contaminants from the extracted groundwater. The treatment technologies used in the development of the alternatives are based on the various end use requirements. Each would remove contaminants such as SVOCs, VOCs, 1,4-dioxane, AOP byproducts, selenium, hexavalent chromium and other metals. The treated effluent concentrations for all of the action alternatives are expected to be below MCLs and would also need to meet other applicable discharge standards.

Alternative 2 ranks lower than Alternatives 3 through 6 because Alternative 2 would only extract groundwater from the leading edge of the plume where COC concentrations are significantly lower than in the hot spot areas that are captured by the CE and NE extraction well locations included in Alternatives 3 through 6.

Alternative 3 includes plume-wide extraction, however, it would provide a lower degree of COC reductions of all the plume-wide extraction alternatives (Alternatives 3, 4, 5 and 6) because of prolonged periods of little or no extraction and treatment due to low seasonal demands for reclaimed water.

Alternatives 4, 5 and 6 include plume-wide extraction and would provide a greater degree of COC reductions than Alternatives 2 and 3. Under Alternative 4, treated effluent reinjected into the aquifer would meet the same or lower concentrations for those contaminants that are present where reinjection is occurring in the aquifer. For example, COCs not present in the deep aquifer would be treated to non-detect (ND) levels prior to reinjection so as not to degrade the water quality in the deep aquifer. A comprehensive characterization of the reinjection zone would be completed during remedial design to determine the treatment requirements.

Overall, Alternative 2 ranks the lowest of all the action alternatives for this criterion because the concentration of groundwater contamination extracted, compared to the plume-wide extraction scenarios, would be lower or less concentrated. Alternative 3, which includes plume-wide extraction, ranks higher than Alternative 2 but lower than Alternatives 4, 5 and 6 because there would be long periods of little or no extraction due to seasonal demands for reclaimed water. Alternatives 4, 5, and 6 are equal to each other for this criterion and rank higher than Alternatives 2 and 3 because they would extract and treat the most contaminated water and the largest groundwater volumes compared to the other alternatives.

2.10.5 Short-Term Effectiveness

This criterion evaluates the effects of each remedial alternative on human health and the environment during construction and operation, as well as the time required to meet the RAOs.

Alternative 1 would not include any construction or other response actions; therefore, there would be no short-term adverse impacts to the community or to human health or the environment as a result of this alternative.

Alternatives 2 through 6 would all require the construction of one treatment plant of similar size.

Alternative 2 would require the installation of extraction wells in one area (near the leading edge of the plume) and construction of an estimated 22,400 feet of pipeline. Alternatives 3 through 6 would require the installation of extraction wells throughout the plume (represented by the three areas—LE, CE, and NE), and construction of an estimated 41,700; 33,200; 40,700; and 41,900 feet of pipeline, respectively. The requirements for pipeline construction and well installation under Alternatives 3 through 6 are approximately double those for Alternative 2.

In addition, the FS estimated that Alternative 4 would require the installation of two injection wells (although the actual number would be determined during design).

It was estimated in the FS that all the remedy components could be constructed within 1 year of approval of final designs for each of the Alternatives 2 through 6. All construction activities would take place within developed areas with minimal expected impacts to the environment. Noise and dust abatement, along with management and offsite disposal of the contaminated drill cuttings and purge water would be required to minimize impacts to the community during remedy construction. Standard U.S. Occupational Safety and Health Administration (OSHA) requirements would be protective of workers during the construction.

Reduction of the environmental impacts of the selected alternative will be considered during the RD phase and integrated into the design and operation of the groundwater extraction and treatment system. For example, the use of alternative energy sources and low energy-consuming equipment (such as variable frequency motors) can be coupled with optimum pipeline routing, sizing and material selection (including the use of recycled construction materials) to lower the environmental footprint of the remedy.

Alternatives 2 though 6 rank High on short-term effectiveness. Alternative 1 is not ranked.

2.10.6 Implementability

This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation.

The No-Action Alternative is by definition implementable.

The following criteria are common to Alternatives 2 through 6:

- They are based on proven technologies for both construction and operation.
- They can meet federal, state, and local permitting requirements. Although permits would not be required for any portion of the remedial action conducted entirely onsite, compliance with the substantive aspects of all potential ARARs (including those involving permits) is required.
- They would require access to water rights obtained from a water rights holder by agreement.
- They would generate waste brine as a byproduct of the TDS reduction. Although, by policy, LACSD generally prefers not to accept groundwater into its publicly-owned treatment works (POTW) system, it is very likely that the agency would accept this wastewater because it is wastewater generated as part of a water reuse effort. This water would qualify for a Nonconsumptive Water Use (NWU) Permit, which must be renewed periodically.

Alternatives 4 and 5 do not involve consumptive water use and would require a NWU Permit for the entire extracted volume.

Treatment of groundwater from an impaired source for potable use under Alternatives 2 and 6 would require the preparation of a CDPH 97-005 permit application and implementation of its requirements, including extensive monitoring and testing provisions.

The demand for reclaimed water generated under Alternative 3 is currently much lower than the existing available supply. In addition, reclaimed water demand has high seasonal fluctuations that would impair plume capture efficiency.

The reinjection of treated water under Alternative 4 and the discharge to spreading basins under Alternative 5 would require extensive testing and a complicated regulatory review and permitting process.

The regulatory and permitting requirements are the main distinguishing factors for the implementability of Alternatives 2 through 6. Based on these factors, Alternatives 2, 4, 5, and 6 rank Medium for this criterion. For Alternative 3, however, the lack of a consistent and large enough demand for reclaimed water is problematic, resulting in a Low ranking. Alternative 1 is not ranked.

2.10.7 Cost

The estimated NPV of the alternatives, not including the No Action alternative, range from $53.6 million to $83.6 million. The main cost differences among the alternatives arise from the different lengths of pipelines, different treatment requirements driven by the end use of the treated water, and replenishment fees. Alternative 2 has the lowest capital and O&M costs because the influent VOC concentrations would be lower in comparison the influent

concentrations under Alternatives 3 through 6. The capital costs for Alternatives 3 through 6 are similar due to roughly the same extraction and monitoring well network, and similar treatment plant size and length of piping. The costs for Alternative 4 include the installation of two injection wells; the cost of pipelines is lower in comparison to Alternatives 3, 5, and 6. The O&M costs for Alternative 3 include a replenishment assessment of $205 per acre-foot. The costs for Alternatives 2 and 6 exclude the replenishment assessment fee based on the assumption that the water purveyor(s) receiving the potable water from the Interim Remedy would use their existing water rights.

2.10.8 State Acceptance

DTSC, as the lead agency for the State, has concurred with EPA's choice of Alternative 6 (plume-wide extraction with drinking water end use) as the selected remedy. DTSC supports the Interim Remedy, and recognizes it is contingent upon one or more local water purveyors agreeing to accept the treated water. If an agreement with the water purveyor(s) cannot be reached in a timely manner, DTSC supports the alternative end use of reinjecting the treated water into the aquifer.

2.10.9 Community Acceptance

This criterion evaluates the issues and concerns the public expressed during the public comment period regarding each alternative. In response to various requests, EPA agreed to two extensions allowing submittal of comments on its Proposed Plan from August 23, 2010 to November 22, 2011. During that time, EPA received letters from 14 stakeholders and one local consultant with comments on the Proposed Plan. The comments from PRPs included their belief that the extent of the selected Interim Remedy is unnecessary and that a much smaller plume area should be contained. Comments from water purveyors and other stakeholders included concerns that the scope of the Interim Remedy is too limited and not sufficiently protective of production wells.

Other comments included: the desire to implement the remedy immediately to protect drinking water wells; concerns that the remedy may require extensive effort and time to implement; and concern that the length and depth of the plume, especially near the leading edge, may be further and deeper than what was determined in the RI/FS. One commenter proposed a seventh alternative. Other commenters expressed a preference for a combination of alternatives. EPA has addressed all of the significant comments received in the Responsiveness Summary, Section 3, of this ROD. EPA does not believe that any of the issues and concerns raised warrants selection of an Interim Remedy other than EPA's preferred Alternative 6.

2.11 Principal Threat Wastes

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable. The "principal threat" concept (highly toxic or highly mobile wastes that cannot be reliably contained) is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air, or acts as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material; however, NAPLs in groundwater may be viewed as source material. Because OU2 is a plume of contaminated

groundwater and NAPL has not been detected in groundwater in OU2, principal threat wastes are not considered to be present within OU2.

2.12 Selected Remedy

EPA's selected Interim Remedy for OU2 is Alternative 6, with added flexibility for reinjection end use as described in detail below.

2.12.1 Summary of the Rationale for the Interim Remedy

Based on the information currently available, EPA has concluded that the selected remedy meets the threshold criteria and provides the best balance of trade-offs among the remedial alternatives.

EPA's selected remedy for OU2 of the Omega Chemical Superfund Site is a groundwater pump-and-treat system with extraction wells at three locations along the plume and treatment of the contaminated groundwater for drinking water end use or reinjection of the water into the aquifer if agreements with water purveyors cannot be reached in a timely manner.

The most decisive considerations that affected the selection of the remedy were:

- The remedy will achieve significant risk reduction by containing the contaminated plume to the same degree or better than the other alternatives.
- The remedy will satisfy the RAOs of preventing the spread of contamination in the groundwater to protect future uses of groundwater and preventing migration of groundwater with high concentrations of COCs into zones with currently lower concentrations of COCs.
- The remedy will satisfy the RAO of preventing unacceptable human exposure to groundwater contaminated by COCs.
- The remedy provides permanent and significant reduction in the toxicity, mobility and volume of VOCs and other COCs in the groundwater at OU2 and, by removing contaminant mass from the groundwater, begins the process of restoring the contaminated aquifer.
- The remedy will make treated groundwater available as a source of drinking water, which is consistent with regional water conservation and reuse efforts.
- The remedy has the lowest estimated total cost of the four plume-wide containment alternatives.

The State has concurred with EPA's selected remedy in a letter dated May 26, 2011. Furthermore, the selected remedy satisfies the following statutory requirements of CERCLA Section 121(b): (1) be protective of human health and the environment; (2) comply with ARARs (or justify a waiver); (3) be cost effective; (4) use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element.

2.12.2 Description of the Interim Remedy

The following is a description of the selected remedy based on Alternative 6 (plume-wide extraction and drinking water end use) with the option for reinjection of treated water if agreements with one or

more water purveyors cannot be reached in a timely manner. The Interim Remedy includes the construction of new extraction wells at three locations along the plume; construction of conveyance pipelines for sending extracted groundwater from new extraction wells to the treatment plant(s), for sending treated water to a water purveyor connection point(s) (or to new injection wells), and for sending waste brine to an industrial sewer connection; construction of a treatment plant consisting of multiple processes (the final treatment processes and sequence will be determined during remedial design); treated water disinfection; installation of new monitoring wells; and implementation of ICs. A representative schematic diagram of the expected locations of extraction wells, treatment plant, and pipelines for the selected remedy (based on the drinking water end use scenario) is provided in Figure 8. Final locations will be determined during remedial design. Additional details are provided below.

The drinking water end use for this remedy is contingent upon one or more local water purveyors agreeing to accept the treated water. If an agreement with the water purveyor(s) cannot be reached in a timely manner, the treated water will be reinjected into the aquifer.

Although EPA does not expect significant changes to this remedy, there may be some level of modification during the remedial and construction processes. Any changes to the remedy described in this ROD would be adopted and documented as appropriate and consistent with applicable regulations.

Groundwater Extraction Wells, Conveyance Pipelines, and Monitoring

The extraction well system for the selected remedy will be determined during remedial design based on achieving the RAOs and performance criteria. The following text summarizes the types of extraction wells assumed in Alternative 6 and in the remedy cost estimates. These assumptions are expected to be representative of the facilities required as part of the remedy.

Based on preliminary computer modeling conducted during the RI/FS, two CE area wells with an extraction rate of approximately 250 gpm each, two NE area wells with an extraction rate of approximately 250 gpm each, and three LE wells with an extraction rate of approximately 350 gpm each are needed to achieve the performance criteria. The total extraction rate is 2,050 gpm (nominally 2,000 gpm) for the plume-wide extraction well network. The exact locations, depths, screened intervals and pumping rates for the extraction wells will be determined during remedial design and would depend on extraction configurations needed to achieve containment of the plume and taking into account practical limitations such as access. The specific conveyance systems required for the selected remedy shall be determined during the remedial design after the extraction wells, treatment plant(s), and treated water delivery locations are finalized.

Groundwater monitoring is a key component of the selected remedy and will be carried out to (1) provide information to monitor the effectiveness of the containment system and to optimize the system performance and (2) provide early warning of upgradient changing conditions that could adversely affect system performance or necessitate system modifications, such as a change in groundwater flow conditions, a change in contaminant concentrations, or detection of new contaminants.

The existing groundwater monitoring network at Omega Chemical OU2 will be incorporated into the selected remedy. However, additional monitoring wells complementing the current monitoring network are needed to fulfill the first monitoring objective. For the purpose of cost

estimation, the FS assumed that a total of 10 clusters of monitoring wells will be installed at locations downgradient of the LE, CE, and NE wells, with each well cluster comprising four wells installed at different depths within the contaminated aquifer. A total of 40 new monitoring wells was assumed; the final number of monitoring wells will be determined during remedial design.

Groundwater Treatment

The selected remedy will incorporate treatment processes that may include some or all of the following key process steps:

- AOP for 1,4-dioxane removal using ultraviolet (UV) light and hydrogen peroxide; some VOCs removed; some partial oxidation byproducts potentially formed
- Bag filters for removal of precipitates (iron [Fe], manganese [Mn]) potentially formed in AOP
- Bio-LGAC for removal of potential recalcitrant partial oxidation products formed in AOP
- LGAC for removal of residual VOCs
- NF for removal of total (and hexavalent) chromium/TDS/ SO_4
- Disinfection using chlorination to meet potable water standards
- Discharge of treated water to potable water system (or to reinjection wells)
- Discharge of NF reject brine to industrial sewer trunk line

The potential sequence of treatment processes is depicted in Figure 9, which is based on the description of Alternative 6 in the FS. The actual treatment processes and sequence will be determined during remedial design, as will the number and location of treatment plants. The treatment plant(s) design flow capacity would be 2,000 gpm, while the average flow rate would be about 1,300 gpm.

Treated Water End Use

The selected remedy calls for treated water to be distributed to one or more local water purveyors for use as drinking water. Initial discussions with the local water purveyors indicate a general willingness to accept suitably-treated water for use in potable water supply systems; however, formal agreements have not yet been negotiated. It is possible that more than one water purveyor will receive treated water. It is anticipated that negotiating the required agreement(s) will take considerable time and effort. If EPA determines the required agreement(s) cannot be reached in a timely manner, EPA may approve the alternate end use option of reinjection into the aquifer. If the selected end use becomes reinjection, additional evaluations and stakeholder negotiations shall be conducted to select the appropriate number and location of injection wells.

CDPH Policy Memorandum 97-005 establishes a specific process for the evaluation of impaired water sources before they can be approved for use as a source of drinking water. These offsite requirements that apply to COCs must be met in order to deliver treated OU2 water for use in domestic water supply. In the cost estimates developed as part of the FS, it was assumed that negotiations with the water purveyor receiving the potable water would result in the water

purveyor using its water rights. The treatment process will generate a waste brine stream high in TDS, which cannot be reused and will therefore be discharged to an industrial sewer. An NWU Permit and replenishment assessment exemption could be obtained, at WRD's discretion, for the volume of water extracted that ends up as non-reusable waste brine.

Institutional Controls

ICs are non-engineering controls that will supplement engineering controls to prevent or limit potential exposure to hazardous substances, pollutants, or contaminants and to ensure that the remedy is effective.

Groundwater in the vicinity of OU2 is an important source of drinking water. The groundwater contamination in OU2 potentially limits the ability of numerous water rights holders to fully exercise their water rights, and it also could create a significant challenge for certain rights holders to operate their production wells in a manner that is compatible with the groundwater contamination containment goals of the OU2 Interim Remedy. The ICs for the Interim Remedy are essentially informational ICs. They include (1) annual notifications to all water rights holders in the Central Basin and other stakeholders, (2) periodic meetings with State and local agencies with jurisdiction over well drilling and groundwater use within the Central Basin, and (3) contemporaneous notifications by such agencies regarding groundwater extraction and well drilling, as described below.

The annual notification provided to all water rights holders in the Central Basin will explain the goals of the Interim Remedy, the status of the remedy's implementation, the nature and extent of OU2 groundwater contamination and the most recent available groundwater data, and discuss any related State or local restrictions and prohibitions on well-drilling and groundwater use without necessary approvals and permits.

The periodic (e.g., annual) meetings among EPA and State and local entities with jurisdiction over well drilling and groundwater use within the Central Basin would include the Watermaster; the Los Angeles County Department of Health Services (LACDHS); and the cities of Whittier, Santa Fe Springs, and Norwalk. The purpose of the meetings would be to periodically exchange all available information relevant to whether operation of any production well(s) within OU2 or its vicinity is incompatible or potentially incompatible with the groundwater contamination containment goals of the Interim Remedy. Such information would include any permit(s) for well installation that had been applied for or granted in the OU2 area or vicinity and the compatibility of such permit(s) with the RAOs of the selected OU2 remedy.

These meetings would be supplemented by an annual review of available documentation maintained by the State and local entities to determine if water supply wells have been installed, or a purveyor or other water rights holder had increased groundwater production or production capacity within OU2 or its vicinity.

Finally, the ICs include contemporaneous notification from State and local agencies with jurisdiction over well drilling and groundwater use within the Central Basin. For example, WRD could provide EPA and the entity/entities implementing the remedy with monthly pumping totals reported by water well operators. Further, LACDHS could notify EPA and such entity/ entities whenever a permit for well construction, modification or destruction has been sought. This

contemporaneous notification would further reduce the possibility of contamination of OU2 area production wells and interference of well operation with plume containment goals.

If any information exchanged pursuant to the meeting or obtained through the documentation review suggested a possible incompatibility between the operation of production wells and the groundwater contamination containment goals of the selected remedy, prompt notification to EPA would be provided, if not previously provided. Thereafter, EPA would take such actions it determines are necessary or appropriate to assure that such permit or authorization does not create a risk to human health or the environment, or impair or delay any response action for the Site.

The information exchange provided by these ICs would protect public health by reducing the possibility that production wells in the vicinity of OU2 could become contaminated, and also reducing the possibility that operation of production wells would interfere with the plume containment goals of the interim OU2 remedy.

Environmental Footprint Assessment

The FS provided a preliminary assessment of the environmental footprint of the remedial alternatives, including those that make up the selected remedy. During the RD phase, the construction and operation of the groundwater extraction and treatment system will be evaluated in terms of opportunities to reduce the environmental footprint of the remedy. Detailed engineering studies will be conducted to optimize pipeline routing and design, for example, not just to reduce the initial cost of pipeline installation, but to account for energy usage (pumping power costs) associated with different pipeline materials (e.g., use smaller versus larger pipe sizes; use of smoother pipeline materials to reduce pressure losses, etc.). The design will include consideration of extensive use of lower energy-consuming equipment such as variable frequency motors with high efficiencies. As appropriate, consideration will be given to solar panels, to produce onsite power to offset facility power requirements from the local power supplier, and procurement of electrical power from alternative energy (greener) source suppliers. Emerging technologies at the time of the RD effort will be considered to minimize the environmental footprint of the selected remedy.

Performance Criteria

The performance criteria for the selected remedy are as follows: The remedial action shall provide sufficient hydraulic control laterally and vertically in the LE, CE and NE areas of the OU2 plume to prevent spreading of the plume into clean portions of the aquifers and the movement of groundwater from high concentration zones into less contaminated zones at OU2.

Compliance with the performance criterion shall be verified by demonstrating lateral and vertical hydraulic control of the plume. After the remedy has operated for a period of time, expected to last several years, compliance shall be determined by demonstrating continued hydraulic control and a decrease in COC concentrations in compliance wells over time.

To demonstrate hydraulic control, there must be evidence that the hydraulic capture zone created by the remedy encompasses OU2. The capture zone shall be estimated by measuring groundwater levels and using a groundwater flow model capable of particle tracking simulations or a similar approach. Hydraulic control shall be achieved shortly after startup of the remedy and be maintained thereafter. Implementation of the remedial action shall not result in adverse effects

to water supply wells that are not part of the remedial action (e.g., no significant increase in the concentrations of COCs or significant movement of contaminated groundwater toward such wells).

The compliance locations shall be compliance monitoring wells located generally downgradient of the remedy extraction wells. Compliance wells shall be constructed to provide adequate monitoring of the remedy effects on groundwater quality.

2.12.3 Summary of the Estimated Remedy Costs

Summaries of the estimated capital, O&M, and present value costs of the major components of the selected remedy are included in Tables 7A, 7B and 8A and 8B. Tables 7A and 7B assume the treated groundwater is supplied for potable drinking water use based on Alternative 6. Tables 8A and 8B present costs for reinjection (based on Alternative 4, in which the treated water is reinjected into the deep aquifer). A detailed breakdown of these costs is provided in Appendix B of the FS. The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedy. As is the practice at federal Superfund sites, these cost estimates are based on an expected accuracy range of -30 to +50 percent of actual costs.

Table 7A. Detailed Cost Estimate for the Selected Remedy - Plumewide Extraction With Drinking Water End Use Omega Chemical Superfund Site - OU2			
Capital Costs (Plume-Wide Extraction With Drinking Water End Use)			
Major System/Component	**Quantity**	**Unit Cost**	**Cost**
CONVEYANCE & WELL SYSTEM COSTS			
Water Pipelines			
Pipelines for extracted and treated water	40,700 feet	varies	$3,230,500
Extraction Wells			
Three wells at LE Two wells at CE Two wells at NE	7	$ 276,678	$1,936,700
Monitoring Wells			
New Monitoring Wells (10 with four screened well intervals each)	10	$72,800	$1,080,600
Extraction Well Pumps/Well Heads			
New EW systems Pumps, vaults, valves, gauges, flow meters/totalizers, relief valves, power supply, etc.	7	$ 133,024	$ 931,200
TOTAL CONVEYANCE and WELL SYSTEM SUBTOTAL A			**$7,179,000**
Engineering - Design and Technical Support	8%		**$ 574,300**
Contractors Overhead, General Conditions, Mobilization/Demobilization, Temporary Facilities and Profit	~24%		**$1,737,400**
Construction Management	5%		**$ 445,800**
Construction Contingency	25%		**$2,484,100**
Conveyance and Extraction Well System Cost			**$ 12,420,600**
GROUNDWATER TREATMENT PLANT			
Untreated Water Tank			
Holding Tank (6,000 gal)	1	$35,590	$35,600
Level Switch	1	$365	$400
Treatment Plant Feed Pump			
Feed Pump(2,000 gpm @ 250 feet of head)	2	$73,365	$ 146,700
8" Flow indicating totalizer	1	$4,000	$ 4,000
Bag Filter System			
Bag Filters (2,000 gpm)	2	$20,403	$40,800
Differential pressure switch (0 to 30 psig)	1		included above
Advanced Oxidation Process (AOP)--Trojan System			
AOP System (2,000 gpm; Infl 1,4-dioxane @ 13.2 ppb to <2 ppb design; 48.5 kW reqd, use three standard 18.5-kW modules)			
--ASME code vessels	1	$54,254	$ 542,300
Peroxide Feed System	1	$80,984	$81,000
Sodium Metabisulfite Injection	1	$33,365	$33,400
Biological LGAC Adsorber System			
LGAC Adsorber Columns	2.5	$ 177,674	$ 444,200
Differential Pressure Switch (0 to 30 psig)	5	$590	$ 3,000
8-inch flow indicating totalizer	7	$4,000	$28,000
LGAC Adsorber System			

Table 7A. Detailed Cost Estimate for the Selected Remedy - Plumewide Extraction With Drinking Water End Use Omega Chemical Superfund Site - OU2			
Capital Costs (Plume-Wide Extraction With Drinking Water End Use)			
Major System/Component	**Quantity**	**Unit Cost**	**Cost**
LGAC Adsorber Column Pairs - 20,000 pounds, 10-foot diameter (One pair, 20,000 pounds, 120-inch-diameter x 144-inch SS each)	5	$ 177,674	$ 888,400
Differential Pressure Switch (0 to 30 psig)	10	$590	$ 5,900
8-inch Flow Indicating Totalizer	12	$4,000	$48,000
BW and Rinse Recovery System - 30,000 gallons	1	$ 175,164	$ 175,200
Biocide Injection System	1	$33,365	$33,400
NF Feed Tank			
Tank @ 10-minute retention time (20,000 gallons)	1	$70,691	$70,700
Level Switch	1	$365	$400
Nanofiltration System (NF)			
NF System (75 percent Recovery, 2,000 gpm)	1	$ 2,880,000	$2,880,000
--RO reject brine pump (to sewer, 500 gpm @ 60 feet of head)	2	$28,992	$58,000
-- Flow indicating totalizer	1	$4,000	$ 4,000
Chlorination System			
Holding tank, metering pumps, chlorine analyzer, mixer, etc.	1	$85,000	$85,000
Treated Water Tank			
Holding Tank (30,000 gallons) and Level Switch	1	$89,436	$89,400
Treated Water Pump			
Treated Water Pump (1,500 gpm @ 120 feet of head)	2	$52,368	$ 104,700
Flow Indicating Totalizer	1	$4,000	$ 4,000
TREATMENT PLANT Equipment Material Only "B"			**$5,806,200**
Installation (Labor for Equipment Installation)			**$1,161,200**
TREATMENT PLANT SUBTOTAL "B"			**$6,967,400**
Site Work	5.0%		$ 348,400
Mechanical Piping	15.0%		$1,045,100
I&C	10.0%		$ 696,700
Electrical	10.0%		$ 696,700
Common Facilities	8.0%		$ 557,400
Building--Office/Control Room/Lab/Restroom (Pre-Fab Office)	Lump Sum		$62,000
Metals	5.0%		$ 348,400
RO Concrete Slab and Roof Structure	2500	$ 42	$ 105,000
TREATMENT PLANT SUBTOTAL "C"			**$10,827,100**
Engineering - Design and Technical Support	8%		$ 866,200
Contractors Overhead, General Conditions, Mob/Demob, Temp Facilities and Profit	~24%		$2,620,200
Construction Management	5%		$ 672,400
Construction Contingency	25%		$3,529,900
LACSD Sewer Connection Fee	Lump Sum		$7,485,800
TOTAL TREATMENT PLANT COST			**$ 26,001,600**
GRAND TOTAL - CONVEYANCE, WELL SYSTEM AND TREATMENT PLANT CAPITAL COST			**$ 38,422,200**

Table 7A. Detailed Cost Estimate for the Selected Remedy - Plumewide Extraction With Drinking Water End Use Omega Chemical Superfund Site - OU2			
Capital Costs (Plume-Wide Extraction With Drinking Water End Use)			
Major System/Component	Quantity	Unit Cost	Cost

NOTES:

1. All equipment cost adjustments for size based on the formula: Adjusted Cost = Orig. Cost * (Adjusted Size/Orig. Size) EXP X where "X" is 0.33 for pumps, 0.57 for Tanks, 0.62 for towers, and 0.6 for other process equipment.

2. Cost escalation adjustments from the following time periods were used, if needed, as appropriate.

Escalation Factors

2000-2009:36.02%

2003-2009: 31.61%

2004-2009: 25.74%

2005-2009: 17.72

2008-2009: 4.21%

NOTE: THESE ARE ORDER OF MAGNITUDE COST ESTIMATES, AND EXPECTED TO BE ACCURATE TO -30%/+50%.

Table 7B. Detailed Cost Estimate for the Selected Remedy - Plume-Wide Extraction With Drinking Water End Use Omega Chemical Superfund Site - OU2				
Annual O&M Costs (Plume-Wide Extraction With Drinking Water End Use)				
Equip. Name	Total Requirements	Units	Unit Cost	Cost
Electrical Power				
Extraction Wells to Treatment Plant	803,806	kW-hr		
Treatment Plant and Miscellaneous Equipment	3,016,125	kW-hr		
Total	3,819,931	kW-hr	$0.12	$ 458,400
Carbon Make-up				
LGAC (920 pounds per day)	335,800	lb C	$1.00	$ 335,800
Chemicals/Materials				
Chemicals/Materials				$ 365,400
Misc. Consumables, Sludge Disposal, Etc.				$ 76,200
Analytical				
Treatment Plant, Extraction, Monitoring Wells				$ 54,000
Labor				
Well Operating, Administrative and Management	10,200	hrs	$20 to $50	$ 439,300
Subcontracts				
Monitoring Wells Sampling (Subcontract)	1	lot	$ 90,000.00	$ 90,000
Regulatory Monitoring reports allowance (RWQCB, EPA, Air Emissions Inventory)	1	lot	$ 25,000.00	$ 25,000
Parts				
2 percent of Treatment Plant Installed Cost	2%		$10,827,251	$ 216,500
				$2,093,000
Contingency on Materials/Services	10%			$ 209,300
LACSD Annual Sewer Surcharge (annual)	1	ea	$179,097	$ 179,100
TOTAL ANNUAL O&M COSTS				**$2,481,400**
NET PRESENT VALUE OF THE ESTIMATED O&M COSTS (30 years, 7% discount rate)				**$30,791,800**
TOTAL ESTIMATED PRESENT WORTH FOR THE SELECTED REMEDY				**$69,214,000**

Table 8A. Detailed Cost Estimate for the Selected Remedy – Plumewide Extraction With Reinjection Omega Chemical Superfund Site - OU2			
Capital Costs (Plume-Wide Extraction With Reinjection)			
Component	Quantity	Unit Cost	Cost
CONVEYANCE & WELL SYSTEM COSTS			
Water Pipelines			
Pipelines for extracted and treated water	33,200 feet	varies	$2,511,400
Extraction			
Three Wells at LE Two Wells at CE Two Wells at NE	7	$ 276,678	$1,936,700
New Monitoring Wells			
New Monitoring Wells 10 with four screened well intervals each	10	$ 108,060	$1,080,600
Injection Wells			
Injection Wells (500 feet)	2	$ 414,196	$ 828,400
Extraction Well Pumps/Well Heads			
Pumps, vaults, valves, gauges, flow meters/totalizers, relief valves, power supply, etc.	7	$ 133,024	$ 931,200
CONVEYANCE AND WELL SYSTEM SUBTOTAL A			**$7,288,300**
Engineering - Design and Technical Support	8%		**$ 583,064**
Contractors Overhead, General Conditions, Mob/Demob, Temporary Facilities and Profit	~24%		**$1,763,769**
Construction Management	5%		**$ 452,603**
Construction Contingency	25%		**$2,521,934**
Total Conveyance and Extraction Well System Cost			**$12,609,700**
GROUNDWATER TREATMENT PLANT			
Untreated Water Tank			
Holding Tank (6,000 gallons)	1	$ 35,590	$ 35,600
Level Switch	1	$ 365	$ 400
Treatment Plant Feed Pump			
Feed Pump (2,000 gpm @ 250 feet head)	2	$ 73,365	$ 146,700
8-inch Flow Indicating Totalizer	1	$4,000	$4,000
Bag Filter System			
Bag Filters (2,000 gpm)	2	$ 20,403	$ 40,800
Differential Pressure Switch (0 to 30 psig)	1		included above
Advanced Oxidation Process (AOP)--Trojan System			
AOP System (2,000 gpm; Infl 1,4-dioxane @ 13.2 ppb to <0.05 ppb design; 143.2 kW reqd, use 8 std 18.5 kW modules)		$1,446,010	$1,446,000
Peroxide Feed System	1	$ 80,984	$ 81,000
Sodium Metabisulfite Injection	1	$ 33,365	$ 33,400
Biological LGAC Adsorber System			
LGAC Adsorber Columns (one pair, 20,000 pounds, 120-inch-diameter x 144-inch SS each)	2.5	$ 177,674	$ 444,200
Differential Pressure Switch (0 to 30 psig)	5	$ 590	$3,000
8-inch Flow Indicating Totalizer	7	$4,000	$ 28,000
LGAC Adsorber System			

Table 8A. Detailed Cost Estimate for the Selected Remedy – Plumewide Extraction With Reinjection Omega Chemical Superfund Site - OU2			
Capital Costs (Plume-Wide Extraction With Reinjection)			
Component	**Quantity**	**Unit Cost**	**Cost**
LGAC Adsorber Column Pairs, 20,000 pounds, 10-foot diameter	5	$ 177,674	$ 888,400
Differential Pressure Switch (0 to 30 psig)	10	$ 590	$5,900
8-inch Flow indicating totalizer	12	$4,000	$ 48,000
BW and Rinse Recovery System	1	$ 175,164	$ 175,200
Biocide Injection System	1	33365	33,400
RO Feed Tank			
Tank @ 10 Min. ret time (20,000 gallons)	1	$ 70,691	$ 70,700
Level Switch	1	$ 365	$ 400
Reverse Osmosis System (RO)			
RO System (75 percent Recovery, 2,000 gpm)	1	$2,880,000	$2,880,000
--RO reject brine pump (to sewer, 500 gpm @ 60 feet of head)	2	$ 28,992	$ 58,000
-- Flow indicating totalizer	1	$4,000	$4,000
Inj Well Cleaning and Water Conditioning Chemicals Injection System	1	56730	56,700
Treated Water Tank and Level Switch	1		
Holding Tank (30,000 gallons)	1	$ 89,636	$ 89,400
Treated Water Pump			
Treated Water Pump (1,500 gpm @ 25 feet of head)	2	$ 31,207	$ 62,400
Flow Indicating Totalizer	1	$4,000	$4,000
Inj Well Cartridge filters			
Cartridge Filters (2,000 gpm)	2	$ 20,403	$ 40,800
Differential Pressure Switch (0 to 30 psig)	1		included above
TREATMENT PLANT Equipment Material Only "B"			**$6,680,200**
Installation (Labor For Equipment Installation)			**$1,336,000**
TREATMENT PLANT SUBTOTAL "B"			**$8,016,200**
Site work	5.0%		$ 400,800
Mechanical Piping	15.0%		$1,202,400
I&C	10.0%		$ 801,600
Electrical	10.0%		$ 801,600
Common Facilities	8.0%		$ 641,300
Building--Office/Control Room/Lab/Restroom (Pre-Fab Office)	Lump Sum	$ 62,000	$ 62,000
Metals	5.0%		$ 400,800
RO Concrete Slab and Roof Structure	2500	$42	$ 105,000
TREATMENT PLANT SUBTOTAL "C"			**$12,431,700**
Engineering- Design and Technical Support	8%		$ 994,500
Contractors Overhead, General Conditions, Mob/Demob, Temp Facilities and Profit	~24%		$3,008,500
Construction Management	5%		$ 772,000
Construction Contingency	25%		$4,053,100
LACSD Sewer Connection Fee	Lump Sum		$7,485,800
TOTAL TREATMENT PLANT COST			**$28,745,600**
GRAND TOTAL CONVEYANCE, WELL SYSTEM AND TREATMENT PLANT COST			**$41,355,300**

Table 8A. Detailed Cost Estimate for the Selected Remedy – Plumewide Extraction With Reinjection Omega Chemical Superfund Site - OU2			
Capital Costs (Plume-Wide Extraction With Reinjection)			
Component	Quantity	Unit Cost	Cost

NOTES:

1. All equipment cost adjustments for size based on the formula: Adjusted Cost = Orig. Cost * (Adjusted Size/Orig. Size) EXP X where "X" is 0.33 for pumps, 0.57 for Tanks, 0.62 for towers, and 0.6 for other process equipment.

2. Cost escalation adjustments from the following time periods were used, if needed, as appropriate.

Escalation Factors

2000-2009:36.02%

2003-2009: 31.61%

2004-2009: 25.74%

2005-2009: 17.72

2008-2009: 4.21%

NOTE: THESE ARE ORDER OF MAGNITUDE COST ESTIMATES, AND EXPECTED TO BE ACCURATE TO -30%/+50%.

Table 8B. Detailed Cost Estimate for the Selected Remedy – Plumewide Extraction With Reinjection Omega Chemical Superfund Site - OU2				
Annual O&M Costs (Plume-Wide Extraction With Reinjection)				
Equip. Name	Total Requirements	Units	Unit Cost	Cost
Electrical Power				
Extraction Wells to Treatment Plant	803,806	kW-hr		
Treatment Plant and Misc. Equipment	3,372,219	kW-hr		
Total	4,176,025	kW-hr	$0.12	$ 501,100
Carbon Make-up				
LGAC (920 pounds per day)	335,800	lb C	$1.00	$ 335,800
Chemicals/Materials				
Chemicals				$ 365,400
Misc. Consumables, Sludge Disposal, Etc.				$ 76,200
Analytical				
Treatment Plant, Extraction, Monitoring Wells				$ 54,000
Labor				
Operating, Administrative, and Management	10,220	hrs	$20 to $50	$ 439,800
Subcontracts				
Monitoring Wells Sampling (Subcontract)	1	lot	$ 90,000.00	$ 90,000
Regulatory Monitoring reports allowance (RWQCB, EPA, Air Emissions Inventory)	1	lot	$ 25,000.00	$ 25,000
Parts				
2 percent of Treatment Plant Installed Cost	2%		$12,431,861	$ 248,600
				$2,168,000
Contingency on Materials/Services	10%			$ 216,800
LACSD Annual Sewer Surcharge (annual)	1		$179,097	$ 179,100
TOTAL O&M COSTS				**$2,563,900**
NET PRESENT VALUE OF THE ESTIMATED O&M COSTS (30 years, 7% discount rate)				**$31,815,500**
TOTAL ESTIMATED PRESENT WORTH				**$73,170,800**

2.12.4 Expected Outcomes of the Selected Remedy

The selected remedy will protect human health and environment by preventing further spreading of the contaminated groundwater to as yet uncontaminated portions of the aquifer and nearby production wells. A plume-wide extraction system will provide a high degree of confidence in achieving complete plume capture and will greatly impede the spread of contamination from high to lower concentration zones at OU2. Treatment plant influent concentrations are expected to decrease over time as contaminated groundwater is removed. The remedy will start protecting downgradient areas shortly after startup.

Although restoration of the aquifer is not an objective of this remedy, the remedy will begin the process of restoring the contaminated aquifer by removing contaminants from the groundwater. The remedy will reduce the eventual cost, difficulty and time required for restoration of the aquifer.

Compliance with plume containment objectives shall be verified by demonstrating hydraulic control of the OU2 groundwater plume. The remedial action shall provide sufficient hydraulic

control to prevent lateral and vertical spreading of COCs in groundwater at OU2 to protect current and future uses of groundwater; and to prevent lateral and vertical migration of groundwater with high concentrations of COCs into zones with currently lower concentrations of COCs to optimize the treatment of extracted groundwater. To evaluate compliance with those objectives, the remedy includes a monitoring program that will provide data to determine if the remedy is achieving hydraulic control. Compliance with EPA's objectives will also be evaluated with measured groundwater levels and groundwater modeling coupled with analytical results from wells within the plume and downgradient of the plume. The monitoring program including monitoring wells and sampling/analytical requirements will be developed during remedial design.

Performance standards for treated groundwater are summarized in Table 9 based on drinking water end use. The current regulatory standards for TCE, PCE, and the other VOC COCs are the state and federal MCLs. However, for the drinking water end use, the water will be treated to lower levels to the extent required by the CDPH through the 97-005 permit process.

The current regulatory standard for total chromium (including hexavalent chromium) in drinking water is the State MCL of 50 µg/L. There is no Federal or State MCL for hexavalent chromium, although the State has recently adopted a Public Health Goal for hexavalent chromium of 0.02 µg/L. This level, however, is below the current CDPH detection limit for purposes of reporting of 1 µg/L and is also not achievable by existing treatment technologies for drinking water. The finalization of the PHG is expected to lead to the adoption of an MCL within 3-4 years. In the interim, CDPH has noted that a treatment standard of 5 µg/L is within the limits achievable by existing treatment technologies. The OU2 FS assumed the use of a treatment technology for hexavalent chromium that could achieve achieve an effluent level of 5 µg/L.

No state or federal MCL has been promulgated for 1,4-dioxane. EPA is therefore using the CDPH notification level, which is a health-based advisory level for drinking water use, as the performance standard for treatment of extracted groundwater in OU2. Notification levels are established by CDPH as precautionary measures for contaminants that may be considered candidates for establishment of MCLs. Although the OU2 FS was based on the then-current NL of 3 µg/L for 1,4-dioxane, the NL has recently been reduced to 1 µg/L. This change will increase the cost estimate for the selected remedy relative to the estimate in the FS for Alternative 6, but the cost increase is relatively small.

Compliance with plume containment objectives for the end use of reinjection is the same as that described above for the preferred drinking water end use. However, the performance standards for treated groundwater for the reinjection end use, presented in Table 10, are different than for drinking water end use.

Table 9. Performance Standards for Treatment of Extracted Groundwater for Drinking Water End Use
Omega Chemical Superfund Site – OU2

Contaminant of Concern	Basis for Performance Standard	Performance Standard[a]
TCE`	Federal MCL	5 µg/L
PCE	Federal MCL	5 µg/L
1,1-DCA	Federal MCL	5 µg/L
1,2-DCA	Federal MCL	0.5 µgL
1,1-DCE	Federal MCL	6 µg/L
cis-1,2-DCE	Federal MCL	6 µg/L
1,1,2-TCA	Federal MCL	5 µg/L
Bis(2-Ethylhexyl)phthalate	California MCL	4 µg/L
Aluminum	Federal MCL	50 µg/L
Manganese	Federal MCL	50 µg/L
Total Chromium	California MCL	50 µg/L
Hexavalent Chromium	See footnote "c"	50 [b,c] µg/L
Nitrate (as Nitrogen)	Federal MCL	10 mg/L
Sulfate	California MCL	250 mg/L
TDS	Federal MCL	500 mg/L
1,4-dioxane	CDPH notification level	1 µg/L
Perchlorate	California MCL	6 µg/L
Carbon Tetrachloride	California MCL	0.5 µg/L

Notes:

Additional contaminants not listed above may be included by CDPH in the 97-005 permit.

[a]The CDPH may require lower concentrations in the treated effluent as a result of the 97-005 permit process.

[b]Federal and State MCLs for hexavalent chromium have not been established; therefore, the State MCL for total chromium (50 µg/L) is the current regulatory standard applied to hexavalent chromium in drinking water.

[c]A public health goal (PHG) for hexavalent chromium of 0.02 µg/L has recently been adopted by OEHHA. It is expected that a State MCL for hexavalent chromium will be adopted in 3-4 years. In the interim, CDPH has noted that a treatment standard of 5 µg/L is within the capabilities of existing treatment technologies.

Table 10. Performance Standards in Treated Groundwater for Reinjection End Use
Omega Chemical Superfund Site – OU2

Contaminant of Concern	Basis for Performance Standard[d]	Performance Standard[a] (µg/L)
TCE	Federal MCL/State Antidegredation Policy	TBD
PCE	Federal MCL/State Antidegredation Policy	TBD
1,1-DCA	Federal MCL/State Antidegredation Policy	TBD
1,2-DCA	Federal MCL/State Antidegredation Policy	TBD
1,1-DCE	Federal MCL/State Antidegredation Policy	TBD
cis-1,2-DCE	Federal MCL/State Antidegredation Policy	TBD
1,1,2-TCA	Federal MCL/State Antidegredation Policy	TBD
Bis(2-Ethylhexyl)phthalate	California MCL/State Antidegredation Policy	TBD
Aluminum	Federal MCL/State Antidegredation Policy	TBD
Mn	Federal MCL/State Antidegredation Policy	TBD
Selenium	Federal MCL/State Antidegredation Policy	TBD
Total Chromium[b]	California MCL/State Antidegredation Policy	TBD
Hexavalent Chromium[c]	See footnote "c" /State Antidegredation Policy	TBD
Nitrate (as Nitrogen)	Federal MCL/State Antidegredation Policy	TBD
Sulfate	California MCL/State Antidegredation Policy	TBD
TDS	Federal MCL/State Antidegredation Policy	TBD
1,4-dioxane	CDPH notification level/State Antidegredation Policy	TBD
Perchlorate	California MCL/State Antidegredation Policy	TBD
Carbon Tetrachloride	California MCL/State Antidegredation Policy	TBD

Notes:

[a] Performance standards for reinjection water for the COCs listed are TBD (To Be Determined) and must be addressed in the future RD phase consistent wtih statewide aquifer anti-degradation policies recognizing that the aquifer at the point of reinjection will need to be fully characterized. Consequently, it is possible that additional contaminants may require treatment to ND levels if they are not present in the aquifer where reinjection is to occur.

[b]Total chromium is mostly hexavalent chromium.

[c]A PHG for hexavalent chromium has recently been adopted by OEHHA. It is expected that a State MCL for hexavalent chromium will be adopted within 3-4 years.

[d] The basis for a performance standard will be (at a minimum) MCLs (Federal or State) in the scenario when a specific constituent is already at levels higher than MCLs in the aquifer. The basis of performance standard will be the California State antidegradation policy (SWRCB Resolution 68-16) in the scenario in which a given constituent is 1) present at lower levels than the MCL, or, 2) if it is not present in the aquifer (e.g., at ND levels). In the first scenario, reinjected water must be treated in a manner consistent with Basin Plan requirements. In the second scenario, specific constituents must be treated to ND levels before reinjection.

2.12.5 Applicable or Relevant and Appropriate Requirements

The selected remedy is expected to comply with all federal and State ARARs. Because this remedy is an interim action that does not include restoration of the aquifer as an objective, EPA is not, at this time, establishing chemical-specific ARARs as in situ cleanup goals for contaminated groundwater at the Site. In situ cleanup goals will be addressed in a subsequent decision document. Federal and State drinking water standards are relevant and appropriate to water extracted from the aquifer and delivered to one or more potable water purveyors for use as drinking water. All extracted and treated water that is delivered to water purveyors is expected to comply with MCLs.

2.13 Statutory Determinations

Under CERCLA Section 121, EPA must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), consider the reasonableness of cost for the selected remedy, and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the toxicity, mobility, or volume of hazardous wastes and a bias against offsite disposal of untreated wastes. The following sections discuss how the selected remedy meets these statutory requirements.

2.13.1 Protection of Human Health and the Environment

The selected remedy will reduce human health risk by limiting the spread of contaminated groundwater into clean portions of the aquifer and into less contaminated portions of groundwater within the plume itself, reducing the likelihood and, potentially, the magnitude of human exposure to contaminated groundwater. The remedy targets groundwater in higher contamination areas within the plume (CE and NE areas) and also captures the plume at the leading edge.

If no action is taken, contaminated groundwater will continue to spread, increasing the likelihood of future increases in contaminant concentrations in downgradient portions of the aquifer, and increasing the eventual cost, difficulty, and time required for restoration of the aquifer.

The selected remedy includes aboveground treatment systems to remove the COCs from the extracted groundwater. After treatment, the extracted groundwater will achieve all ARARS identified in this ROD. The remedy also requires compliance with ARARs associated with the disposal of treatment residuals, if any, to eliminate or minimize short-term risks and cross-media impacts. The remedy includes an extensive monitoring program to evaluate the effectiveness of the remedy.

At present, there is no known exposure pathway in which ecological receptors could be exposed to contaminated groundwater at the Site.

2.13.2 Compliance with ARARs

The selected remedy shall comply with ARARs as described as follows. A complete list of all ARARs for the selected remedy is provided in Tables 11 to 13. Table 14 summarizes to-be-considered (TBC) material.

Section 300.430(e)(2)(i)(A) of the NCP requires that the contaminant levels of the groundwater that remains in the aquifer are reduced below MCLs. Because this remedy is an interim action that does not include restoration of the aquifer as an objective, EPA is not, at this time, establishing chemical-specific ARARs as in situ cleanup goals for contaminated groundwater at the Site. In situ cleanup goals will be addressed in a subsequent decision document. All extracted and treated water that is provided as drinking water is expected to comply with MCL ARARs.

The ARARs are frozen at the time the ROD is signed, but off-site requirements, including requirements applicable to treated water delivered to the drinking water supply, must be met in order to comply with the selected remedy's selected end use regardless of whether those

requirements change over time. As a result, if an offsite drinking water requirement changes, the treatment system must meet whichever standard—the performance standard selected in the ROD or the offsite requirement—is lower.

Table 11. Potential Chemical-Specific Applicable or Relevant and Appropriate Requirements
Omega Chemical Corporation Superfund Site - OU2

Requirements	Description	Media	Applicable or Relevant and Appropriate	Findings and Comments
Federal Primary Drinking Water Standards Federal Safe Drinking Water Act (SDWA), 42 USC §300 *et seq.* 40 CFR Part 141.61 and 40 CFR 141.62	The SDWA establishes Federal primary drinking water standards, including MCLs to protect the quality of water in public drinking water systems. MCLs are enforceable standards and represent the maximum contaminant concentrations permissible in a public water system.	Groundwater	Relevant and appropriate	The Interim Remedy will result in the use of treated groundwater as drinking water supply or for aquifer replenishment. In either case, water treatment systems will reduce the concentrations of COCs to below EPA or State MCLs, whichever is lower. MCLs are considered relevant and appropriate for the purpose of establisihing performance standards for treated groundwater.
California Toxics Rule 40 CFR 131.36(d)(10)(ii)	The California Toxics Rule is a federal regulation promulgated under the federal Clean Water Act that sets numeric criteria for certain pollutants in inland waters. It applies to waters assigned an aquatic life or human health use classification in a California Regional Water Quality Control Plan.	Groundwater	Applicable	Criteria will be applicable if there are temporary discharges of surface water during operation of the Interim Remedy.
State of California Domestic Water Quality and Monitoring Regulations Health and Safety Code (H&S Code) §4010 *et seq.* 22 California Code of Regulations (CCR) §64431 and 64444	Establishes California MCLs. Some California MCLs are more stringent than the federal MCLs, and some California MCLs are established chemicals for which there are no federal MCLs. The more stringent limit is determined on a chemical-by-chemical basis.	Groundwater	Relevant and appropriate	State MCLs that are more stringent than federal MCLs are ARARs for the purpose of establishing performance standards for COCs in the water extracted from the aquifer and treated at the groundwater treatment plant. The State MCLs for perchlorate (for which no federal MCL exists) and for carbon tetrachloride and Total Chromium (which are lower than the federal MCLs) are relevant and appropriate to the Interim Remedy.
Water Quality Control Plan (Basin Plan) for Los Angeles Region (adopted 06/13/94), Chapters 2 and 3	The California Porter-Cologne Water Quality Act incorporates the requirements of the federal Clean Water Act (CWA) and implements additional standards and requirements for surface waters and groundwaters of the state. Pursuant to California Water Code §13240 et seq., the Regional Water Quality Control Board, Los Angeles Region, formulates and enforces water quality standards defined in the Basin Plan. The Basin Plan (Chapters 2 and 3) establishes beneficial uses of ground and surface waters; establishes water quality objectives (WQOs), including narrative and numerical standards; establishes implementation plans to meet WQOs and protect beneficial uses, and incorporates Statewide Water Quality Control Plans and policies. The WQOs for groundwater are based on the primary MCLs.	Groundwater	Relevant and appropriate	The provisions of Chapters 2 and 3 of the Basin Plan that establish beneficial uses of ground and surface waters; establish water quality objectives (WQOs), including narrative and numerical standards; establish implementation plans to meet WQOs and protect beneficial uses; and incorporate Statewide Water Quality Control Plans and policies are relevant and appropriate to the Interim Remedy. Water extracted from the aquifer will be treated to achieve MCLs, which are identified in the Basin Plan as a WQO for groundwater.

Table 12. Potential Action-Specific Applicable or Relevant and Appropriate Requirements
Omega Chemical Corporation Superfund Site – OU2

Requirements	Description	Media	Applicable or Relevant and Appropriate	Findings and Comments
Storm Water Discharge Requirements 40 CFR §122.26	Nonpoint sources must be addressed using best management practices (BMPs) to control contaminants in stormwater runoff from construction activities. The SWRCB has established requirements for general construction activities, including clearing, grading, excavation reconstruction, and dredge and fill activities. Regulates pollutants in stormwater discharge from hazardous waste treatment plants, landfills, land application sites, and spent dumps.	Groundwater	Applicable	If construction of the groundwater treatment plant disturbs 1 acre or more of soil, compliance with substantive aspects of the General Permit for Storm Water Discharges Associated with Construction or Land Disturbance Activity (Order No. 2009-0009-DWQ, NPDES No. CAS000002) is required.
SWRCB Resolution 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California)	SWRCB Resolution No. 68-16 requires maintenance of existing state water quality using best practicable treatment technology unless a demonstrated change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than that prescribed in other state policies. In no case may Basin WQOs be exceeded.	Groundwater	Applicable	Applies to the discharge of waste to waters, including groundwater reinjection. Implementation of the Interim Remedy will protect existing groundwater quality by containing contamination within the OU2 plume, and will not preclude the final remedy from maintaining the existing quality of background water.
Sources of Drinking Water SWRCB Resolution No. 88-63	This policy specifies that ground and surface waters of the State are considered to be suitable or potentially suitable for municipal or domestic water supply (MUN designation) subject to limited exceptions. If the water is designation as MUN beneficial use, then it must meet the requirements of the Water Quality Control Plan (i.e., the Basin Plan).	Groundwater	Applicable	The requirement is applicable because groundwater underlying the Site meets the criteria as a potential source for drinking water. Water extracted from the aquifer will be treated to achieve MCLs, which are identified in the Basin Plan as a WQO for groundwater. Thus, extracted water will be reduced to levels protective of beneficial uses.
Identification and Listing of Hazardous Waste 22 CCR §66260.200 (Classification of a Waste as Hazardous or Nonhazardous) 22 CCR Div. 4.5, Chap. 11 (§66261.1 et seq.) (Identification and Listing of Hazardous Waste) 22 CCR §66264.13 (General Waste Analysis)	A waste generator must determine if the waste is classified as a hazardous waste in accordance with the substantive criteria and methodology provided in these requirements. Some of the Site waste may meet the characteristics of hazardous waste.	Soil and groundwater	Applicable	Influent groundwater and waste generated during construction of the Interim Remedy and operation of the groundwater treatment plant will be evaluated, characterized, and managed in accordance with substantive provisions of these requirements.

Table 12. Potential Action-Specific Applicable or Relevant and Appropriate Requirements
Omega Chemical Corporation Superfund Site – OU2

Requirements	Description	Media	Applicable or Relevant and Appropriate	Findings and Comments
Standards Applicable to Generators of Hazardous Waste, 22 CCR Div. 4.5, Chap. 12		Soil and groundwater		
22 CCR §66262.10	22 CCR 66262.10 lists the sections of California law with which a generator of hazardous waste must comply.		Applicable	The Interim Remedy need only comply with the substantive provisions of the regulations listed in 22 CCR 66262.10.
22 CCR §66262.11	22 CCR 66262.11 Requires waste generators to determine if wastes are hazardous, and establishes procedures for such determinations.		Applicable	The substantive requirements of 22 CCR 66262.11 will be applicable to management of waste materials generated by the groundwater treatment plant and to any waste generated while installing new wells.
22 CCR 66262.34(a)(1)(A)	Waste stored on-Site will be placed in containers or tanks that are in compliance with California Hazardous Waste Regulations.		Relevant & appropriate	Wastes generated during construction of the Interim Remedy and operation of the groundwater treatment plant will be managed in accordance with the requirements of 22 CCR Div. 4.5, Chap. 12. Storage of hazardous waste accumulated on-Site must be in compliance with substantive requirements prior to offsite disposal. An EPA Region 9-approved CERCLA disposal facility must be used to dispose of CERCLA waste.
Requirements for Hazardous Waste Accumulation				
Preparedness and Prevention 22 CCR Div. 4.5, Chap. 15, Art. 3 (§66265.30 et seq.)	Facility design and operation to minimize potential fire, explosion, or unauthorized release of hazardous waste.	Soil and groundwater	Applicable	The groundwater treatment plant will be designed and operated in a manner that minimizes the potential for fire, explosion, or unauthorized release of hazardous waste.
Use and Management of Containers; Tank Systems 22 CCR Div. 4.5, Chap. 15, Art. 9, 10 (§66265.170 et seq.; §66265.190 et seq.)	Regulates use and management of containers, compatibility of wastes with containers, and special requirements for certain wastes. Maintain hazardous waste in containers and dispose to a Class I hazardous waste disposal facility within 90 days. These requirements may apply for the storage of soil cuttings, contaminated groundwater, and sediments trapped by the bag filter during startup operation.	Soil and groundwater	Applicable	Hazardous waste generated during construction of the Interim Remedy and operation of the groundwater treatment plant will be managed in accordance with 22 CCR Div. 4.5, Chap. 15, Art. 9, including accumulation in appropriate DOT -specification containers that are in good condition and kept closed except when adding or removing waste, and inspected on a weekly basis. Waste will not be kept onsite for more than 90 days.

Table 12. Potential Action-Specific Applicable or Relevant and Appropriate Requirements
Omega Chemical Corporation Superfund Site – OU2

Requirements	Description	Media	Applicable or Relevant and Appropriate	Findings and Comments
California Land Disposal Restrictions, Requirements for Generators 22 CCR Div. 4.5, Chap. 18, Art. 2, 4, 5, 10 & 11	Compliance with land disposal regulation standards is required if hazardous waste (e.g. contaminated soil) is placed on land.	Soil	Applicable	Land disposal requirements may apply to the disposal of spent carbon generated during the treatment of groundwater for VOCs and, potentially, to the disposal of treatment residuals associated with other technologies if the wastes are determined to be hazardous wastes. Wastes will be characterized before shipment offsite to determine whether land disposal restriction treatment standards apply and, if so, whether the waste meets the treatment standards.
Clean Air Act, South Coast Air Quality Management District (SCAQMD) Rules and Regulations	The SCAQMD regulations are established to achieve and maintain state and federal ambient air quality standards through the federal-approved state implementation plan (SIP).	Air	Applicable	Construction and operational activities must comply with all substantive applicable SCAQMD requirements.
Regulation IV, Rule 401, Visible Emissions	SCAQMD Rule 401 limits visible emissions from a point source and provides air quality standards that may not be exceeded.			If air stripping is used to remove VOCs from groundwater, air emissions must meet substantive applicable SCAQMD requirements.
Regulation IV, Rule 402, Nuisance	SCAQMD Rule 402 prohibits discharge of material that is odorous or causes injury, nuisance, or annoyance to the public.			
Regulation IV, Rule 403, Fugitive Dust	SCAQMD Rule 403 limits downwind particulate concentrations.			
Regulation XIII, Rules 1301 through 1313, New Source Review	SCAQMD Rules 1301 through 1313 establish new source review requirements. Rule 1303 requires that all new sources of air pollution in the air district use best available control technology (BACT) and meet appropriate offset requirements. Emission offsets are required for all new sources that emit more than 1 pound per day of VOCs.			
Regulation XIV, Rules 1401 and 1401.1, New Source of Toxic Air Contaminants.	SCAQMD Rule 1401 requires that best available control technology for toxics (T-BACT) be employed for new stationary operating equipment if the cumulative carcinogenic impact from air toxics would exceed the maximum individual cancer risk limit of 1 in 1 million (1×10^{-6}) without T-BACT. SCAQMD Rule 1401.1 applies to discharges that are within 500 feet of a school and requires that the discharges from the facility do not create a cancer risk in excess of 1 in 1 million (1×10^{-6}) at the school.			

Table 12. Potential Action-Specific Applicable or Relevant and Appropriate Requirements
Omega Chemical Corporation Superfund Site – OU2

Requirements	Description	Media	Applicable or Relevant and Appropriate	Findings and Comments
Publicly Owned Treatment Works (POTW) Requirements	Treated effluent discharge to reclaimed water line and brine discharge to sanitary sewer must comply with any requirements set forth by the current POTW owner, LACSD.	Groundwater	Applicable	The groundwater treatment plant will be constructed and operated in a manner that complies with requirements established by the POTW.

Table 13. Potential Location-Specific Applicable or Relevant and Appropriate Requirements
Omega Chemical Corporation Superfund Site – OU2

Requirements	Description	Media	Applicable or Relevant and Appropriate	Findings and Comments
National Historic Preservation Act 16 USC §470 et seq. 36 CFR §60.4	The requirements establish a National Register and Advisory Council on Historic Preservation. Remedial activities that would affect a property on or eligible for the National Register are required to consult with the Advisory Council and the State Historic Preservation Officer. Surveys that may be required will result in the determination of adverse effects and the development of mitigation reports. Historic sites that would be affected by potential remedial activity at this location may be identified on or adjacent to the Site.	Soil and groundwater	Applicable	Construction of extraction wells, piping, and the central groundwater treatment plant are not expected to occur at any locations identified as historic sites or structures; no areas within the Site have been designated as having historic value to warrant inclusion in the National Register. EPA will evaluate whether any site or structure encountered during implementation of the remedy is eligible.

Table 14. To-Be-Considered Criteria
Omega Chemical Corporation Superfund Site – OU2

Requirements	Description	Media	Findings and Comments
California Notification Levels (NLs)	NLs are health-based advisory levels established by the California Department of Public Health (CDPH) for contaminants that lack primary MCLs. NLs are advisory levels and not enforceable standards. An NL is the level of a contaminant in drinking water that, if not exceeded, is considered to not pose a significant health risk to people ingesting that water on a daily basis. For 1,4-dioxane, a chemical considered a probable carcinogen and a COC at the Site, the NL is generally a level considered to pose "de minimis" risk (that is, a theoretical lifetime increase in risk of up to one excess case of cancer in a population of 1,000,000 people—the 10E-6 risk level). Table 2-1 provides the NL for 1,4-dioxane.	Groundwater	In the absence of an MCL, the CDPH notification level for 1,4-dioxane has been considered during selection of performance standards for extracted groundwater.
CDPH Policy Guidance for Direct Domestic Use of Extremely Impaired Sources (Policy Memo 97-005)	This policy establishes a process, including permitting, that must be followed before using an "extremely impaired water source" as a drinking water supply. This policy is not a promulgated requirement (i.e., not promulgated under federal or State law), and therefore is not an ARAR.	Groundwater	Administrative and substantive requirements of Policy Memo 97-005 must be followed by any water purveyor seeking to use treated OU2 groundwater in its water supply system, if the use of the water occurs off-Site. If the use of water occurs on-Site, only substantive requirements of Policy Memo 97-005 are required to be followed. Policy Memo 97-005 will be considered during design and operation of the treatment system, including establishing performance standards, failure response triggers, and operator qualifications.
California Well Standards CDWR Bulletin 74-81 CDWR Bulletin 74-90	CDWR Bulletin 74-81 (domestic water well standards) and supplemental Bulletin 74-90 provide minimum specifications for monitoring wells, extractions wells, injection wells, exploratory borings, and cathodic protection wells. Design and construction specifications are provided for construction and destruction of wells and borings.	Soil and groundwater	Substantive provisions of the California well standards will be considered when designing and installing groundwater extraction wells.

Notes:

DOT = California Department of Transportation

POTW = Publicly Owned Treatment Works

T-BACT = Best Available Control Technology for Toxics

VOC = volatile organic compound

WDR = waste discharge requirements

WQO = water quality objectives

The selected remedy shall comply with all ARARs described in this section. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs as in-situ cleanup levels for restoration of the aquifer.

The remedial actions selected in this ROD may trigger additional legal requirements. These requirements are not identified as ARARs in this ROD either because such requirements do not meet the definitional prerequisites (as established by CERCLA Section 121(d)(2)) to be identified as an ARAR for onsite activities, or because such requirements are triggered by offsite activities. For example, the General Pretreatment Regulations for Existing and New Sources of Pollution, 40 CFR §403 *et seq*., apply to brine discharge from the groundwater treatment plant to the POTW. Effluent discharged to sanitary sewers and POTWs are regulated by municipalities through the NPDES Program. Discharges to an offsite wastewater treatment facility must meet pretreatment requirements established by the POTW.

2.13.3 Cost-Effectiveness

In EPA's judgment, the selected remedy is cost effective. Section 300.430(f)(ii)(D) of the NCP requires EPA to evaluate the cost of an alternative relative to its overall effectiveness. This was accomplished by evaluating ―overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., Alternatives 3 through 6, which are protective of human health and comply with all selected ARARs). Overall effectiveness was evaluated by assessing four of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; short-term effectiveness; and implementability). Overall effectiveness was then compared to costs to determine cost effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence this alternative represents a reasonable value for the money spent.

The estimated NPV of the selected remedy (Alternative 6 as modified) is $69-73 million, depending on the end use of the water. Although Alternative 2 has the lowest NPV cost of $54 million, it does not meet the plume capture and containment criterion. All the other action Alternatives 3, 4, and 5 have equal or higher NPV costs ($86 million, $73 million, and $83 million, respectively) while providing the same degree of plume capture and containment (or less in the case of Alternative 3) as the selected remedy.

2.13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be used in a practicable manner at OU2, until EPA obtains sufficient data to select a final remedy. EPA has also determined that the selected remedy provides the best balance of tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against offsite treatment and disposal, as outlined as follows:

- Long-term Effectiveness and Permanence: By controlling (to the extent practicable) migration of the groundwater exceeding MCLs, including the most highly contaminated groundwater in the OU2 plume, the area for potential future residual contamination in groundwater is limited.

- Reduction of Toxicity, Mobility, or Volume through Treatment: Hydraulic containment and groundwater treatment will reduce the mobility and volume of dissolved-phase VOC and other contaminant concentrations in groundwater and result in the permanent destruction of VOCs and 1,4-dioxane.
- Short-term Effectiveness: There are no special short-term effectiveness issues that set the selected remedy apart from the other alternatives evaluated.
- Implementability: The selected remedy is not more complex to implement than the other remedial alternatives.

2.13.5 Preference for Treatment as a Principal Element

The selected remedy will treat VOCs and other contaminants in the extracted groundwater to achieve the performance standards. By using treatment as a significant portion of the remedy, the statutory preference for remedies that employ treatment as a principal element is satisfied.

2.13.6 Five-Year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

2.14 Documentation of Significant Changes

The Proposed Plan for OU2 was released for public comment in August 2010. It identified, as EPA's preferred alternative, the groundwater extraction, treatment, conveyance, and monitoring facilities and institutional controls included in Alternative 6. It identified drinking water as the end use.

EPA reviewed all written and verbal comments submitted during the public comment period (August 23, 2010 to November 22, 2010). Multiple parties commented on the drinking water end use, including the assertion that Alternative 6 would be difficult to implement; that it will be time-consuming for parties to reach agreement on several aspects of the remedy; and that a plan is needed to address potential delays of implementing the remedy. Consequently, EPA is memorializing in this ROD the alternate end use option of reinjection into the aquifer. As noted in this ROD, if EPA determines that agreement(s) necessary for implementation of Alternative 6 (drinking water end use) cannot be reached in a timely manner, EPA may approve reinjection as an alternate end use option.

In the selected remedy, reinjection is not limited to the deep aquifer as it was in Alternative 4. However, regardless of the depth at which it occurs, reinjection must be implemented in a manner that does not cause interference with containment of the plume and does not result in further spreading of existing plumes in the shallow or deep aquifer.

EPA's responses to comments on its proposed cleanup plan are included in the Responsiveness Summary, which is Part 3 of this ROD.

Part 3
Responsiveness Summary

Part 3 - Responsiveness Summary

The purpose of this Responsiveness Summary is to provide a summary of EPA's responses to comments received from stakeholders and the public on EPA's Proposed Plan for the Omega Chemical Corporation Superfund Site Interim Groundwater Remedy for Operable Unit 2 (OU2). EPA held a public meeting on August 31, 2010, at which EPA representatives presented the Proposed Plan and answered questions about the Site and the preferred remedial alternative from various individuals, including representatives of water purveyors. Comments made on the preferred alternative were later included in formal comment letters submitted during the public comment period on the Proposed Plan (August 23, 2010 to November 22, 2010). The transcript for the public meeting is part of the Administrative Record file at the information repositories identified in the ROD and below.

Golden State Water Company (GSWC) requested a 30-day extension of the initial public comment period (to September 21, 2010), which EPA granted. Thereafter, two additional stakeholders (Congresswoman Grace Napolitano and the Southeast Water Coalition) requested an additional 30-day extension, which EPA also granted, extending the public review period through November 22, 2010.

During the public comment period, EPA received letters from 14 stakeholders and one local consultant with comments on the Proposed Plan. Comments were received from the following: Anthony Martinez (local consultant), California Department of Public Health (CDPH), Central Basin Municipal Water District (CBMWD), City of Lakewood, City of Norwalk, City of Santa Fe Springs, Golden State Water Company (GSWC), Los Angeles County Department of Public Works (LADPW), McKesson Corporation, Omega Chemical Site PRP Organized Group (OPOG), Phibro-Tech, Inc. (PTI), Southeast Water Coalition, T3W Business Solutions, Inc., and the Water Replenishment District of Southern California (WRD). All of the comment letters are included in the Administrative Record.

In this Responsiveness Summary, EPA is required to consider and address comments that are pertinent and significant to the remedial action being selected. EPA is not required to address comments that pertain to the allocation of liability for the remedial action, nor potential future enforcement actions to implement the remedial action, as these are distinct from the selection of the remedial action. EPA may address comments with limited pertinence if doing so would address a concern of a significant segment of the public.

A summary of the major issues raised by commenters is presented in the next section.

3.1 Stakeholder Issues

During the 90-day public comment period, the community response to EPA's Proposed Plan was limited to a newspaper article (*Whittier Daily News*, November 11, 2010, by M. Sprague), several questions about the location of the plume relative to residential homes, and questions from property owners regarding their potential liability. In addition, EPA received a letter of comment from a local consultant.

A summary of all comments and EPA's response to those comments is provided in Appendix A. This summary includes comments requesting modifications of the remedy, additional investigations, or other actions by EPA. Many of the comment letters also contained opinions, explanations, and general statements. Where similar comments were submitted, the comments have been summarized by category to avoid repetition. The names of the commenters are listed in parenthesis after the comment. A detailed response to the comments is provided in bold italics in Appendix A.

3.2 Technical and Legal Issues

The main technical and legal issues raised in the comments include the following:

- **Several parties commented that the remedy should be implemented immediately to protect drinking water wells.**
  EPA agrees that it is highly important to initiate the selected interim remedy (Alternative 6) (occasionally referred to herein as the Interim Remedy or Selected Remedy) to contain the OU2 plume as quickly as possible. EPA is pursuing an interim remedy at this time because it can be selected and implemented in a more timely manner than a full final cleanup remedy. The overall objective of the Interim Remedy is to protect human health and the environment by preventing further spreading of the contaminated groundwater.

- **Several parties commented that Alternative 6 may be difficult to implement, and that it may require extensive effort and time to reach agreements with a water purveyor to accept the treated water, negotiate water rights in this adjudicated water basin, and address water replenishment fees. There was also concern that complying with the California Department of Public Health Policy Memo 97-005 (Policy Guidance for Direct Domestic Use of Extremely Impaired Sources) (CDPH 97-005), which establishes a series of review and approval steps to be followed before an extremely impaired water source can be used as a drinking water, could also be a lengthy process.**
  EPA acknowledges there may be significant challenges involved in these steps towards implementation of the Interim Remedy. EPA has included flexibility in the ROD that allows discharge of treated water via reinjection if EPA determines the required agreement(s) for drinking water end use cannot be reached in a timely manner. As described in the FS, reinjection would have to be implemented in a manner that does not cause interference with containment of the plume and does not result in further spreading of existing plumes in the shallow aquifer.

- **Several parties commented that the depth of the plume, especially near the leading edge, may be greater than what was determined in the RI/FS.**
  Information collected to date continues to indicate that the majority of the contaminant mass is in the shallow aquifer, with some increase in VOC concentrations occurring in the deeper wells. Prior to construction of the Interim Remedy, additional investigation of the aquifers will be performed to support the remedial design (RD) and ensure the extraction wells are properly placed to capture the lateral and vertical extent of the known

plume. EPA will continue to work collaboratively with WRD and United States Geological Survey (USGS) to gather and share existing data, to assist in characterizing the deep aquifers.

- **Several parties commented that the proposed remedy does not include source control for facilities that are located in the OU2 plume area.**
  EPA agrees that the interim remedy will not address individual source areas, most of which are being addressed by the State of California (through the Department of Toxic Substances Control (DTSC) or the Regional Water Quality Control Board (RWQCB)). The RI addresses several confirmed and potential source areas within the footprint of the OU2 plume. EPA has selected an interim remedy to achieve a timely containment of the commingled plume. Following implementation of the interim remedy for OU2, EPA will conduct further studies and expects to propose additional remedial actions for the OU2 plume as part of the final cleanup remedy for the Site. As part of those studies, EPA will work with the State to identify and address all significant sources within the OU2 plume area that have contributed to the groundwater contamination. Most of the known sources are currently being addressed by State-led actions. EPA expects that the rest of the sources will be addressed by the combined efforts of the State and EPA.

A detailed response to the comments received is included in Appendix A.

Appendix A: Detailed Response to Comments

The comments have been categorized into the following four main categories:

1. Table I: Comments Related to the Contaminated Groundwater Plume
2. Table II: Comments Related to the Selected Interim Remedy
3. Table III: Comments Related to Permitting and Compliance
4. Table IV. Other Comments

Table I: Comments Related to the Contaminated Groundwater Plume

1. The Proposed Plan is based on 2007 data and the plume is moving about 500 feet per year; consequently, the leading edge now may be close to Interstate 5. The plume may have migrated beyond the planned extraction locations presented in the Proposed Plan. The current proposed extraction well locations may not capture the plume. The plume location using more recent (2010) data is requested. (City of Norwalk, City of Santa Fe Springs, WRD, T3W Business Solutions, Inc., and GSWC)

   Response: EPA acknowledges that the Proposed Plan was based on the 2007 groundwater data in the RI/FS reports. The 2007 data comprised the most current and complete data set available at the time the FS was being prepared. EPA and other parties have continued to collect additional groundwater data since the RI/FS was completed, and EPA expects that the additional data will be used during the design process to ensure that the extraction wells are placed to meet the containment goals of the selected remedy.

   EPA continues to monitor the groundwater at OU2 biannually and has considered the more recent (2008 - 2010) groundwater monitoring data in preparing this ROD. EPA does not believe that these data suggest the need for any change in the basic elements of EPA's selected interim remedy. The more recent analytical results support the importance of containing the plume to prevent further spreading of the contaminated groundwater. The 2008-2010 data indicate an increase in VOC concentrations in the downgradient wells near the leading edge of the plume and also in the deeper wells. The increase in VOC concentrations at the leading edge wells indicates the plume has expanded laterally. The increase in VOC concentrations in the deeper wells may indicate that contamination migrates downward near the plume's leading edge. Although the concentrations are higher, the overall lateral extent of the plume has not changed substantially from 2007 to 2009. Plume maps have been updated to reflect the new data. The plume of contaminated groundwater does not appear to have reached Interstate 5.

   During the remedial design phase, the specific locations, depths and pumping rates of the extraction wells will be designed to ensure capture of the known plume. Specific pumping rates will be further evaluated during remedial design to maximize their effectiveness and optimize their efficiency.

Table I: Comments Related to the Contaminated Groundwater Plume

2. The RI identifies a horizontal plume at OU2; it does not account for a "plunging plume" and vertical gradients into the deeper aquifer, and so does not accurately describe the vertical plume extent. The plume is expected to plunge and contaminate the deeper aquifer, and contaminants will not remain at shallow depths. New EPA monitoring wells should be installed deeper than 300 feet to delineate the current leading edge and depth extent of the plume. (WRD) ***Response: EPA agrees that the contaminated groundwater plume may migrate to deeper aquifer units. The RI/FS concluded that there is a potential for downward migration of contaminants at OU2 and the plume is expected to expand vertically.*** ***EPA investigations characterized the vertical extent of contamination. Monitoring wells were installed at depths up to 200 feet. At the time of installation, VOCs were not detected in the deepest wells, and the vertical extent of the plume appeared to be fully characterized. There are some hydrogeologic features (anticlinal structure and fine-grained units) that would restrict downward migration in the center of the plume. However, near the leading edge of the plume, the downward sloping (dipping) aquifer units are expected to facilitate downward migration of the contamination. Information collected to date continues to indicate that the majority of the contaminant mass is in the shallow aquifer, with some increase in VOC concentrations occurring in the deeper wells. Recent data does indicate some downward movement of the contamination. Declining water levels have been observed throughout OU2 and this may be a contributing factor to the downward movement of the contamination.*** ***The classic "plunging plume" effect that is recognized by hydrogeologists is caused by infiltration atop an advancing plume and its displacement downward. This is not expected to be significant in this Central Basin area where groundwater flow is primarily driven by production pumping and infiltration at the spreading basins, which are located outside of the OU2 area, along the San Gabriel River. Infiltration in the OU2 area is low, with rainfall and irrigation accounting for a small fraction of the water budget. One objective of the selected interim remedy is to contain the lateral and vertical migration of the contaminated groundwater plume. This will limit the downward migration of the contamination. EPA has continued to conduct biannual groundwater monitoring, and we agree that further investigations of the deeper aquifer units at OU2, including the installation of additional deep monitoring wells, will be necessary.***
3. Deeper extraction wells (below 300 feet) may be necessary to control the plume. (WRD) ***Response: Based on information collected to date, most of the contaminant mass at OU2 is expected to be in the shallow aquifer. EPA agrees that details regarding the depths and approach to deepening the extraction wells should be further evaluated. Additional studies will be conducted during remedial design to ensure the extraction wells are properly designed to achieve the containment goals of the selected remedy.***

Table I: Comments Related to the Contaminated Groundwater Plume

4. The Golden State Water Company's (GSWC) Pioneer and Dace wells should be shown within the OU2 boundaries. The contamination currently found in these GSWC wells is likely from OU2 based on compounds detected, TCE/PCE ratios, and dates when contamination was first detected. OU2 fails to meet the National Contingency Plan (NCP) criteria for defining an Operable Unit since it does not encompass the impacted GSWC wells. EPA states that GSWC wells have been impacted by the Omega plume. (WRD & GSWC) ***Response: The RI/FS states that the GSWC wells are "likely" impacted by the OU2 plume, meaning that at least some of the contamination found in the Pioneer and Dace wells is likely coming from the OU2 plume.*** ***In addition, the wells are likely extracting contamination from other sources in the area as well (i.e., sources outside of the OU2 plume). The well network in this area is not intended to fully characterize sources other than those contributing to the OU2 plume. The GSWC wells could be capturing contamination from sources west or south of OU2. Historical data show that GSWC first detected contamination in these wells in the early 1980's when contamination from the former Omega Chemical Corporation could not have migrated to this area. The former Omega Chemical facility began operating in 1976 and is located more than four miles away. It is extremely unlikely that the plume could have migrated that distance in that short period of time.*** ***It is likely that the contamination impacting the GSWC wells has originated from multiple sources (some from the OU2 plume and some from other non-OU2 sources). EPA will extend the OU2 boundary to include these GSWC wells if additional investigations (e.g., during RD) confirm plume continuity in this area.***
5. The plume of contaminated groundwater may have migrated beyond the GSWC wells. Additional investigation is needed around the GSWC Pioneer and Dace wells to assess the possibility that contamination is being drawn downward by the GSWC wells but not captured and moving farther downgradient. (WRD & Anthony Martinez) ***Response: EPA agrees that the contamination may be drawn downward by the GSWC wells and that the plume may have migrated past some of the GSWC well locations. EPA continues to gather data and information on contamination in the OU2 area and at the leading edge of OU2 plume near other GSWC well locations. Because VOC contamination is present throughout the Central Basin, the presence of VOCs at the GSWC wells does not necessarily mean that the OU2 plume extends to these wells. EPA has sufficient data to move forward with an interim containment remedy to prevent the contamination from spreading to areas not currently impacted and to prevent impacts to other production wells down gradient. The specific locations of the extraction wells for the interim containment remedy will be determined during the design phase of the project and will be located to ensure full capture of the known OU2 plume. After implementation of the interim remedy, EPA will continue to conduct studies and collect additional information to assist in the future selection of a final***

Table I: Comments Related to the Contaminated Groundwater Plume

remedy. If further studies confirm that the OU2 plume extends to these GSWC wells, EPA will extend the OU2 boundary as appropriate.
6. The characterization of the downgradient western and southern portions of the plume is based on relatively few sampling points, especially at depths greater than 150 feet. (Anthony Martinez) ***Response: EPA agrees that there is limited data on groundwater contamination at the southern (or leading edge) of the plume. During the design of the selected remedy, additional data will be gathered to assist in selecting the specific extraction well locations to ensure they are placed to adequately contain the known plume. EPA also agrees that more investigation of the deep aquifer is necessary.***
7. Contamination from the former Omega facility could not have migrated a distance of 4.5 miles. EPA's repeated attribution of the entire geographic extent of the OU2 plume to contaminant releases from the Omega property is factually inaccurate. (OPOG) ***Response: EPA disagrees with this statement. EPA has collected and evaluated extensive data on conditions in the OU2 area, conducted extensive groundwater modeling and concluded that contamination from the former Omega facility could have migrated 4.5 miles downgradient in the period since that facility began operations. The contamination at OU2 has advanced at an apparent plume expansion rate of at least 540 feet per year; this rate is an estimated minimum rate and includes the combined effects of advection, sorption, dispersion, and degradation. This plume expansion rate is consistent with estimates of advective velocity of 620 feet per year. The operations at Omega Chemical began in 1976, and contamination from that facility could have easily migrated a distance of 4.5 miles in the years since then.***

Table I: Comments Related to the Contaminated Groundwater Plume

8. EPA has not included the identified sources of contamination as participants in the remedy. OPOG has identified additional sources of contamination. A number of facilities have used Freon including the former Cal Air facility at 12484 E. Whittier Blvd., McKesson, Eastman Kodak, and Chrysler Nu-Car Prep. Site L from EPA's RI is clearly a source of Freon releases to the subsurface. The extent of the 1,4-dioxane plume from the Omega property is approximately one mile. (OPOG)

   Response: The purpose of the ROD is to select the appropriate remedy for achieving the Remedial Action Objectives (RAOs), which are to (1) prevent unacceptable human exposure to groundwater contaminated by contaminants of concern (COCs); (2) prevent lateral and vertical spreading of COCs in groundwater at OU2 to protect current and future uses of groundwater; and (3) prevent lateral and vertical migration of groundwater with high concentrations of COCs into zones with currently lower concentrations of COCs to optimize the treatment of extracted groundwater. In addition, the Interim Remedy is expected to begin the process of restoring the contaminated aquifer by removing contaminant mass from the groundwater.

   The ROD does make any determinations as to who is liable for and should implement the selected remedy. EPA's RI Report identified numerous confirmed and potential sources of contamination in the OU2 area. EPA intends to request the participation of known sources in implementation of the selected interim remedy for OU2. EPA has been and remains willing to consider information about other sources of contamination in the OU2 area.

   Following implementation of the interim remedy for OU2, EPA will conduct further studies and expects to propose additional remedial actions for the OU2 plume as part of the final cleanup remedy for the Site. Any potentially responsible parties (PRPs) identified pursuant to further investigations would be expected to participate in implementation of Site cleanup actions.

   In addition, EPA will continue to work with the State to identify all significant sources within the OU2 plume area that have contributed to the groundwater contamination. Most of the known sources are currently being addressed by State-led actions. EPA expects that any additional facilities confirmed as sources of contamination to the OU2 plume will be addressed through the coordinated efforts of the State and EPA.

   EPA's interpretation of the OU2 data indicates the 1,4-dioxane plume is approximately 4.5 miles long and continuous across OU2. The extent of the 1,4-dioxane plume is based on collected field data and it is consistent with the extent of the solvent (e.g., PCE and TCE) and Freon plumes from the Omega property.

Table I: Comments Related to the Contaminated Groundwater Plume

9.	Recent investigation results indicate that Phibro-Tech, Inc. is not a contributor of VOCs or hexavalent chromium to the Omega OU2 groundwater plume. (Phibro-Tech, Inc.) ***Response: The purpose of the ROD is to select the appropriate remedy for achieving the Remedial Action Objectives (RAOs). The ROD does make any determinations as to who is liable for and should implement the selected remedy. EPA has determined that the Phibro-Tech, Inc. facility contributed to groundwater contamination in the OU2 area. The reports prepared by Phibro-Tech, Inc.'s consultants and state agencies document the use of VOCs, chromium, and other chemicals at the facility. They also document historical releases of these compounds into the subsurface, and contamination found in soil, soil gas, and groundwater beneath the facility. While EPA will continue to review the information that Phibro-Tech, Inc. recently (February 2011) provided, this information would not affect selection of the interim containment remedy.***

Table II: Comments Related to the Selected Interim Remedy

10. A contingency plan is needed to address potential delays of implementing the remedy. (City of Norwalk & WRD) ***Response: EPA understands that the drinking water end use option will require the participation and cooperation of one or more local water utilities in order to be successfully implemented, and that the role of those utilities may need to be memorialized in negotiated agreements that address, among other things, operational, liability, financial and water rights issues. EPA has included flexibility in the ROD that allows discharge of treated water via reinjection if EPA determines the required agreement(s) for drinking water end use cannot be reached in a timely manner. As described in the FS, reinjection would have to be implemented in a manner that does not cause interference with containment of the plume and does not result in further spreading of existing plumes in the shallow aquifer.***
11. Drinking water use will not be acceptable to the residents without additional educational outreach by EPA and an aggressive campaign promoting treated water quality beyond drinking water standards. (City of Norwalk & City of Santa Fe Springs) ***Response: EPA is aware of the need for a public outreach and education program to ensure residents are aware of the safeguards and oversight that will be a part of the remedy to guarantee that the treated water meets or exceeds the drinking water standards. EPA will work with stakeholders to develop the scope and content of a communications plan that includes public outreach through facts sheets, news releases, and meetings.***
12. Recommendation for a combination of Alternatives 4 (reinjection of treated groundwater) and 5 (discharge of treated groundwater to spreading basins) rather than a single end use Alternative 6 (drinking water end use). A combination of Alternatives 4 and 5 will benefit the region as a whole and allow for continuous pumping necessary to achieve containment. A hybrid of Alternatives 4, 5, and 6 with multiple end uses may provide a more comprehensive benefit to the region as a whole rather than a single end use of treated drinking water. Alternative 6 would be more difficult to implement than a combination of Alternative 4 and 5 that can be implemented more quickly and without adverse local reaction to using treated water for drinking water. (City of Norwalk, City of Santa Fe Springs and Southeast Water Coalition) ***Response: After consideration of stakeholders' comments, EPA has selected a remedy that best meets all the nine remedy evaluation criteria in the NCP. While none of the alternatives presented in the RI/FS are without limitations or challenges, EPA believes that Alternative 6 is the best approach to achieving the RAOs in a cost-effective manner. EPA has included flexibility in the ROD that allows discharge of treated water via reinjection if EPA determines the required agreement(s) for drinking water end use cannot be reached in a timely manner. As described in the FS, reinjection would have to be implemented in a manner that does not cause interference with containment of***

Table II: Comments Related to the Selected Interim Remedy

the plume and does not result in further spreading of existing plumes in the shallow aquifer. ***Alternative 5 would result in interrupted operation of the extraction wells (and thus the containment system) due to the periodic maintenance of the spreading basins; consequently, there would be reduced control over implementation of the remedy (i.e., operating times and extraction rates). Alternative 5 also had a higher cost than Alternatives 4 or 6. Including a combination of two or three end uses, as suggested, would substantially increase the remedy cost.***
13. WRD supports EPA's alternatives except for Alternative 5: Discharge to the spreading basins. This could interfere with current replenishment operations and would not allow continuous extraction. (WRD) ***Response: Comment noted. EPA agrees that Alternative 5 is not the best option for achieving the goals of the remedy.***
14. EPA relies on the GSWC wells pumping to control the lateral migration of the plume. Alternative 6 depends on continuing extraction from GSWC wells. The GSWC wells are an integral part of the remedy and the remedy effectiveness would be affected should these wells reduce or cease pumping. The remedy is relying on GSWC wells to capture and treat contaminants in groundwater. (WRD & GSWC) ***Response: The selected containment remedy does not rely on the operation of the GSWC wells to control migration of the OU2 plume. In fact, the FS notes the plume-wide extraction well network (which is part of the selected remedy) would perform more efficiently, and could operate at lower extraction rates and lower cost, if the GSWC Pioneer and Dace wells were to stop pumping.*** ***EPA has not asked GSWC to stop operating these wells, and the selected remedy assumes that these wells will keep extracting groundwater. Should the GSWC wells cease pumping, the remedy will still perform as intended.*** ***EPA expects that groundwater pumping by various parties in and near the OU2 area (including those parties implementing the selected remedy) will need to be coordinated to ensure that neither adversely affects the other. The institutional controls (ICs) selected as part of the remedy will help ensure coordination between EPA and State and local entities with jurisdiction over well drilling and entities with jurisdiction over groundwater use within the Central Basin. The ICs will also help ensure there is communication and coordination between those that hold rights to extract groundwater, and this will reduce the possibility that operation of the GSWC production wells would interfere with the plume containment goals of the interim OU2 remedy.***

Table II: Comments Related to the Selected Interim Remedy

15. The remedy is not sufficiently protective because it does not provide treatment for contaminants that may reach the GSWC wells. The remedy does not address the treatment of contaminants, such as 1,4-dioxane, which the current GSWC wellhead treatment units cannot treat. (WRD & GSWC) ***Response: The selected remedy includes treatment of 1,4-dioxane in the extracted groundwater, and the ROD allows flexibility to select the most appropriate treatment technology for 1,4-dioxane during the remedial design process. ~~EPA Disagrees.~~ The purpose of the selected containment remedy is to keep the contaminated groundwater plume from spreading, and to protect production wells such as the GSWC wells from being further degraded by the migration of contaminated groundwater that would otherwise occur. Without the interim remedy, groundwater with high concentrations of VOCs and 1,4-dioxane would reach the GSWC wells. EPA notes that 1,4-dioxane is already present in the GSWC wells and other production wells in the area west of OU2, indicating widespread contamination.***
16. Alternative 5 (discharge of treated groundwater to spreading basins) is the most appropriate remedy and it provides added protection to residents. If the treatment system fails under Alternative 6, contaminated water could be distributed to the public water supply. (Anthony Martinez) ***Response: EPA does not agree that Alternative 5 would be more protective of human health. The treated water produced by the selected remedy will meet state and federal drinking water standards and comply with all the monitoring, testing and other requirements for public drinking water systems. It will include the appropriate safeguards (e.g., redundant treatment units for key contaminants and storage prior to distribution) to ensure that contaminated groundwater is never allowed to enter the distribution system. The treatment system details will be further evaluated and refined during the remedial design effort. The design and operation of the treatment plant will comply with the same stringent requirements as other drinking water systems. The treatment technologies are well developed and have been used at other Superfund sites where remedies provide treated water for use in municipal water supply systems.***
17. Section 2.5.4 of the FS indicates that hydraulic barriers have not been considered in the technology screening process and the selection of the preferred remedy. This technology could be employed at the leading edge of the plume of contaminated groundwater. A hydraulic barrier would eliminate the need for leading edge extraction wells, which would reduce the flow of treated contaminated groundwater to the drinking water system. A numerical model must be used to design the shape and pumping rates of a barrier that would be effective, and determine if such a barrier would be feasible. A hydraulic barrier has these advantages: • Injecting the treated water near the toe of the plume would reverse the flow gradient and contaminants from the down gradient portion of the plume would be pulled toward

Table II: Comments Related to the Selected Interim Remedy

	the extraction systems in the central portion of the plume. The operational period of the pump-and-treat system and the overall cost of the remedy could be reduced. • By eliminating the need for leading edge extraction wells, the cost of the piping from the leading edge extraction wells to the centrally located treatment plant could be eliminated. • By reducing the flow to the treatment plant from about 2000 gallons per minute to about 1300 gallons per minute, the cost of the treatment plant would be reduced by a factor of approximately 75%-80%. (T3W Business Solutions, Inc.) ***Response: The purpose of the remedy is to contain the groundwater plume and keep the contaminants from spreading. If water were to be re-injected into the shallow aquifer, it could mobilize contamination within and outside OU2 and interfere with the RAOs, and could also affect and interfere with remedial actions at other source areas within or near OU2. EPA has included flexibility in the ROD for the discharge of treated water via reinjection, but such reinjection will have to be implemented in a manner that does not cause interference with containment of the plume and does not result in further spreading of existing plumes in the shallow aquifer. EPA does not agree that implementing the remedy in the manner suggested in this comment would necessarily be any more cost-effective than operating extraction wells at the leading edge of the plume. EPA does not agree that a 35% reduction in extraction rate would result in remedy cost reduction by 75%-80% as suggested.***
18.	Thermal oxidation is a technology retained in the FS for future consideration in the remedial design. Thermal oxidation should not be retained for consideration for the Site, because constituents of concern include chlorinated volatile organic compounds. Thermal oxidation, when used to treat vapors containing chlorinated compounds, has the potential to emit dioxin, a highly toxic carcinogen for which there is no known safe emission level. (T3W Business Solutions, Inc.) ***Response: EPA agrees that the off-gas from an air-stripper will contain chlorinated compounds. EPA is aware of the potential for the generation of dioxins and other unwanted compounds (such as chloric acid) during thermal oxidation of chlorinated hydrocarbon vapors. However, thermal oxidizers can be built and operated in a controlled way to prevent dioxin formation. Final selection of the specific groundwater treatment systems will be conducted during the RD phase and will be designed to ensure the remedy is not creating secondary health risks.***

Table II: Comments Related to the Selected Interim Remedy

19. Alternative 4 (reinjection of treated groundwater) is preferable to Alternative 6 because:
    - The risk of contaminating the drinking water supply if there is an upset in the proposed groundwater treatment plant would be eliminated.
    - Risk would be shifted away from the operator of the public drinking water supply system to the operator of the remedy.
    - The operator of the groundwater treatment system would be economically incentivized to maintain excellent quality control/quality assurance procedures for operations and maintenance of the treatment plant.
    - There are also potential benefits to other stakeholders if a hydraulic barrier is included in the remedy design, and treated water is injected north of the hydraulic barrier. These include:
        - Reduction of environmental risk because injection would be into a groundwater gradient moving toward the extraction wells. The economic penalty for injecting inadequately treated water would essentially be for prolonging the operation and maintenance period of the remedy, not for contaminating uncontaminated regions of the aquifer.
        - Reduction of overall cost of the remedy.
        - Shortening the operational period of the remedy.

(T3W Business Solutions, Inc.)

Response: Based on EPA's experience with similar groundwater remedies with drinking water end use, the Selected Remedy can be implemented safely and without any significant risk of contamination of the drinking water system. Treated water under the Selected Remedy will meet all state and federal drinking water standards.

In addition, the selected remedy will have to satisfy the CDPH requirements for treatment and monitoring of water from an impaired source.

EPA has selected Alternative 6 (Treated water used as drinking water) because it presents the most reasonable and cost-effective remedial approach to achieve containment of the OU2 plume and meets all state and federal drinking water standards. EPA has included flexibility in the ROD that the discharge of treated water via reinjection could be implemented if agreements with water purveyors cannot be negotiated in a timely manner.

The ROD is not intended to fully formulate the details of the design of the selected remedy. This will be accomplished during the RD process.

There do not appear to be any suitable locations for injection upgradient of OU2. Furthermore, upgradient injection would require higher extraction rates and additional pipelines, resulting in increased costs.

Table II: Comments Related to the Selected Interim Remedy

The Selected Remedy is an interim remedy, not a final remedy; the duration of its operation of 30 years was selected for cost estimating purposes. A containment remedy without source control would have to operate indefinitely, with or without reinjection. Source control will be an integral part of the anticipated final remedy for the site. When the final remedy is selected, the remedy lifetime and cost will be considered in the selection.
20. McKesson offers an Alternate Remedy that would: • Eliminate the Leading-edge (LE) Extraction wells; and • Move the Central Extraction (CE) wells approximately ½ mile farther south to more effectively capture higher concentrations of constituents of concern (COCs) that, under EPA's Proposed Plan Remedy, would not be captured by the interim remedy wells and would ultimately be captured by the Pioneer Public Supply Wells (Pioneer Wells); and • Reduce the total groundwater extraction rate from 1,300 gallons per minute (gpm) to 800 gpm, with approximately equal extraction rates of 400 gpm from the CE and Northern Extraction (NE) wells; and • Reinject the treated groundwater into the shallow aquifer from which it was extracted, rather than delivering it as drinking water. (McKesson**)** ***Response: This proposed alternative would not meet all of EPA's RAOs. Elimination of the leading edge extraction would allow known contamination to migrate towards GSWC's production wells. Moving the CE area wells as suggested would allow groundwater contaminated with PCE and TCE concentrations exceeding 100 µg/L (twenty times the drinking water standard) to continue to spread downgradient. Reinjection into the shallow aquifer could mobilize other contaminant plumes, such as the plume at the former CENCO refinery, and have the net effect of creating more contamination in the groundwater plume.*** ***The LE, CE, and NE locations were identified as general extraction locations needed to achieve containment of the plume, with the CE and NE wells also serving to keep the higher concentrations of contaminants from moving into less contaminated areas. The LE wells will keep the known lower levels of contamination at the leading edge from migrating further downgradient and protect production wells that are located in that area downgradient of the plume. The actual extraction locations will be optimized during the remedial design to ensure that the extraction wells are placed to achieve effective containment of the highly contaminated groundwater.*** ***EPA's Selected Remedy meets the objectives of the remedy which are to contain the OU2 plume.***

Table II: Comments Related to the Selected Interim Remedy

21. The LE wells are unnecessary, inefficient and should be eliminated. The need for containment at the toe of the plume has not been demonstrated. Extraction at the toe of the plume would be expensive and may not be necessary due to the low contaminant concentrations and grossly overstated plume migration rates. Existing production wells could be utilized to clean up the low level contamination and this would reduce costs. (McKesson & OPOG) ***Response: EPA disagrees that the leading edge wells are unnecessary, and also disagrees that the plume migration rates have been overstated. EPA's analysis concluded that the plume expansion rate is approximately 540 feet/year and found this estimate to be reasonable. Extraction at the leading edge of the plume is necessary to protect public water supplies. The leading edge extraction will keep known contamination from migrating further downgradient and protect production wells that are located in that area downgradient of the plume.*** ***The existing production wells are not suitable for the purposes of containment of the plume. They are constructed with generally deep screens and would draw contaminated groundwater into deeper portions of the aquifer. The production wells are also located generally too far from the plume edge and would allow for lateral plume expansion. Finally, the production wells may not completely capture the plume, allowing it to bypass them and migrate farther downgradient.***
22. The proposal to deliver the treated water as drinking water would unnecessarily increase the risk to the public, will cost more than estimated, and may be infeasible. (McKesson) ***Response: EPA disagrees that there is added risk to the public, and believes the cost estimates are reasonable and that implementation is feasible. The treated water will meet all Federal and State drinking water standards before it is delivered to a water purveyor. EPA has noted the inherent uncertainties regarding cost at the time of issuance of a ROD. The cost estimates have an expected accuracy of +50% to -30%, which applies to all of the alternatives evaluated.***

Table II: Comments Related to the Selected Interim Remedy

23. EPA is willing to sacrifice GSWC wells to Omega contamination. These wells are already intercepting the plume. EPA is not providing an interim protection of GSWC wells. (GSWC) ***Response: EPA disagrees with the characterization that it is "sacrificing" GSWC's wells to the contamination from the former Omega Chemical Corporation facility. One objective of the selected remedy is to prevent further spreading of the contaminated groundwater. GSWC first detected contamination in its wells nearly three decades ago when contamination from the former Omega facility could not have migrated to this area. It is likely that the contamination impacting the GSWC wells has originated from multiple sources. GSWC added wellhead treatment systems to several of its wells in 1996 and 1999 to ensure state and federal drinking water standards would be met. Those systems continue to be in operation.*** ***The selected interim remedy will prevent the highly contaminated groundwater in the center of the plume (upgradient from GSWC wells) from being drawn down and into the GSWC wells. It will also prevent further spreading of the contaminated groundwater to uncontaminated portions of the aquifer and other nearby production wells.***
24. There is no analysis in the RI/FS of possible effects of the remedy pumping on the groundwater supply and GSWC's ability to produce water. (GSWC) ***Response: EPA conducted computer modeling of groundwater flow in and around the OU2 area during the RI/FS, and that evaluation indicated there will be no significant depletion of groundwater in the OU2 area for a remedy pumping at a rate of 2,000 gpm. It is within GSWC's rights to continue pumping water from the affected Pioneer and Dace wells, or to shift production to another area to avoid treatment costs.***
25. The recommended remedy fails to comply with ARARs. The FS fails to address key ARARs, such as: the Public Health Goal (PHG) for hexavalent chromium proposed by the Office of Environmental Health Hazard Assessment; CDPH Policy 97-005; State Water Resources Control Board (State Board) Resolutions 68-16 and 92-49; RWQCB (Los Angeles Region)'s authority over discharge of brine to an ocean outfall; and requirements of the California Public Utilities Commission (CPUC), which regulates GSWC. For 1,4-dioxane, EPA recently lowered the 10^{-6} cancer risk level from 1 ppb to 0.35 ppb, which could prompt CDPH to correspondingly lower the notification level (NL); the proposed remedy aims to reduce the concentrations to 2 ppb in order to comply with the current CDPH NL of 3 ppb. (GSWC) ***Response: EPA believes the selected remedy will comply with all ARARs and to-be-considered (TBC) criteria, and will achieve the other performance standards identified in the ROD, including the latest CDPH notification level for 1,4-dioxane, which was established after the Proposed Plan was finalized. A number of the items cited by the commenter are not ARARs but will be considered during the remedial design process.***

Table II: Comments Related to the Selected Interim Remedy

The remedy also may accommodate any new or modified requirements that come into effect prior to and during RD as the specific details of the remedy are developed, if those requirements call into question the protectiveness of the remedy. . If the State ultimately promulgates an MCL for hexavalent chromium that is lower than the performance standard in the ROD, and the protectiveness of the remedy is called into question, the remedy will be re-evaluated at that time, and treatment changed if necessary to ensure that the treated water continues to meet all drinking water standards.

The following are specific responses to the ARARs issues raised in the comment:

In July 2011, the State adopted a final PHG for hexavalent chromium of 0.02 µg/L (0.02 ppb). However, a PHG is not a regulatory standard and is not an ARAR. According to State law, CDPH must now develop and adopt an MCL for hexavalent chromium. That process is expected to take 3-4 years, and in the interim CDPH has suggested using 5 µg/L as a placeholder for the performance standard, as it is within the capabilities of existing treatment technologies for hexavalent chromium. If the MCL adopted by CDPH is lower the level required in the 97-005 permit, EPA will re-evaluate the remedy and change the performance standard as needed to ensure that treated water provided as drinking water continues to meet all drinking water standards.

Although it is a policy and has not been promulgated under Federal or State law – and therefore is not an ARAR for the selected interim remedy -- the process set forth by CDPH Policy 97-005 will need to be undertaken and Policy 97-005's requirements met if the treated water is used in the municipal water supply. Policy 97-005 has been included as a TBC item in the ROD (Table 14).

State Board Resolution 92-49 is not an ARAR for the selected interim remedy. Its only substantive requirement for purposes of ARARs analysis (i.e., Section III.G) applies where cleanup goals based on background concentrations cannot be attained due to technological and economic limitations. Because the proposed remedy is considered interim, EPA is not setting in situ numeric cleanup goals for the OU2 groundwater at this time.

State Board Resolution 68-16 is identified as an ARAR in the ROD.

The CPUC regulations cited by GSWC are not identified as ARARs for the selected interim remedy. EPA recognizes the CPUC's authority pursuant to the California Constitution and State statute, as also reflected by California case law. Compliance with the Federal and State primary drinking water standards (MCLs) identified as ARARs in the ROD will constitute compliance with the CPUC's rules.

The RWQCB Los Angeles Region regulates discharges of treated groundwater. The brine resulting from the interim remedy's treatment process would be discharged to a nearby industrial sewer line for disposal pursuant to a sewer use permit from LACSD. No additional permit is needed for this discharge.

Table II: Comments Related to the Selected Interim Remedy

26. The FS does not analyze all impacts to the GSWC wells, such as increasing treatment costs, and the need for institutional controls (ICs). (GSWC) ***Response: The FS evaluates and discusses certain potential impacts to GSWC's wells, as well as the need for institutional controls, which eventually were selected as part of the OU2 remedy (see, e.g., FS sections 2.5.2 and 3.2.1). ICs will consist of annual reviews, notifications and meetings.*** ***The FS does not evaluate impacts to GSWC wells such as increasing treatment costs. The objectives of the FS were to (1) develop and evaluate remedial alternatives that mitigate threats to human health and the environment from the continued spread of contaminated groundwater at OU2 and (2) identify a preferred alternative to present in the Proposed Plan. EPA believes sufficient data were available to achieve the objectives of the FS.*** ***Although EPA recognizes there may be additional impacts (e.g., financial) to GSWC's wells, resulting from contamination at the former Omega Chemical Corporation facility and other sources contributing contamination to the OU2 plume, these impacts are beyond the scope of the selection of the interim remedy for OU2.***
27. The FS does not provide sufficient explanation of the actual technical and administrative implementability of the CDPH 97-005 process, biological treatment process, and disposal of brine. (GSWC) ***Response: The treatment processes outlined in the FS all have demonstrated technical and administrative implementability (for example, many have been used in other Superfund remedies that provide treated water for use in drinking systems). In order for the treated water to be served as drinking water (the selected end use), the process set forth by CDPH and delineated in its Policy 97-005 will need to be undertaken and the Policy 97-005 requirements met. The specific details of the treatment processes and other system requirements related to public water supplies will be developed through meetings and coordination with CDPH during the RD phase of the project. A nonconsumptive water use exemption will be sought from WRD for the disposal of the brine.***

Table II: Comments Related to the Selected Interim Remedy

28. EPA did not evaluate or consider additional facilities that are potential sources of contaminants to the plume. The absence of adequate source control throughout the footprint of the Regional plume is a fatal flaw to the success of the selected remedy. The pump and treat remedy will be ineffective and costly without source control for all contamination sources at OU2. State agencies may not address the sources under their oversight in a reasonable timeframe, given the State's financial situation. (OPOG) ***Response: EPA recognizes the importance of source controls for successful long-term remediation, but is not seeking to address all the potential sources in this interim remedy, the objectives of which are focused on containment of the OU2 plume. EPA does not believe that the lack of source control on all facilities is a fatal flaw, as the selected remedy is capable of adequately treating the existing contaminant plume. In addition, there will be a groundwater monitoring network to evaluate changes in the plume and provide adequate lead time to modify the treatment system as necessary. EPA will continue coordination with and, if needed, provide assistance to, the State agencies responsible for oversight of these facilities to ensure that cleanup efforts are undertaken in a timely manner. In addition, EPA will work with the State to identify and address all significant sources within the OU2 plume area that have contributed to the groundwater contamination. Most of the known sources are currently being addressed by State-led actions. EPA expects that the rest of the sources will be addressed by the combined efforts of the State and EPA.***
29. EPA has not adequately evaluated whether water purveyors will accept the treated water. (OPOG) ***Response: EPA had initial discussions with purveyors who expressed preliminary interest in accepting the water. If necessary, EPA will facilitate future negotiations between the parties responsible for implementing the remedy, the water purveyors, and other stakeholders. EPA recognizes that it may be difficult and time-consuming for an agreement to be reached. EPA has included reinjection in the selected remedy as an alternative for disposal of treated water in part to address the uncertainty regarding securing necessary agreement(s) among stakeholders for drinking water end use in a timely manner.***

Table III: Comments Related to Permitting and Compliance

30. Discharge to Los Angeles County Flood Control District (LACFCD) under Alternative 5 will require a Flood Permit and verification of coverage and/or exemption under an applicable National Pollutant Discharge Elimination System Permit (NPDES). The water quality would need to meet surface water standards. A spreading agreement would need to be developed, including indemnity clauses and payments for discharges. (LADPW) ***Response: Comment noted. EPA did not select Alternative 5 as the OU2 interim remedy.***
31. The City of Norwalk is concerned about the aesthetics of the remedy and its impacts on the area. All City permitting requirements should be followed. (City of Norwalk) ***Response: EPA appreciates the City's concerns regarding the aesthetics and impacts of the interim remedy and will work with the City during implementation of the interim remedy to address those concerns. There will be compliance with all substantive aspects of City permitting requirements for actions occurring on-Site and within City limits.***
32. The drinking water end use by a public water system will be subject to CDPH Policy Memo 97-005 which requires more stringent treatment than presented in the FS, for example for hexavalent chromium. (CDPH) ***Response: EPA is aware of these requirements and expects that design of the remedy will comply with Policy 97-005 to assure that the necessary treatment is provided and all other requirements are met.***

Table IV: Other Comments

33. Request that EPA make Omega a Fund-Lead project, given the urgency to construct the remedy to prevent further plume expansion. (City of Norwalk, City of Lakewood, and Southeast Water Coalition) ***Response: EPA's policy is to pursue "enforcement first" throughout the Superfund cleanup process, which promotes the "polluter pays" principle and helps to conserve the resources of the Hazardous Substance Trust Fund for the cleanup of those sites where viable responsible parties do not exist. See "Enforcement First for Remedial Action at Superfund Sites" policy, September 20, 2002. A major component of the "enforcement first" policy is that potentially responsible parties should conduct remedial actions wherever possible. Consistent with this policy, EPA will first seek to negotiate a timely settlement with the PRPs for implementation of the interim remedy. If an agreement is not achieved in a timely manner, EPA will evaluate its other options, which include making the Site a Fund-lead project.***
34. EPA has no plan for keeping PRPs engaged to hold them responsible for 30 years. The ROD should state the role the PRPs are to engage in, and also state the time frame of their responsibility until the plume is completely cleaned up. (City of Santa Fe Springs) ***Response: CERCLA provides EPA with various mechanisms and broad authority for keeping potentially responsible parties "engaged" in remedy implementation over the long term (e.g., consent decrees and unilateral orders with provisions for long-term implementation). The Agency has been very successful in using those mechanisms to ensure that PRPs implement cleanups, and EPA will make every effort to ensure that this occurs for the OU2 remedy.***
35. Issuing a ROD claiming to use Santa Fe Springs's Reservoir No. 1 as a mixing tank is premature without understanding the City's system operation. (City of Santa Fe Springs) ***Response: The Selected Remedy includes drinking water end use but does not specify any municipal water system to be used, nor how any components of a system, such as Reservoir #1, would be used. In the FS, Alternative 6 includes treatment of extracted water to meet Federal and State drinking water standards, and Reservoir No. 1 is identified as a potential location for the delivery of the treated water. EPA recognizes that any such use of a reservoir would be subject to agreements negotiated between the water utility and the party or parties responsible for implementing the remedy. A final decision on the delivery location will be made during the RD and may include other water purveyors as well.***

Table IV: Other Comments

36. The Santa Fe Springs well No. 4 is not part of the proposed remedy. It could be utilized as a remedy extraction well because it can be retrofitted for extraction from contaminated aquifers. If it is not used, it may be a conduit for migration into deeper aquifers of constituents having a specific gravity heavier than water. (City of Santa Fe Springs) ***Response: EPA did not include specific extraction well locations in the alternatives described in the Feasibility Study. The locations indicated on the figures in the FS and in the ROD are for illustration and costing purposes only. The use of this specific well (well No. 4) as an extraction well for the remedy can be considered during the RD phase. Technical considerations, such as hydraulic control of the plume, and stakeholders' input will be key factors that need to be addressed. There are downward hydraulic gradients within the aquifer in the OU2 area, and there is a potential for vertical migration of contaminants dissolved in groundwater through conduits including active and inactive wells. These issues will need to be evaluated during the remedial design.***
37. The remedy should be implemented immediately to protect drinking water wells. WRD supports the Remedial Action Objective to decrease plume spreading. (City of Lakewood and WRD) ***Response: EPA agrees and has opted to pursue an interim containment remedy that can be selected and implemented in a more timely manner than would be the case for a full final remedy for groundwater. EPA recognizes that it will require extensive effort and will work with all stakeholders to implement the remedy as quickly as possible.***
38. WRD requests EPA's response to a technical memorandum prepared by WRD's contractor in addition to responding to WRD's public comments. (WRD) ***Response: EPA believes that WRD's written public comments summarized the issues identified in the technical memorandum. EPA is responding to WRD's comments in this Responsiveness Summary.***
39. EPA should be mindful of water rights negotiations and the time that will likely be required to reach an agreement among stakeholders. The FS does not analyze how the remedy will impact GSWC's water rights. EPA's Feasibility Study and Proposed Plan ignore the issue of water rights. Whose groundwater rights will be used for the extraction and who will pay replenishment assessment fees? (WRD, GSWC, OPOG and Central Basin Municipal Water District) ***Response: EPA is aware of the water rights issues and understands the need to address this during the RD phase of the project. EPA will, as appropriate, participate in discussions and help facilitate agreements between stakeholders. If EPA is successful in reaching an agreement with the PRPs to implement the remedy, it will be their***

Table IV: Other Comments

responsibility to address the water rights issues. EPA expects that the PRPs implementing the remedy will enter into an agreement with one or more water rights holders and groundwater will be extracted under the holder's water rights. If agreement can not be reached with a water rights holder in a timely manner, the treated water may be reinjected.
40. The remedy impacts on this community are substantial and long-term. EPA should provide technical assistance to the affected community. The Proposed Plan document mentions that a Technical Assistance Grant (TAG) is available for citizens who live near a Superfund site. A TAG requires application by a local non-profit organization to represent the local community. It appears that no non-profit organization has applied for and been accepted as the community representative for a TAG. The affected community, including the water agencies should be made aware that a Technical Advisor (TA) can be provided to the affected community by the EPA Technical Assistance Services for Communities (TASC) program. Because some municipal drinking water wells have been impacted, and the drinking water system is the proposed recipient of the treated groundwater, if no community group is formed to represent the community interest, a municipal agency may desire to fill this role. (T3W Business Solutions, Inc.) ***Response: Eligible community group(s) can apply for a Technical Assistance Grant (TAG) by contacting Jackie Lane, Community Involvement Coordinator at (415) 972-3236 or email her at lane.jackie@epa.gov. To date, no community group has submitted a "Letter of Intent" to apply for a TAG. In addition, according to the October 2000 TAG Rule (60 Fed. Reg. 58850, 58860 (2000) (to be codified at 40 CFR Part 35, §35.4200 (b)(5)), a municipality is ineligible to apply. General TAG program and resource information is available at http://www.epa.gov/superfund/community/tag/index.htm. Interested stakeholders who would like to apply for Technical Assistance Services for Communities (TASC) program can call Viola Cooper, Region 9 TASC coordinator at (415) 972-3243 or email her at cooper.viola@epa.gov. For general TASC information, go to http://www.epa.gov/superfund/community/tasc/***

Table IV: Other Comments

41. The FS and the Proposed Plan characterize the Site and the surrounding areas as "predominantly commercial/industrial with minor residential land use." This is not correct. There is a substantial residential area in OU2 roughly south of Florence Avenue, east of Pioneer Boulevard, north of the Imperial Highway, and west of Bloomfield Avenue. There may be another impacted well south of the leading edge of the plume as shown in the FS, east of Norwalk Blvd. in the vicinity of San Antonio Dr. This indicates that OU2 should be extended to the south of where it is shown in the FS, and residential neighborhoods in Norwalk south of the Golden State Freeway should be included in OU2. (T3W Business Solutions, Inc.) ***Response: EPA acknowledges that there are residential areas within and near OU2, but the majority of land use overlying the OU2 plume is commercial/industrial. EPA has also reviewed information on production wells in the OU2 area and further south and southwest (downgradient) of the plume. EPA is selecting an interim containment remedy that is intended to protect these downgradient production wells. EPA will expand the boundary of OU2 if it is confirmed that the plume is continuous beyond the extent currently shown.***
42. CDPH recommends its early involvement in the remedy implementation. (CDPH) ***Response: EPA agrees that CDPH needs to be involved at the outset of remedy implementation. EPA fully expects to continue past discussions with CDPH through the remedial design and remedy implementation phases of the project.***
43. There is no evidence that the contamination from the Site is not being drawn down to a deeper layer of the aquifer in the area of the GSWC wells and, given the geology of the area and GSWC's usual pumping pattern, it is highly likely this is already occurring. (GSWC) ***Response: EPA concurs with GSWC that past and current pumping from the Pioneer and Dace wells has likely drawn contamination down into deeper aquifer zones. Additional investigation is needed to better define the influence of these wells on the OU2 plume.***
44. EPA stated that the State had accepted the Proposed Plan because DTSC supported the preferred remedy but no mention is made of CDPH and whether EPA has gained CDPH's acceptance. (GSWC) ***Response: DTSC is the lead state agency for the Site and, in that capacity, concurred on the Proposed Plan. DTSC has also concurred on the remedy selected in this ROD. At this Site, as at others, EPA relies upon the lead state agency to consult with its sister agencies when necessary and appropriate. EPA recognizes CDPH's key role and***

Table IV: Other Comments

regulatory authority relating to implementation of the selected interim remedy and anticipates it will be actively involved moving forward. EPA has had substantive discussions with CDPH in the past several months regarding the interim remedy and expects to continue coordinating with CDPH through the remedial design and remedy implementation phases of the project.
45. Table 5-18 of the RI does not include GSWC data that EPA collected in 2010. (GSWC) ***Response: Table 5-18 of the RI lists the maximum MCL exceedances. Concentrations measured in samples taken from the GSWC wells were not the highest detected at OU2 and thus are not listed in the table. The RI/FS section on production wells (Section 4.6 of the final RI/FS report) was updated to include the 2010 data collected from GSWC.***
46. In the Proposed Plan, EPA did not adequately summarize its overall strategy for remediating the Site (e.g., further studies and additional remedial actions) or how the interim remedial action fits into that overall strategy. (GSWC) ***Response: EPA believes the Proposed Plan presented an adequate summary of its overall strategy and how the interim remedial action fits into that strategy. The Plan notes that, following implementation of the selected interim remedy for OU2, EPA will conduct further studies and expects to propose additional remedial actions for the OU2 plume as part of the final cleanup remedy for the Site. As part of those studies, EPA will work with the State to identify all significant sources within the OU2 plume area that have contributed to the groundwater. Although some of the known sources are currently being addressed by State-led actions, the Plan notes that EPA expects that the remainder of the sources identified will be addressed by the combined efforts of the State and EPA.*** ***The Plan also discusses how the interim remedial action fits into the overall cleanup strategy for the Site. It describes the other operable units at the Site and the cleanup and enforcement activities that have been and are being taken to address each.***

Table IV: Other Comments

47. The FS does not explain why GSWC is excluded from periodic meetings between EPA and State and local entities. (GSWC) ***Response: EPA is aware of and appreciates GSWC's active interest in the OU2 cleanup actions and will continue to include GSWC in future stakeholder meetings whenever appropriate. EPA meets frequently with state regulatory agencies and a key topic is often enforcement actions. It would be inappropriate to include GSWC or any other non-governmental entity in such discussions. EPA first contacted GSWC in April 2009, during preparation of the RI/FS, has met with GSWC several times (on-on-one and at other water agency meetings), and has participated in teleconference calls when requested.***
48. Correct the information in the Proposed Plan regarding the Watermaster <u>and</u> note that that Central Basin is granted statutory powers under the Water Code (Central Basin Municipal Water District) ***Response: EPA agrees. The Proposed Plan identified the Water Replenishment District as the "Acting Watermaster." The Department of Water Resources (DWR) is correctly identified as the Watermaster in the ROD.*** ***The Central Basin Municipal Water District (CBMWD) is mainly responsible for importing supplemental water through Metropolitan Water District. EPA expects that the responsible parties implementing the remedy will involve CBMWD as appropriate.***
49. Central Basin Municipal Water District asked for additional time to review the feasibility analysis and requested that EPA provide the related documents for review. Without Central Basin Municipal Water District's input, the alternatives may not be feasible. Central Basin Municipal Water District offers assistance with the distribution of the treated water. (Central Basin Municipal Water District) ***Response: EPA released the Proposed Plan in August 2010 to the public and encouraged stakeholders to present comments. The Proposed Plan presents a proposed remedy selected from among remedial alternatives developed in the RI/FS; the RI/FS includes the feasibility analysis and was also made available to the public in August 2010. EPA extended the review period an additional two months (through November 22, 2010) to provide additional review time for comments on the Proposed Plan and its supporting information. EPA did not grant Central Basin Municipal Water District additional time beyond that extended comment period.*** ***If EPA is successful in reaching an agreement with the PRPs to implement the remedy, it will be their responsibility to enter into agreements. EPA acknowledges and appreciates the District's offer and will contact the District when the RD starts. EPA looks forward to working with CBMWD in helping to facilitate an agreement between stakeholders.***

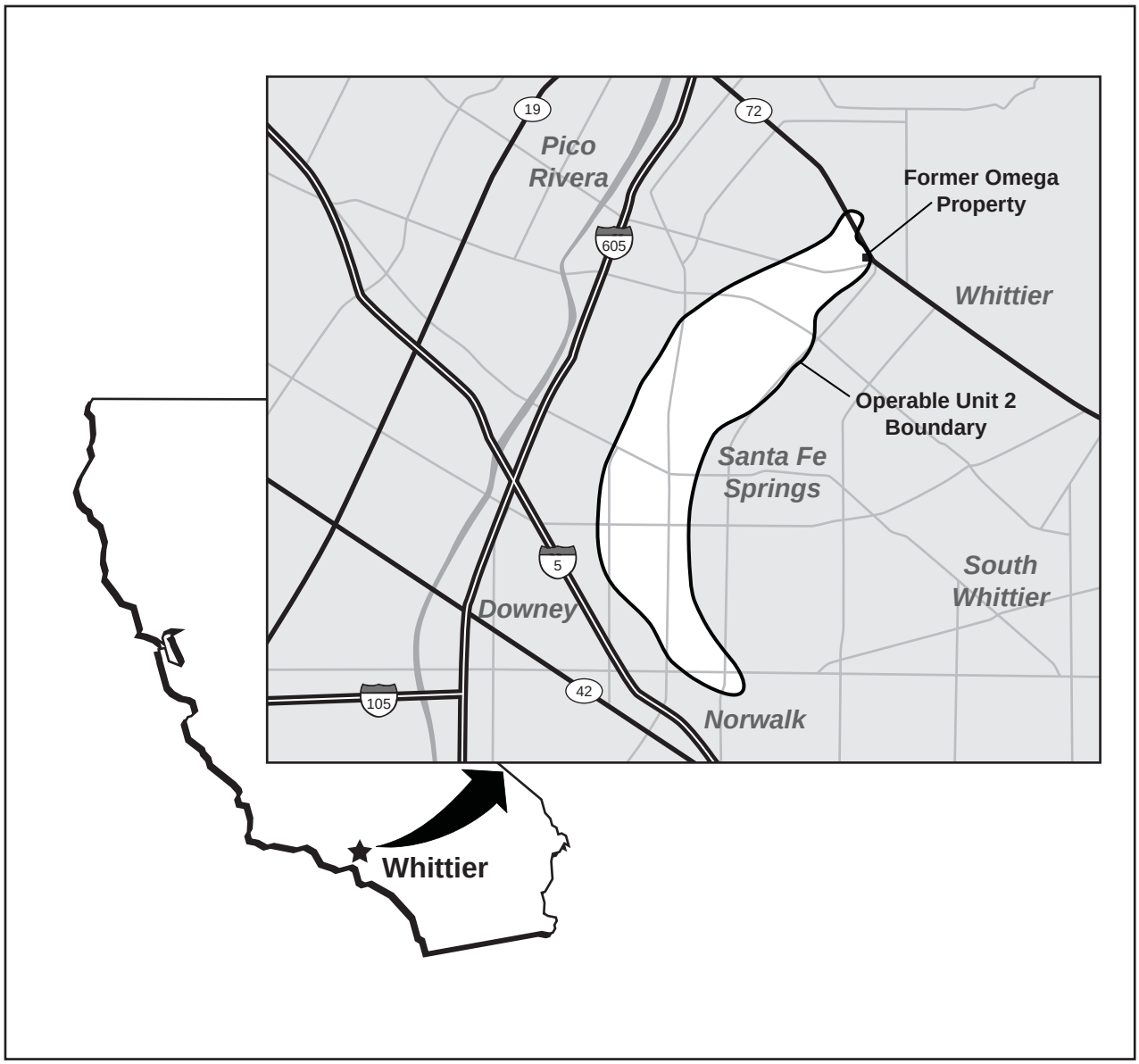


Figure 1: OU2 Location

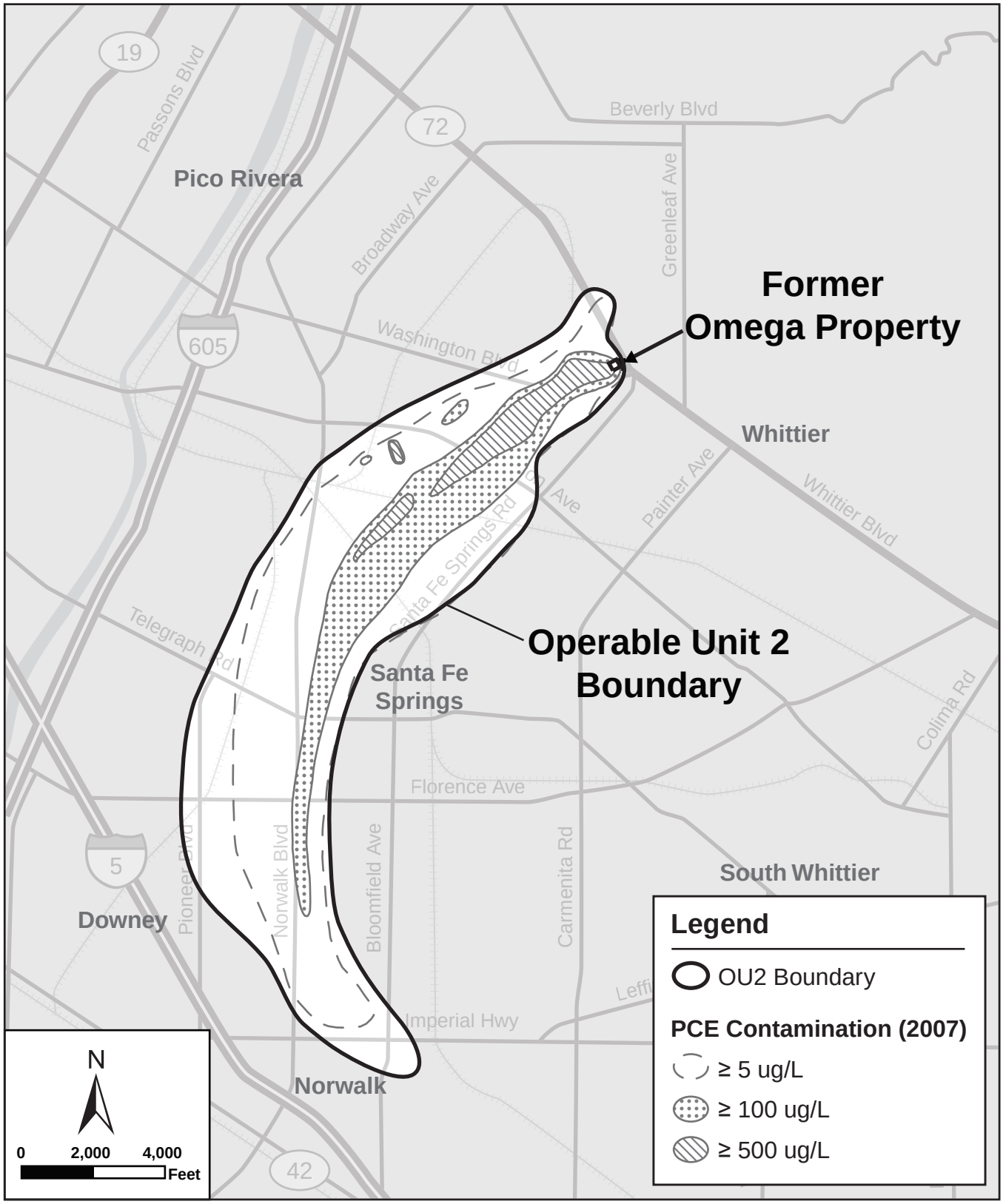
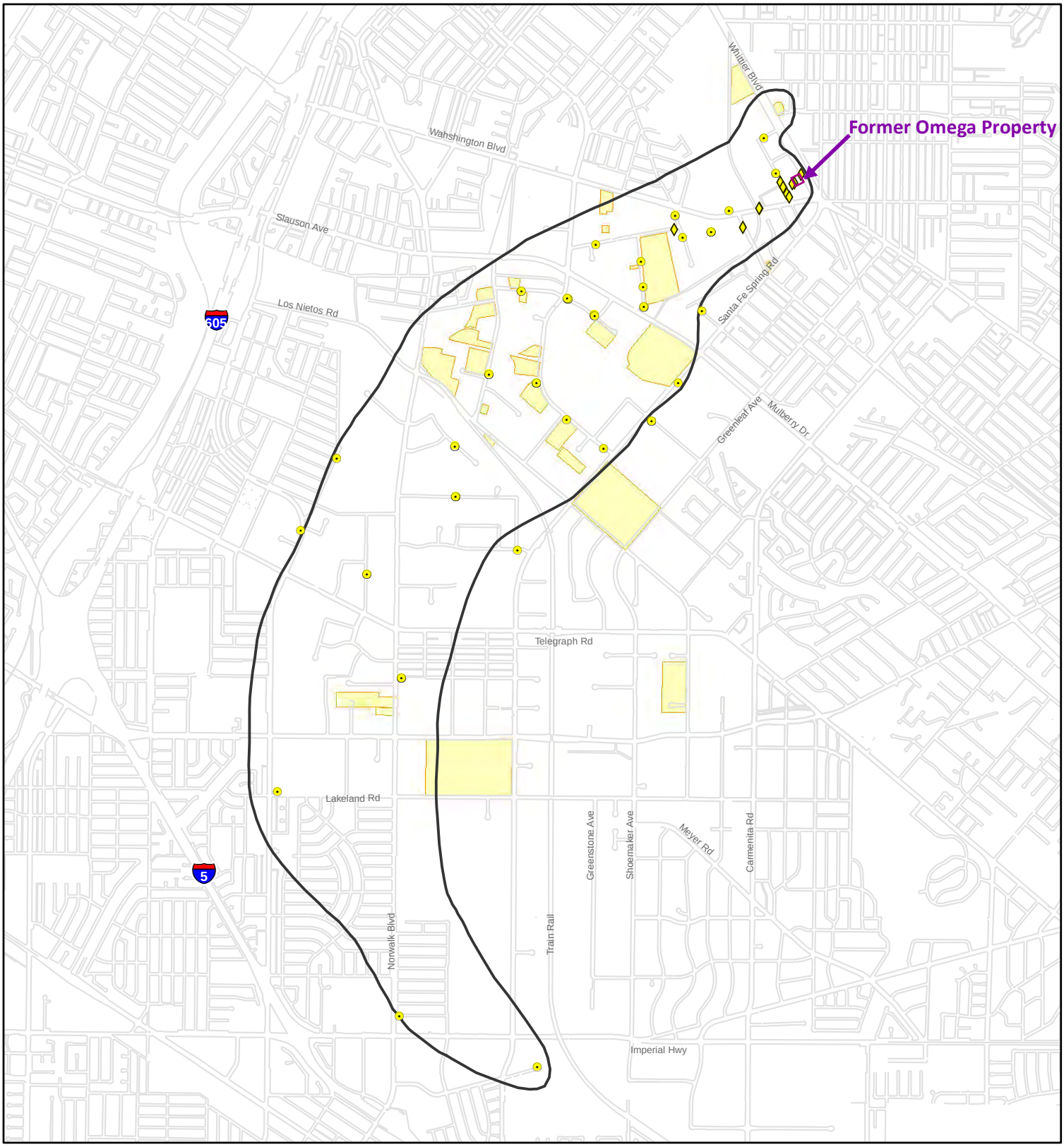


Figure 2: OU2 Extent of Tetrachloroethylene (PCE) Groundwater Contamination



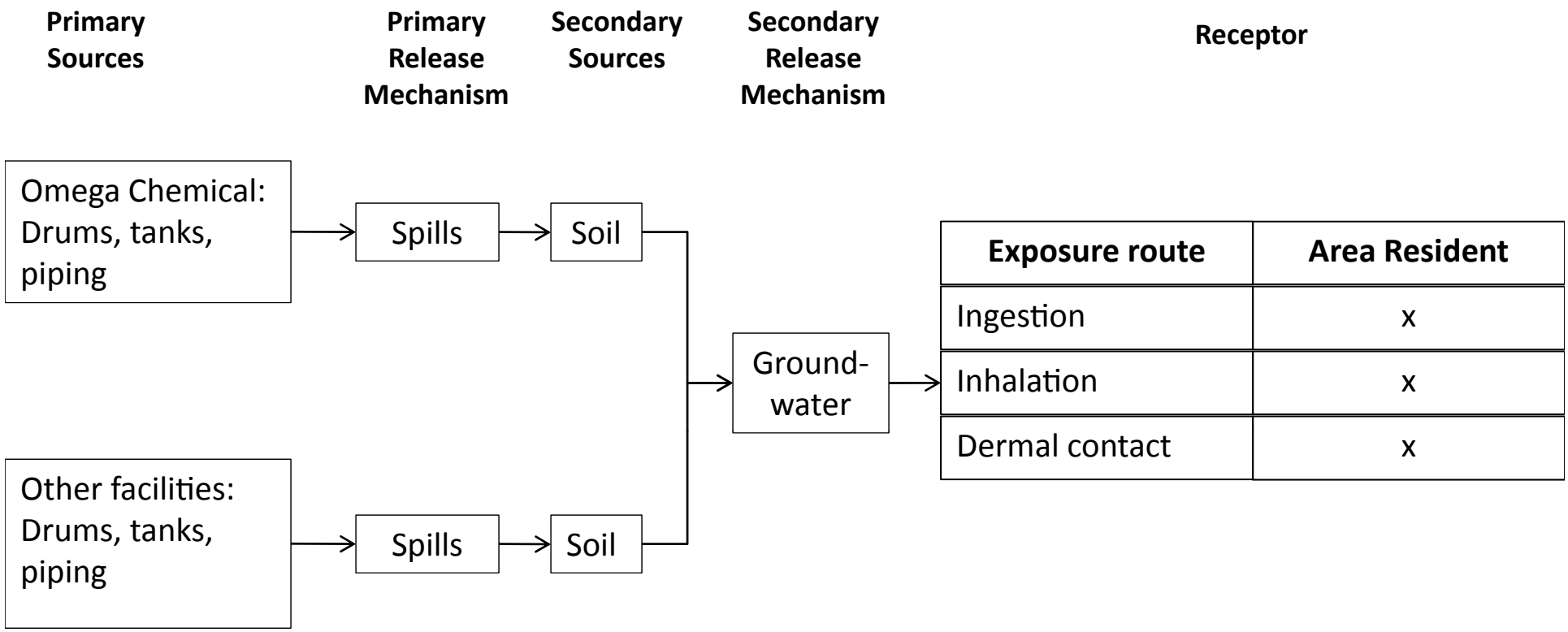
Legend

- OPOG Monitoring Well
- EPA Monitoring Well
- Former Omega Property
- Approximate Boundary of Source Areas/Facilities
- OU2 Boundary

N

0 0.3 0.6 Miles

Figure 3: Source Areas and Monitoring Well Locations



Exposure route	Area Resident
Ingestion	x
Inhalation	x
Dermal contact	x

Figure 4: Conceptual Site Model

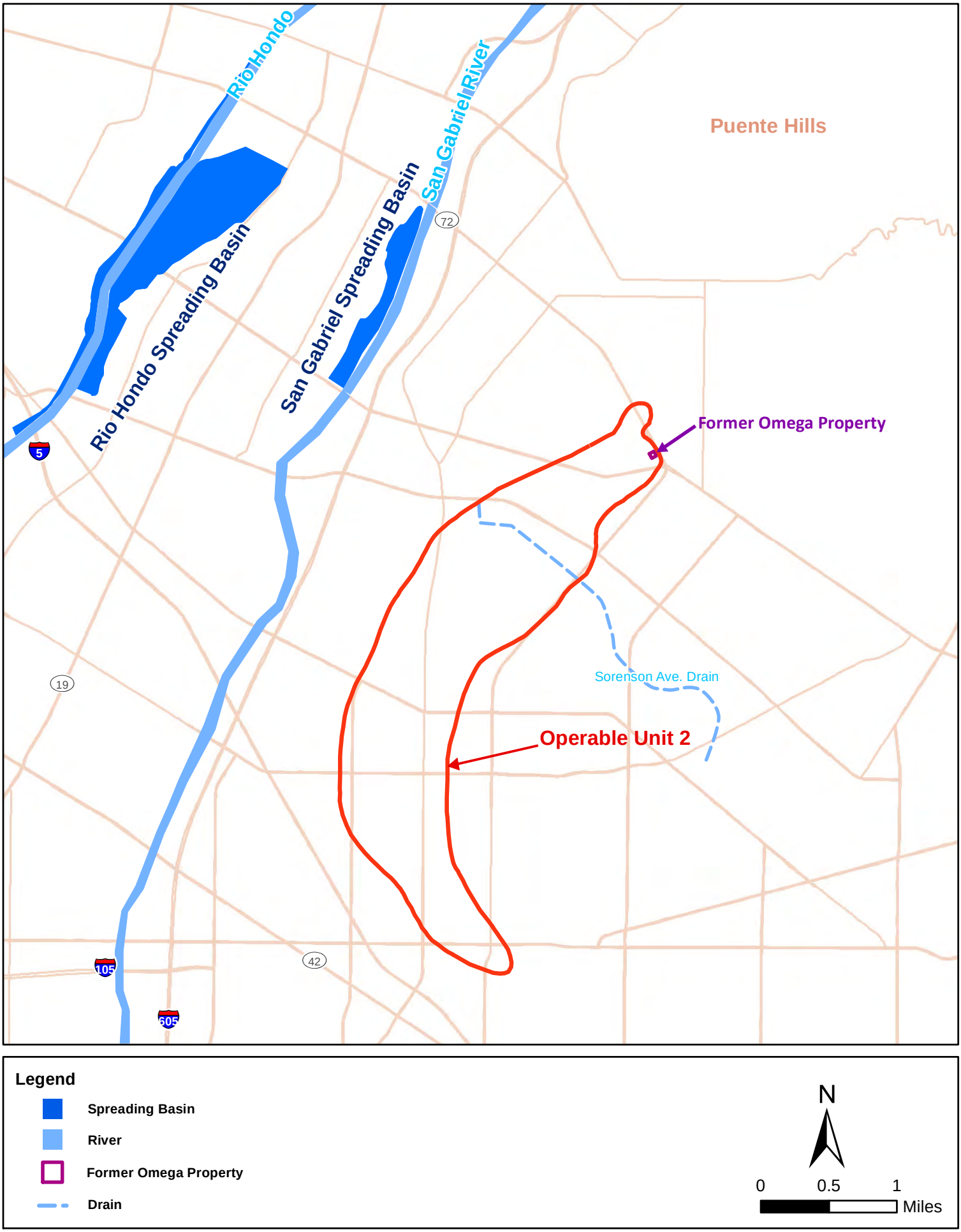
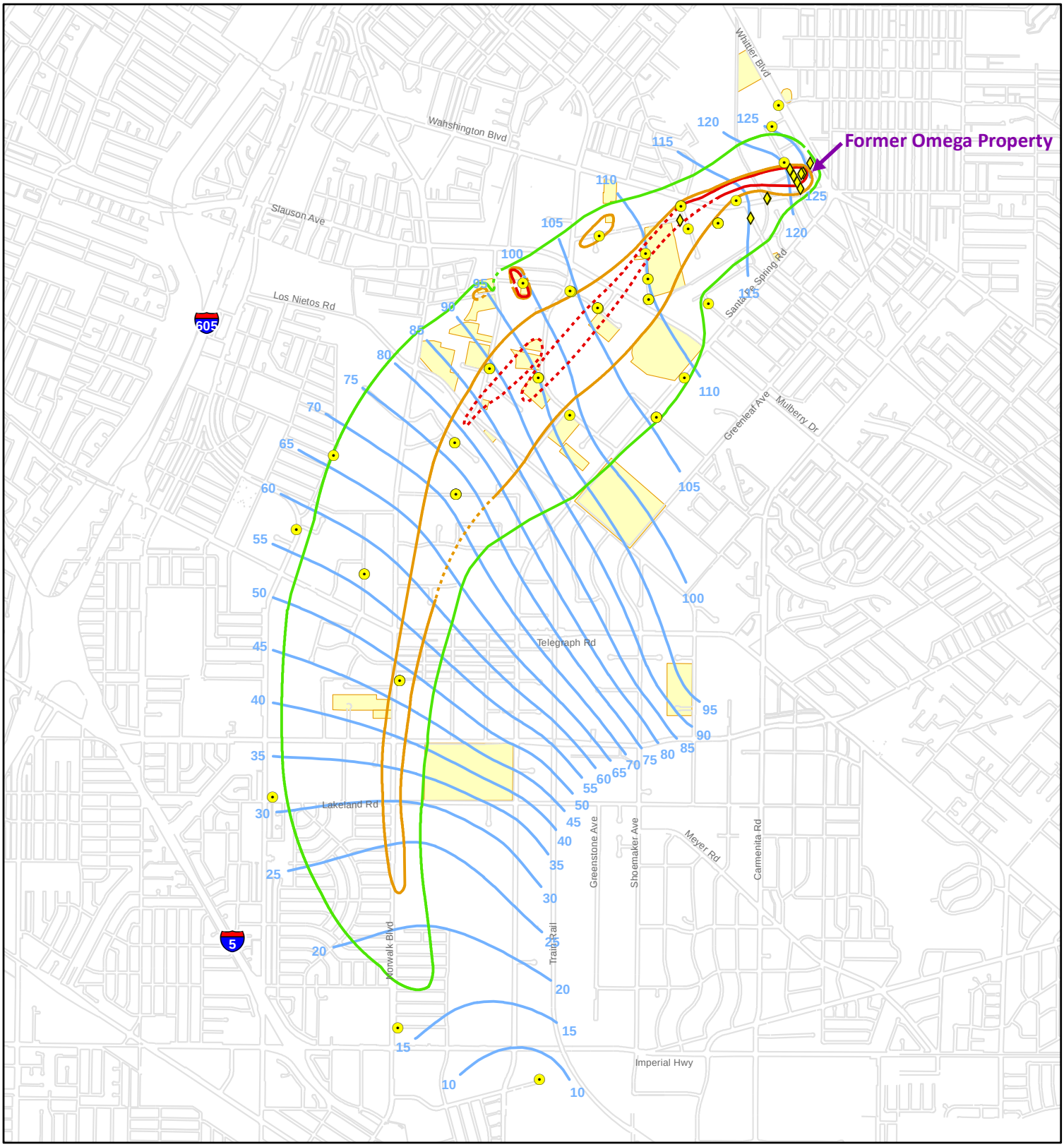


Figure 5: Surface Streams and Spreading Basins in OU2 Area



Legend

- OPOG Monitoring Well
- EPA Monitoring Well
- Former Omega Property
- Approximate Boundary of Source Areas/Facilities

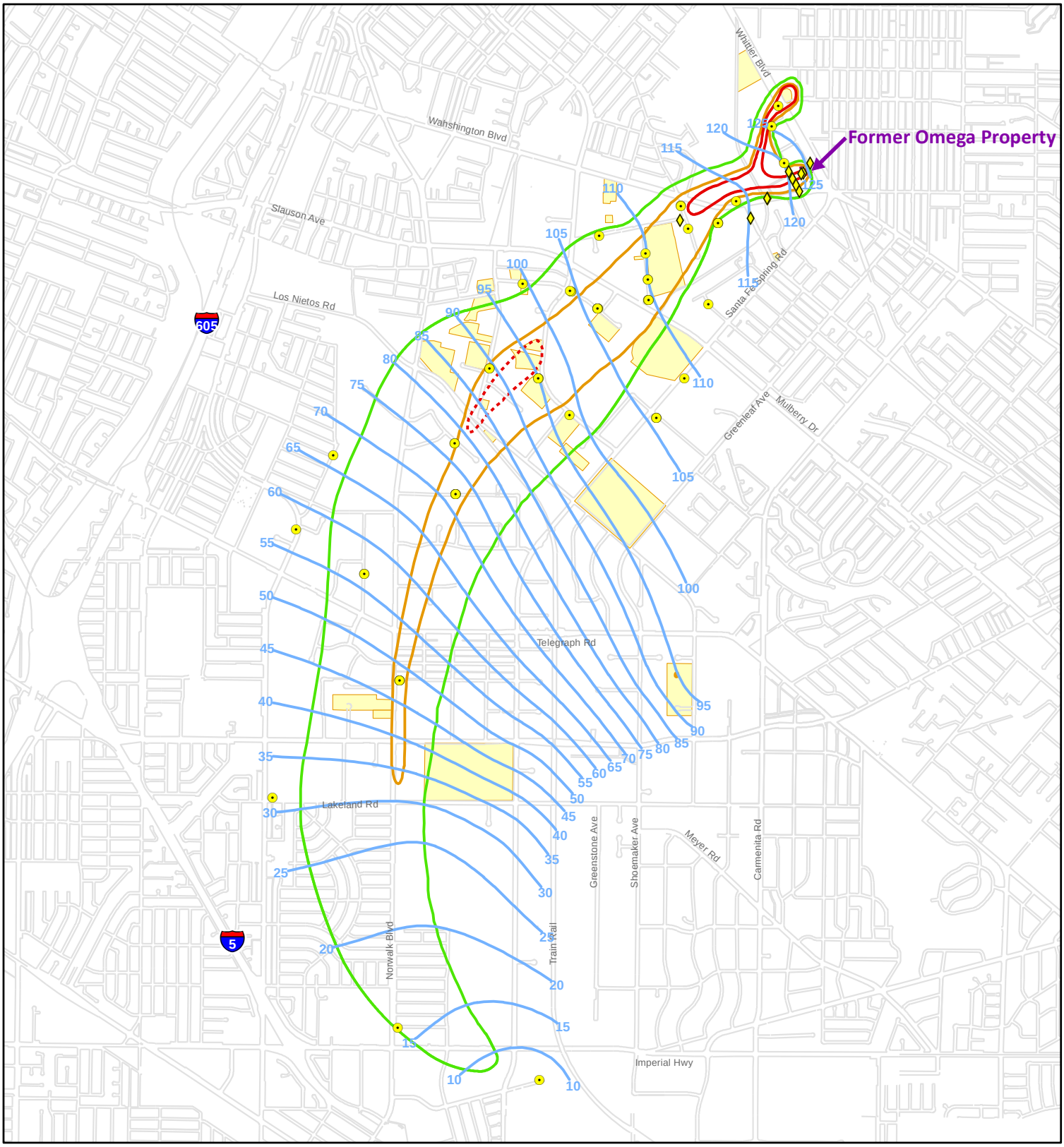
Composite PCE Plume Extent

- 500 ug/L (Dashed where approximated)
- 100 ug/L (Dashed where approximated)
- 5 ug/L (Dashed where approximated)
- Water Level Contour Third Quarter 2009

N

0 0.25 0.5 Miles

Figure 6: September 2009 PCE Plume



Legend

- OPOG Monitoring Well
- EPA Monitoring Well
- Former Omega Property
- Approximate Boundary of Facilities

Composite TCE Plume Extent

- 500 ug/L (Dashed where approximated)
- 100 ug/L (Dashed where approximated)
- 5 ug/L (Dashed where approximated)
- Water Level Contour Third Quarter 2009

N

0 0.25 0.5 Miles

Figure 7: September 2009 TCE Plume

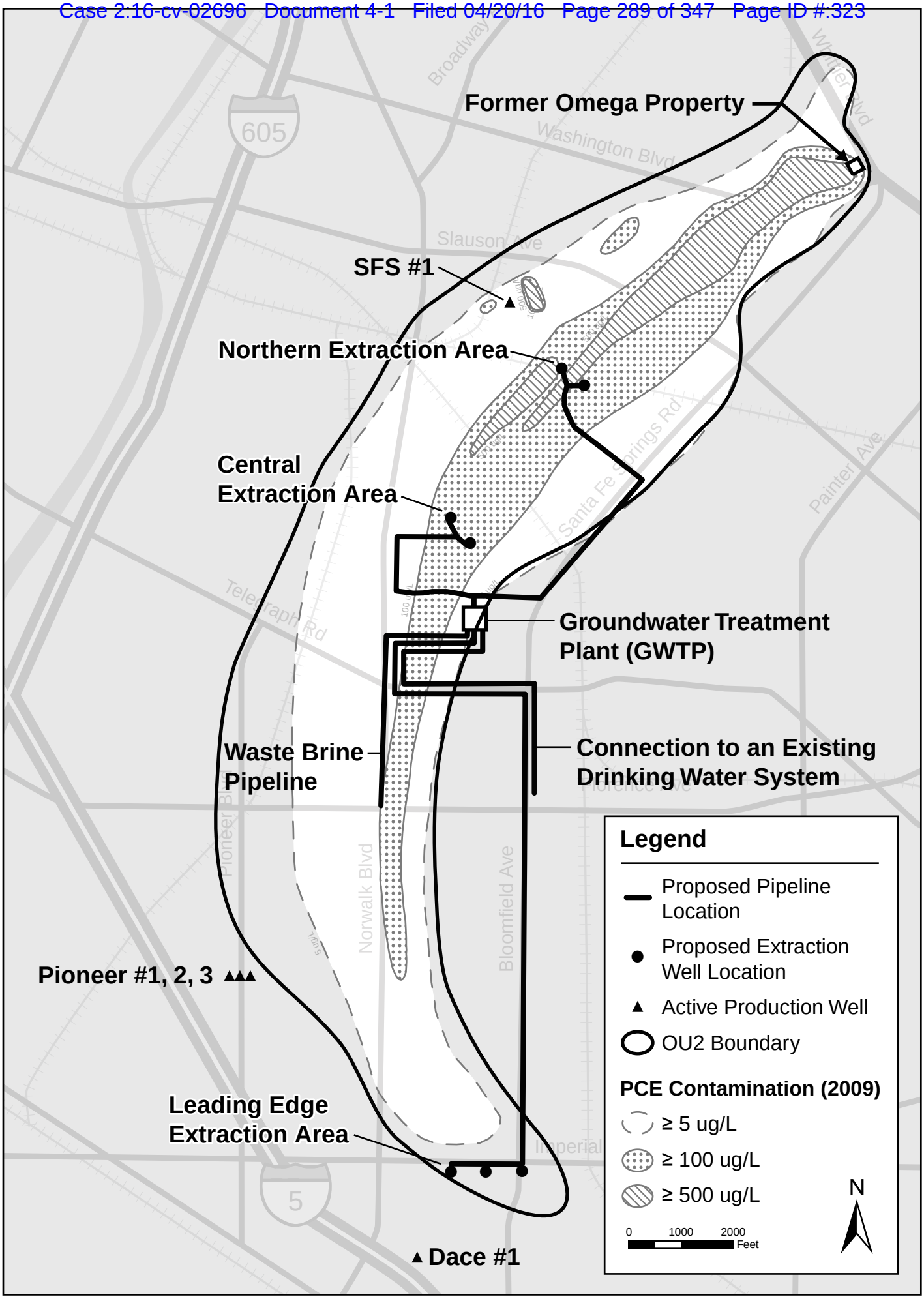


Figure 8: Schematic of Selected Remedy

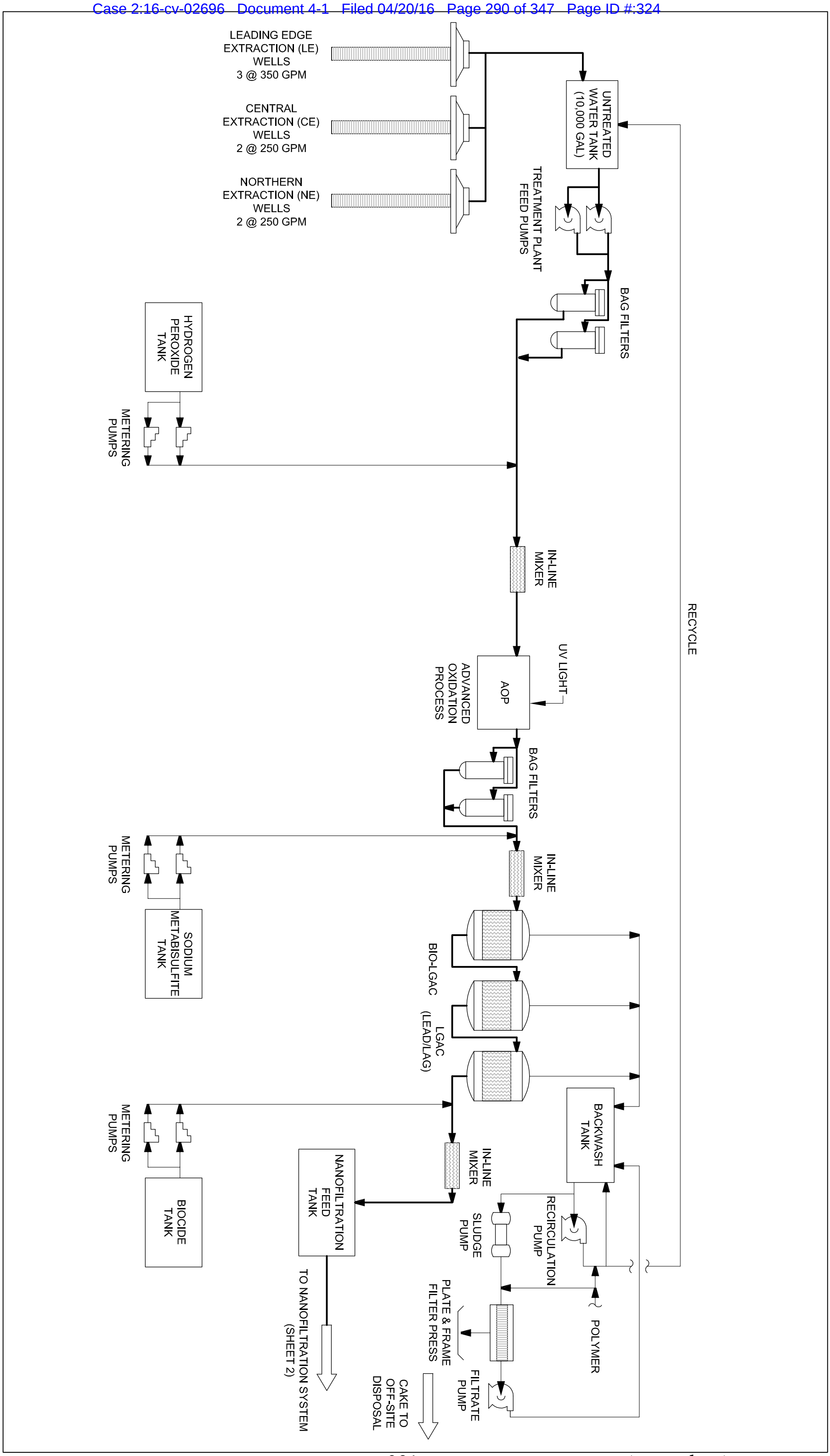


Figure 9: Process Flow Diagram of Selected Remedy (Sheet 1 of 2)

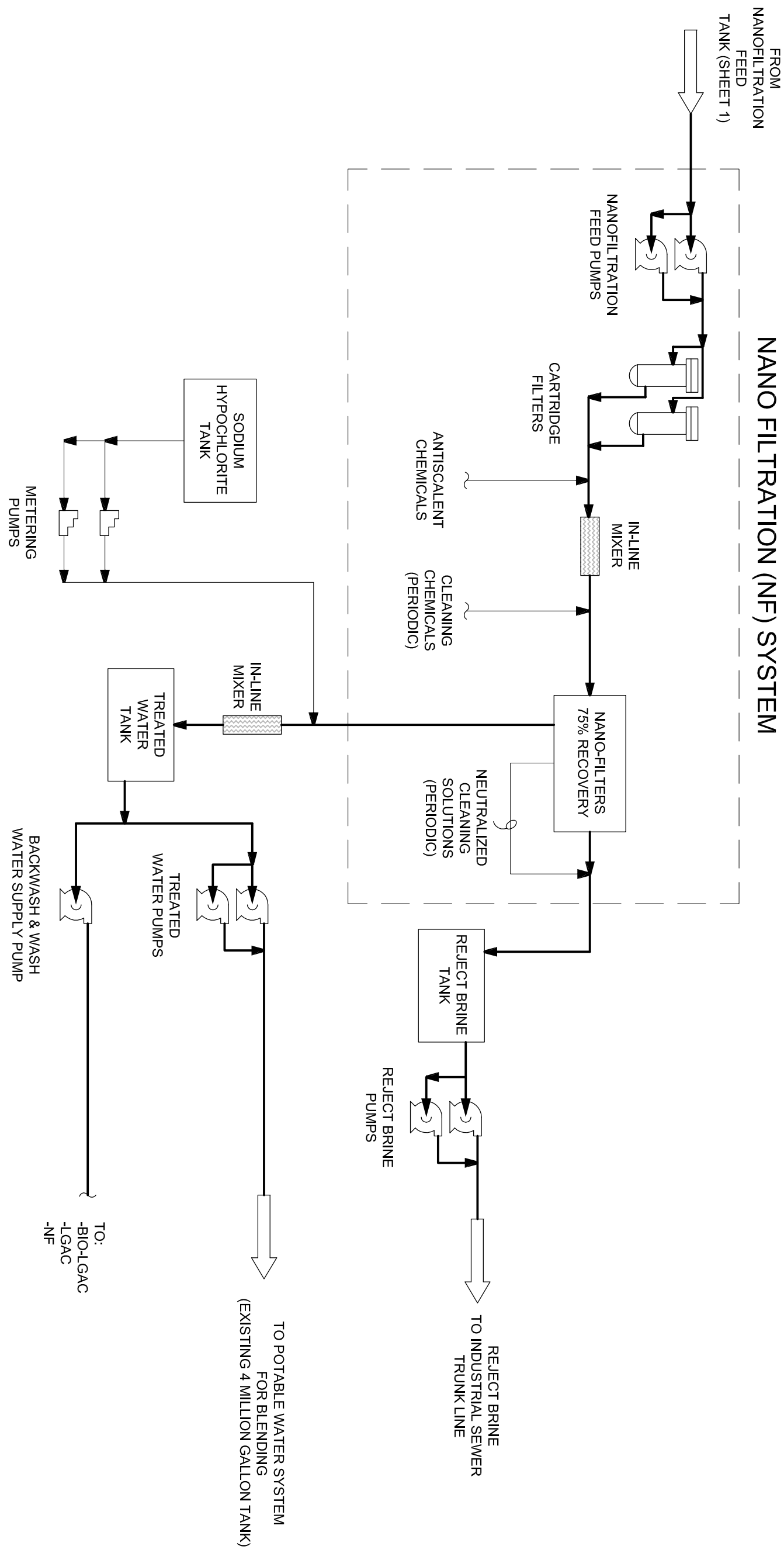


Figure 9: Process Flow Diagram of Selected Remedy (Sheet 2 of 2)

Appendix B

Statement of Work

REMEDIAL DESIGN/REMEDIAL ACTION

STATEMENT OF WORK

OPERABLE UNIT 02

Omega Chemical Corporation Superfund Site

Los Angeles County, State of California

EPA Region 9

December 8, 2015

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1. INTRODUCTION

1.1 **Purpose of the SOW**. This Statement of Work (SOW) sets forth the procedures and requirements for implementing the Work, as defined in the Consent Decree (CD) relating to the Omega Chemical Corporation Superfund Site (Site), Operable Unit 2 (OU2) between the United States, the California Department of Toxic Substances Control (DTSC) and several potentially responsible parties, including members of the Omega Chemical Site PRP Organized Group (OPOG), McKesson Corporation (McKesson), and others, as may be added from time to time, identified as Settling Defendants in such CD. Parties performing work pursuant to the CD and this SOW are referred to hereinafter as "Settling Work Defendants" or "SWDs." The SWDs are identified in the CD.

1.2 **Structure of the SOW**. Section 2 (Community Involvement) sets forth EPA's and SWDs' responsibilities for community involvement. Section 3 (Remedial Design) sets forth the process for developing the Remedial Design (RD), which includes the submission of specified primary deliverables. Section 4 (Remedial Action) sets forth requirements regarding the completion and operation and maintenance of the Remedial Action (RA), including primary deliverables related to completion of the RA. Section 5 (Leading Edge Investigation) sets forth SWDs' obligations regarding additional data collection and analysis in the Leading Edge (LE) Area. Section 6 (Reporting) sets forth SWDs' reporting obligations. Section 7 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding SWDs' submission of, and EPA's review of, approval of, comment on, and/or modification of, the deliverables. Section 8 (Schedules) sets forth the schedule for submitting the primary deliverables, specifies the supporting deliverables that must accompany each primary deliverable, and sets forth the schedule of milestones regarding the completion of the RD, RA, O&M, and LE Investigation (LEI). Section 9 (State Participation) addresses DTSC participation, and Section 10 (References) provides a list of references, including URLs.

1.3 **Scope of the Remedy.** The Scope of the Remedy for the purpose of this SOW and the CD includes the design, construction, and operation of one or more groundwater extraction and treatment systems to satisfy and maintain Performance Standards (defined in subparagraph (c) below) identified in the OU2 Interim Action Record of Decision, dated September 20, 2011 (ROD), applicable to the Northern Extraction (NE) Area, Central Extraction (CE) Area, and the northern portion of the LE Area as depicted in the ROD. (These areas are referenced in this SOW as the NE/CE Area.) The term Work Area is defined in the CD as the portions of OU2 that are the subject of Work under the CD and this SOW. The Scope of the Remedy is described further in the following paragraphs.

(a) The NE/CE Area is a portion of the area of the groundwater contamination defined by EPA as OU2 in its 2011 ROD. OU2 includes contaminated groundwater generally downgradient of OU1, commingled with chemicals released from properties near or within the OU2 boundary. The NE/CE Area is bounded by the OU2 boundary depicted in the ROD. Chemicals of concern (COCs) include but are not limited to tetrachloroethylene (PCE), trichloroethylene (TCE), 1,4-dioxane, and hexavalent chromium. OU1 includes the former Omega

Chemical facility and immediate vicinity. As reflected in the ROD, the area of contamination addressed by OU2 is more than 4 miles long and 1 mile wide. A Site map showing general locations of key SOW components (and locations depicted in ROD) is included as Appendix C to the CD.

(b) The ROD contemplates remedial extraction near the leading edge of the LE Area. That work is beyond the Scope of the Remedy described in this SOW and the CD as shown in Appendix C to the CD. Instead, the SOW and CD require specific additional investigation work in portions of the LE Area downgradient of the planned CE Area. EPA intends to use the results of the LEI, and other information (including information on the nature, extent, and movement of contamination in the LE Area and the status of the Golden State Water Company Pioneer Water Supply Wells), to determine whether to implement the remedy for the LE Area described in the ROD or propose a change in the remedy.

(c) The Performance Standards for the NE/CE Area are as follows:

(1) The RA shall provide sufficient hydraulic control laterally and vertically in the NE/CE Area to prevent spreading of the plume and the movement of groundwater contaminated with COCs exceeding EPA or State Maximum Contaminant Levels, or Notification Levels established by the California State Water Resources Control Board Division of Drinking Water, into less contaminated zones at OU2.

(2) Extracted water will meet permit requirements if permits are obtained and any ARARs or "To Be Considered" criteria that are appropriate for the selected water end use.

Additional performance standards shall also be developed during RD. They shall address: i) the level of hydraulic control to be achieved by the extraction of contaminated groundwater in the NE Area; ii) requirements related to air emissions, if any; and iii) other requirements specific to the end use of the treated groundwater.

(d) Compliance with the Performance Standards shall be verified by demonstrating lateral and vertical hydraulic control of the plume as described in ¶ 1.3(e). Although not a criterion for the Certification of RA Completion under ¶ 4.6, after the remedy has operated for a period of time, expected to last several years, compliance shall be determined by demonstrating continued hydraulic control and a decrease in COC concentrations in compliance wells over the long term recognizing that data must be interpreted to factor in potential and uncontrolled sources. The locations of the compliance wells shall be in accordance with ¶ 7.7(g) of this SOW (“Compliance Monitoring Plan”).

(e) To demonstrate hydraulic control, there must be evidence that the hydraulic capture zone created by the remedy encompasses the target zones of remediation in the NE/CE Area. The targeted zones will be within the OU2 boundary as

depicted in the ROD (and Appendix C to the CD) and will be more specifically identified during RD. The objectives are to: i) hydraulically contain COCs exceeding MCLs or notification levels within the NE/CE Area; and ii) intercept a significant amount of the higher concentration COC mass in the NE Area moving past Slauson Avenue, with a pumping rate no less than 300 gpm unless EPA approves a lower rate. Capture shall be estimated by particle tracking or other techniques acceptable to EPA, based on interpreted measured groundwater levels and a newly constructed groundwater flow model capable of particle tracking simulations or a similar approach. Hydraulic control shall be achieved as soon as possible after startup of the remedy and be maintained thereafter.

(f) Final groundwater extraction locations will be selected during remedial design. Extraction in the CE Area will be in the vicinity of Telegraph Road; extraction in the NE Area will be in the vicinity of Sorensen Ave.

(g) The current best estimate of the required pumping rate for the NE/CE Area is 1,100 gallons per minute (total). The design capacity of the extraction and treatment system will be the required pumping rate plus a safety factor. The required pumping rate and design capacity of the extraction and treatment system(s) may be modified during RD, if approved by EPA, after the completion of pre-design investigation work. The revised pumping rate may be greater or less than the best estimate cited above.

(h) The safety factor described above may be as low as 20% if the pre-design investigation work is satisfactorily completed to better estimate hydraulic conductivity in the NE/CE Area capture zone and refine the areas and depths targeted for hydraulic capture.

(i) Extraction wells in the NE/CE Area will perform in conjunction with one another to meet Performance Standards and variability in extraction rates between the two sets of extraction wells may be necessary to achieve capture in the target zones. Operating parameters will be optimized through the design and system startup and shakedown activities.

(j) In addition to groundwater extraction and treatment, the remedy requires the construction of water conveyance systems to transport extracted groundwater from the groundwater extraction wells to the water treatment plant(s) and from the treatment plant(s) to the end use location(s) of the treated water; installation of new groundwater monitoring wells and piezometers; monitoring of new and existing groundwater monitoring wells and piezometers; and the implementation of institutional controls (ICs) as defined in ¶ 7.7(h).

(k) Reinjection (shallow and/or deep), basin recharge, and reclamation will be evaluated during RD as potential end uses of the treated groundwater unless the parties mutually agree that it is no longer appropriate to evaluate one of the contemplated end uses after considering the cost-effectiveness and implementability of the end use. Drinking water may also be evaluated as a

potential end use, at the SWDs' discretion. As discussed in Section I.L of the Consent Decree, EPA has begun preparing an Explanation of Significant Differences to clarify that use of treated water for injection, recharge at existing spreading basins, reclamation, or a combination of these end uses are potential end uses for this interim remedy.

1.4 This remedial action is considered "interim"; EPA is not setting final "in situ" cleanup goals for the groundwater in the NE/CE Area at this time and neither this remedy nor the SOW require source control actions at contaminated sites or facilities within or adjacent to OU2 that are overseen by the Regional Water Quality Control Board or the Department of Toxic Substances Control. Nevertheless, the remedy is expected to begin the process of restoring contaminated groundwater in the NE/CE Area by removing contaminant mass from the groundwater.

1.5 The terms used in this SOW that are defined in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601, *et seq.*, in regulations promulgated under CERCLA, or in the CD to which this SOW is an attachment, have the meanings assigned to them in CERCLA, in such regulations, or in the CD, except that the term "Paragraph" or "¶" means a paragraph of the SOW, and the term "Section" means a section of the SOW, unless otherwise stated.

2. COMMUNITY INVOLVEMENT

2.1 Community Involvement Responsibilities

(a) EPA has the lead responsibility for developing and implementing community involvement activities associated with Work required by this SOW. Previously, during the RI/FS phase of OU2, EPA developed a Community Involvement Plan (CIP) for the Site. Pursuant to 40 C.F.R. § 300.435(c), EPA expects to review the existing CIP and determine whether it should be revised to describe further public involvement activities during the Work that are not already addressed or provided for in the existing CIP.

(b) If requested by EPA, SWDs shall support EPA's community involvement activities. This may include providing online access to initial submissions and updates of deliverables to Community Advisory Groups (CAGs) (if formed) and Technical Assistance Grant (TAG) recipients and their advisors (if a TAG is issued) and other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP SWDs' responsibilities for community involvement activities. All community involvement activities conducted by SWDs at EPA's request are subject to EPA's oversight.

(c) **SWDs' CI Coordinator**. If requested by EPA after CD entry, SWDs shall, within 15 days, designate and notify EPA of SWDs' Community Involvement Coordinator (SWDs' CI Coordinator). SWDs may hire a contractor for this purpose. SWDs' notice must include the name, title, and qualifications of the SWDs' CI Coordinator. If designated, SWDs' CI Coordinator must have

appropriate qualifications and experience and is responsible for providing support regarding EPA's community involvement activities, including coordinating with EPA's CI Coordinator regarding responses to the public's inquiries about Work required by this SOW.

3. REMEDIAL DESIGN

3.1 **RD Work Plan**. SWDs shall submit a Remedial Design Work Plan for the NE/CE Area (RD Work Plan) for EPA approval. The RD Work Plan must include:

(a) A brief description of the Site and Work Area within OU2, including the sources, nature, and extent of groundwater contamination; a description of the remedy; and geographic, hydrogeologic, cultural, and/or natural resource features relevant to the RD;

(b) Plans for implementing all RD activities identified in this SOW, in the RD Work Plan, or required by EPA to be conducted to develop the RD;

(c) A description of the overall management strategy for performing the RD;

(d) A description of the proposed general approach to contracting, construction, operation, maintenance, and monitoring of the RA as necessary to implement the Work, including a preliminary discussion of whether design and construction will be implemented utilizing a design/bid/build or design/build process (and design and construction submittals and approvals associated with each approach);

(e) A description of the responsibility and authority of all organizations and key personnel, including contractors, involved with the development of the RD;

(f) A description of any concerns about the quantity, quality, completeness, or usability of water quality or other data upon which the design will be based;

(g) Description of the planned pre-design investigation;

(h) Description of planned development and use of a groundwater model;

(i) Description of planned Work Area groundwater monitoring;

(j) Descriptions of the roles and responsibilities of water agencies, cities, or other third parties required for implementation of the remedy. Possible third-party roles include groundwater extraction well and treatment plant operation and acceptance of treated groundwater;

(k) Description of the technologies being considered for treatment of groundwater or other media, documentation that the technologies under consideration are capable of satisfying Performance Standards (defined in ¶ 1.3(c)), and a description of the need, if any, for pilot-scale or demonstration-scale treatability studies. Treatment may be required for disinfection, corrosion control, or other purposes, in addition

to removal of COCs, depending upon water end use. If a treatability study is required, the RD Work Plan (or a separate Treatability Study Work Plan) shall include a description of the technology to be tested, test objectives and procedures, planned measurements, data management and analysis procedures, health and safety requirements, residual waste management handling and disposal, and a schedule for completion of testing and preparation of a report that evaluates the performance and implementability of the technology;

(l) A description of the expected use(s), recipient(s), and delivery locations of the treated water;

(m) A description of the planned operation of the remedy including plans, if any, to operate the remedy at a seasonally-variable or non-constant rate;

(n) A preliminary description of the targeted zone of contamination, including a summary of geologic, water quality, or other data to be collected as part of the pre-design investigation to refine the targeted zone;

(o) Required effluent (treated water) quality for all COCs and other compounds requiring treatment;

(p) To the extent known when the RD Work Plan is submitted, plans for siting extraction wells, groundwater monitoring wells, treatment facilities, pipelines, and other components of the remedy;

(q) Descriptions of the planned use, condition, expected life, and the potential for increased maintenance or reduced lifespan (compared to new facilities) of any existing facilities (e.g., groundwater extraction wells, water treatment systems, water conveyance systems);

(r) Descriptions of permitting and other regulatory requirements, and plans for compliance with substantive requirements for portions of the Work for which permits are not obtained;

(s) Description of plans for obtaining access in connection with the Work, such as property acquisition, property leases, and/or easements;

(t) Description of plans for complying with restrictions on groundwater extraction and other relevant requirements included in the judgment "Central and West Basin Water Replenishment District, etc., vs. Charles E. Adams, et al.," Los Angeles Superior Court Case No. 786656;

(u) All supporting deliverables required to accompany the RD Work Plan as specified in the RD Schedule set forth in ¶ 1.1 (RD Schedule). These include a Work Area Monitoring Plan (WAMP) and Pre-Design Investigation Work Plan (PDIWP) (which include a Health and Safety Plan (HASP), Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP)); and

(v) Provisions for complying with reporting requirements in this SOW, including periodic reporting and submittal of analytical data.

3.2 SWDs shall meet with EPA to discuss NE/CE Area design issues as necessary, as directed or determined by EPA.

3.3 **Pre-Design Investigation**. The purpose of the NE/CE Area Pre-Design Investigation (PDI) is to address data gaps by conducting additional field investigations.

(a) **PDI Work Plan**. SWDs shall submit a PDI Work Plan (PDIWP) for EPA approval. The PDIWP must include:

(1) An evaluation and summary of existing data relevant to items (i) – (iii) below, and description of sampling and analysis activities needed to:

(i) Define the areas and depths targeted for hydraulic control in the NE and CE Areas;

(ii) Estimate hydraulic conductivity in the NE/CE Area capture zone;

(iii) Select groundwater extraction rates and locations for design of the remedy; and

(iv) Address any concerns about the quantity, quality, completeness, or usability of water quality or other data upon which the design will be based;

(2) Plans for the installation of groundwater monitoring wells, the measurement of water levels from new and existing wells, the collection and periodic analysis of samples from new and existing groundwater wells, and aquifer testing in the NE/CE Area capture zone;

(3) Preparation and submittal of a FSP and QAPP, or references or addendums to approved plans; and

(4) Provisions for the preparation of a PDI Evaluation Report.

(b) Following the PDI, SWDs shall submit a PDI Evaluation Report for EPA approval. This report must include:

(1) A summary of the investigations performed;

(2) A summary of investigation results, including a summary of validated data (i.e., tables and graphics), the results of data analyses, and a narrative interpretation of data and results;

(3) Data validation reports and laboratory data reports; and

(4) Conclusions and recommendations relevant to the RD.

(c) EPA may require SWDs to supplement the PDI Evaluation Report and/or to perform additional pre-design studies in the NE/CE Area.

3.4 Groundwater Flow Modeling. The purpose of Groundwater Flow Modeling is to provide information to support the design of the NE/CE Area remedy and to aid in evaluating the performance of the remedy.

(a) **Groundwater Flow Modeling Work Plan**. SWDs shall submit a Groundwater Flow Modeling Work Plan for EPA approval. The Plan must provide for:

(1) The development, calibration, and use of a numeric groundwater flow model to support the selection of the following aspects of the remedy: minimum groundwater extraction rates; extraction well and treatment system flow capacities; and groundwater extraction, monitoring, and compliance well locations. The model shall be calibrated over an appropriate range of hydrogeologic conditions and have the capability to simulate transient conditions in three dimensions and conduct particle tracking simulations to evaluate hydraulic control. The modeling effort should consider the procedures outlined in EPA's guidance document "*A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems*, EPA/600/R-08/003, January 2008."

(2) Submittals documenting the development and calibration of the model and presenting the results of predictive simulations.

(b) **Groundwater Flow Modeling Report.** As required by the approved Groundwater Flow Modeling Work Plan**,** SWDs shall submit a Groundwater Flow Modeling Development and Calibration Report, and a Groundwater Flow Model Predictive Report presenting results of predictive simulations for EPA approval.

3.5 Work Area Monitoring Plan. The purpose of the Work Area Monitoring Plan (WAMP) is to provide current information on the extent and movement of contaminated groundwater to support the remedial design, and baseline information to be used in future evaluations of NE/CE Area remedy performance.

(a) SWDs shall submit a WAMP for EPA approval. The WAMP must include:

(1) Provisions for monitoring groundwater elevations and groundwater quality annually until the NE/CE Area Remedial Action is operational. For the purpose of this provision, "operational" means that construction and startup activities have been completed;

(2) Provisions for more frequent monitoring of groundwater elevations if needed to support development and calibration of a NE/CE Area groundwater flow model;

(3) Monitoring of wells and piezometers installed by EPA or SWDs as part of OU2 Work and of the "Koontz" and "Hawkins" monitoring wells installed by the Water Replenishment District of Southern California in 2014;

(4) Preparation and submittal of a FSP and QAPP, or references or addendums to approved plans; and

(5) Provisions for preparation and submittal of a report summarizing each annual sampling event. The scope and contents of each report/deliverable shall be detailed in the appropriate Sampling and Analysis Plans.

(b) Samples may be collected and analyzed by SWDs or other qualified parties if requirements in the WAMP and associated FSP and QAPP are satisfied.

(c) EPA will consider recommendations to substitute non-EPA wells for certain existing EPA wells.

(d) This paragraph does not require SWDs to perform monitoring of wells installed as part of investigations directed or overseen by the Regional Water Quality Control Board or the Department of Toxic Substances Control.

(e) Following each annual sampling event, SWDs shall submit a Work Area Monitoring Report for EPA approval. This report must include:

(1) A summary of the monitoring performed;

(2) A summary of monitoring results, including a narrative interpretation of data and results, a tabular summary of validated results, time-series graphs, and maps depicting interpreted water levels and the interpreted extent of contamination. The reports shall also incorporate any relevant extant groundwater data that are being collected by SWDs for non-OU2 work, as well as other publicly or readily available groundwater data generated by third parties for wells that are in or near the OU2 area. EPA will assist SWDs in obtaining third party data, if needed.

(3) Data validation reports and laboratory data reports.

(f) As required by ¶ 7.7(g) of this SOW SWDs will prepare and implement a NE/CE Area Compliance Monitoring Plan. That Plan must discuss appropriate monitoring scope and frequency necessary to allow the ongoing performance assessment of the NE/CE Area remedy. Once EPA approves this plan, SWDs will submit NE/CE Area Monitoring Reports in accordance with the Plan.

3.6 Treatability Study. If required by the approved RD Work Plan, SWDs shall submit a Treatability Study Work Plan (TSWP) for EPA approval, perform a Treatability Study (TS) in accordance with the approved TSWP, and submit a TS Evaluation Report for EPA approval. If required, the TSWP shall be prepared in accordance with EPA's *Guide*

for Conducting Treatability Studies under CERCLA, Final (Oct. 1992), as supplemented for RD by the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995).

3.7 **Preliminary (30%) RD**. SWDs shall submit a Preliminary (30%) RD for EPA's comment and approval. The Preliminary RD must present and justify the concepts, preliminary assumptions, design criteria, Performance Standards (as defined in ¶ 1.3(c)), other requirements, and preliminary interpretations and calculations used in the design, including (but not limited to) the following:

(a) Any updates to information provided in the RD Work Plan;

(b) Projected treatment plant influent quality over the design life of the water treatment systems, with a description of the methodology used to develop the estimate;

(c) A description of the expected waste streams, including approximate rates or volumes to be generated (e.g., spent carbon, spent resin, backwash water);

(d) A general description of the planned system control strategy and level of operator oversight;

(e) Preliminary drawings and specifications;

(f) A description of how the RA will be implemented in a manner to minimize energy use, water use, and waste generation, and otherwise minimize the environmental footprint of the RA without delaying or compromising its effectiveness, in accordance with EPA's *Principles for Greener Cleanups* (Aug. 2009);

(g) A description of monitoring and control measures to protect human health and the environment, such as air monitoring and dust suppression, during the RA;

(h) The planned contracting strategy. Specifically, SWDs shall indicate in the Preliminary RD if they are interested in pursuing a conventional design/bid/build strategy or the design/build approach to design and construction. The conventional design/bid/build approach is one in which the design is taken to the 100 percent completion level to allow contractor bidding of the construction work. The design/build approach is one in which the design is developed to about the 60 percent completion level followed by subsequent field engineering during construction. If SWDs propose the design/build approach, the Preliminary RD will include a list of the components to be included in the Intermediate Design for EPA's review. EPA will make a final decision on whether to approve the SWD proposed design/bid/build or design/build strategy at the time it approves the Preliminary Remedial Design;

(i) Any proposed revisions to the RA Schedule that is set forth in ¶ 1.1 (RA and O&M Schedule); and

Any supporting deliverables required to accompany the Preliminary RD as specified in the RD Schedule and updates, if needed, to the supporting deliverables required to accompany the RD Work Plan.

3.8 **Intermediate (60%) RD**: If SWDs propose and EPA approves a design/build approach at the end of the Preliminary RD, SWDs shall conduct the Intermediate Design activities in accordance with the RD Work Plan and Preliminary RD. The Intermediate Design begins with the completion of the Preliminary Design and ends with the completion of approximately 60 percent of the design effort. Supporting deliverables that would, in a design/bid/construct approach, be submitted as part of the Pre-final RD would be submitted with the Intermediate Design. They include an Operation and Maintenance (O&M) Plan, Compliance Monitoring Plan (CMP), Construction Quality Assurance (CQA) Plan, Emergency Response Plan (ERP), and an Institutional Controls Implementation and Assurance Plan (ICIAP). SWDs shall also update, if needed, the supporting deliverables required to accompany the RD Work Plan or Preliminary RD. The submittal shall also include a memorandum indicating how comments on the Preliminary RD were incorporated into the Intermediate RD. After EPA approves the Intermediate (60%) RD, if required, SWDs will provide detailed reports on the status of design activities in the progress reports required by ¶ 6.1 of the SOW. All significant changes to the design and significant design decisions will be highlighted and require EPA review and approval prior to implementation. SWDs will submit to EPA inspection reports, interim as-built drawings, and other information as it becomes available to ensure that EPA is aware of all significant design changes and decisions. SWDs will provide additional design information and arrange progress meetings with EPA and/or its construction oversight contractor as requested by EPA.

3.9 **Pre-final (95%) RD.** SWDs shall submit the Pre-final (95%) RD for EPA's comment if a conventional design/bid/build strategy is used. The Pre-final RD must be a continuation and expansion of the previous design submittal and address EPA's comments regarding the Preliminary RD. The Pre-final RD will serve as the approved Final (100%) RD if EPA approves the Pre-final RD without comments.

Alternatively, if a design/build contracting strategy is used, a revised 60% submittal will be submitted which fully addresses EPA comments on the Preliminary and Intermediate Design submittals in lieu of the requirements in this paragraph.

The Pre-final RD, if required, must include:

(a) A complete set of construction drawings and specifications that: (1) are certified by a professional engineer registered in the State of California; (2) are suitable for procurement; and (3) follow the Construction Specifications Institute's MasterFormat 2012;

(b) Survey and engineering drawings showing existing features within the Work Area, such as elements, property borders, easements, and subsurface utilities;

(c) Pre-final versions of the same elements and deliverables as are required for the Preliminary RD;

(d) A memorandum indicating how comments on the Preliminary RD were incorporated into the Pre-final RD;

(e) A capital and O&M cost estimate;

(f) A specification for photographic documentation of the RA; and

(g) Supporting deliverables as specified in the RD Schedule (Operation and Maintenance (O&M) Plan; Compliance Monitoring Plan (CMP), a Construction Quality Assurance (CQA) Plan, Emergency Response Plan (ERP), and an Institutional Controls Implementation and Assurance Plan (ICIAP)). SWDs shall also update, if needed, the supporting deliverables required to accompany the RD Work Plan or Preliminary RD.

3.10 **Final (100%) RD**. If a Pre-final RD submittal is required, unless EPA approves the Pre-final RD without comments, SWDs shall submit the Final (100%) RD for EPA approval. If submitted, the Final RD must address EPA's comments on the Pre-final RD and include final versions of all pre-final RD deliverables and a memorandum indicating how EPA comments on the Pre-final RD were addressed in the Final RD.

4. REMEDIAL ACTION

4.1 **RA Work Plan**. SWDs shall submit a RA Work Plan for the NE/CE Area (RA Work Plan) for EPA approval that describes or includes:

(a) Updates to the roles and responsibilities of key organizations and personnel, schedule, contracting strategy, and planned submittals to EPA during RA;

(b) Any outstanding issues regarding access, permitting, water rights, third-party agreements, or substantive requirements for activities within the Work Area;

(c) An updated health and safety plan that covers activities during the RA; and

(d) O&M and compliance monitoring provisions required by ¶7.7 (f) or ¶7.7(g) relevant to startup of the remedy.

Changes to the RA as set forth in the RA Work Plan and approved RD shall not be undertaken without the prior approval of EPA.

4.2 **Independent Quality Assurance Team**.

[Not Used.]

4.3 Meetings and Inspections

(a) **Preconstruction Conference**. SWDs shall hold a preconstruction conference with EPA and others as directed or approved by EPA and as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995). SWDs shall prepare minutes of the conference and shall distribute the minutes to EPA and the DTSC.

(b) **Inspections**

(1) EPA or its representative expect to conduct periodic inspections of, or have an on-site presence during, the Work. At EPA's request, the Supervising Contractor or other designee shall accompany EPA or its representative during inspections.

(2) Upon notification by EPA of any deficiencies in the RA Construction, SWDs shall take all necessary steps to correct the deficiencies and/or bring the RA Construction into compliance with the approved RD, any approved design changes, and/or the approved RA Work Plan. If applicable, SWDs shall comply with any reasonable schedule provided by EPA in its notice of deficiency.

4.4 Emergency Response and Reporting

(a) **Emergency Response and Reporting**. If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material (as defined in the CD) on, at, or from the Work Area and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, SWDs shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) immediately notify the authorized EPA officer (as specified in ¶ 4.4(c)) orally; and (3) take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plan, the Emergency Response Plan, and any other deliverable approved by EPA under the SOW.

(b) **Release Reporting**. Upon the occurrence of any event during performance of the Work that SWDs are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. § 11004, SWDs shall immediately notify the authorized EPA officer orally.

(c) The "authorized EPA officer" for purposes of immediate oral notifications and consultations under ¶ 4.4(a) and ¶ 4.4(b) is the EPA Project Coordinator, the EPA Alternate Project Coordinator (if the EPA Project Coordinator is unavailable), or the EPA Emergency Response Program, Region 9 (if neither EPA Project Coordinator is available). The identity of the EPA Project Coordinator and the EPA Alternate Project Coordinator are provided in the CD.

(d) For any event covered by ¶ 4.4(a) and ¶ 4.4(b), SWDs shall: (1) within 14 days after the onset of such event, submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 30 days after the conclusion of such event, submit a report to EPA describing all actions taken in response to such event.

(e) The reporting requirements under ¶ 4.4 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

4.5 Waste Material Shipments

(a) SWDs may ship hazardous substances, pollutants, and contaminants from the Work Area to an area outside the Work Area only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. SWDs will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if SWDs obtain a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b).

(b) SWDs may ship Waste Material from the Work Area to an out-of-state waste management facility only if, prior to any shipment, they provide notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement will not apply to any shipments leaving the Work Area when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. SWDs also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. SWDs shall provide the notice after the award of the contract for RA Construction and before the Waste Material is shipped.

(c) SWDs may ship Investigation Derived Waste (IDW) from the Work Area to an area outside the Work Area only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, *EPA's Guide to Management of Investigation Derived Waste*, OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the ROD. Wastes shipped outside of the Work Area to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped outside of the Work Area for treatability studies, are not subject to 40 C.F.R. § 300.440.

4.6 Certification of RA Completion

(a) **RA Completion Inspection**. The RA is "Complete" for purposes of this ¶ 4.6 after construction and startup are complete, the remedy is functioning as designed, and the Performance Standards have been achieved. SWDs shall schedule an

inspection for the purpose of obtaining EPA's Certification of RA Completion. The inspection must be attended by SWDs and EPA and/or their representatives.

(b) **RA Report**. Following the inspection, SWDs shall submit a RA Report to EPA requesting EPA's Certification of RA Completion. The report must: (1) include certifications by a registered professional engineer and by SWD's Project Coordinator that the RA is complete; (2) include as-built drawings signed and stamped by a registered professional engineer; (3) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA's *Close Out Procedures for NPL Sites* guidance (May 2011); (4) contain monitoring data to demonstrate that Performance Standards have been achieved; and (5) be certified in accordance with ¶ 7.5 (Certification).

(c) If EPA concludes that the RA is not Complete, EPA shall so notify SWDs. EPA's notice must include a description of any deficiencies. EPA's notice may include a schedule for addressing such deficiencies or may require SWDs to submit a schedule for EPA approval. SWDs shall perform all activities described in the notice in accordance with the schedule.

(d) If EPA concludes, based on the initial or any subsequent RA Report requesting Certification of RA Completion, that the RA is Complete, EPA shall so certify to SWDs. This certification will constitute the Certification of RA Completion for purposes of the CD, including Section XVI of the CD (Covenants by Plaintiff[s]). Certification of RA Completion will not affect SWDs' remaining obligations under the CD.

4.7 Certification of Work Completion

(a) **Work Completion Inspection**. SWDs shall schedule an inspection for the purpose of obtaining EPA's Certification of Work Completion. The inspection must be attended by SWDs and EPA and/or their representatives.

(b) **Work Completion Report**. Following the inspection, SWDs shall submit a report to EPA requesting EPA's Certification of Work Completion. The report must: (1) include information to demonstrate that the Work is complete; (2) include certifications by a registered professional engineer and by SWDs' Project Coordinator that the Work, including all O&M activities, is complete; and (3) be certified in accordance with ¶ 7.5 (Certification).

(c) If EPA concludes that the Work is not complete, EPA shall so notify SWDs. EPA's notice must include a description of the activities that SWDs must perform to complete the Work. EPA's notice must include specifications and a schedule for such activities or must require SWDs to submit specifications and a schedule for EPA approval. SWDs shall perform all activities described in the notice or in the EPA-approved specifications and schedule.

(d) If EPA concludes, based on the initial or any subsequent report requesting Certification of Work Completion, that the Work is complete, EPA shall so certify

in writing to SWDs. Issuance of the Certification of Work Completion does not affect the following continuing obligations: (1) activities under the Periodic Review Support Plan; (2) obligations under Sections VIII (Access), XX (Retention of Records), and XIX (Access to Information) of the CD; (3) Institutional Controls obligations as provided in the ICIAP; and (4) reimbursement of EPA's Future Response Costs under Section XI (Payments for Response Costs and DTSC Response Costs) of the CD.

5. LEADING EDGE INVESTIGATION

5.1 Leading Edge Investigation. The purpose of the Leading Edge Investigation (LEI) is to conduct additional field investigations in the LE Area.

(a) SWDs shall submit a Leading Edge Investigation Work Plan (LEI Work Plan) for EPA approval. The LEI Work Plan must include:

(1) Plans for the installation and sampling of well clusters at three locations downgradient of the Continental Heat Treating property located at 10643 Norwalk Blvd. in Santa Fe Springs, CA.

(i) Each well cluster will include multiple wells installed in the approximate locations depicted in Appendix C to the CD.

(ii) It is estimated that up to five wells will be required in each cluster and the deepest well in each cluster will be up to 500 feet deep.

(iii) The number and depth of wells in each cluster, and final locations, must be approved by EPA.

(iv) The wells installed as part of the LEI shall be sampled quarterly for three quarters after installation and incorporated into the Work Area Monitoring Plan (WAMP).

(2) Preparation and submittal of an FSP and QAPP, or addendums to approved plans.

(b) Following the LEI, SWDs shall submit a LEI Evaluation Report for EPA approval. This report must include:

(1) A summary of the investigations performed;

(2) A summary of investigation results, including a summary of validated data (i.e., tables and graphics), the results of data analyses, and a narrative interpretation of data and results;

(3) Data validation reports and laboratory data reports; and

(4) Conclusions and recommendations.

6. REPORTING

6.1 **Progress Reports**. Commencing with the month following entry of the CD and until EPA approves the RA Completion, SWDs shall submit progress reports to EPA on a monthly basis. After a minimum of one year of monthly reporting, SWDs may request, and EPA will consider, a reduction in the reporting frequency. The reports shall summarize activities that took place during the prior reporting period, including:

(a) The actions that have been taken toward achieving compliance with the CD;

(b) A summary of results of sampling, tests, and other data received or generated by SWDs and references to respective deliverables providing the associated information to EPA;

(c) A description of all deliverables that SWDs submitted to EPA;

(d) A description of all activities relating to RA that are scheduled for the next eight weeks;

(e) A description of any delays encountered or anticipated that may affect the future schedule for implementation of the Work, a description of efforts made to mitigate those delays or anticipated delays, and, once RA Construction begins, percentage completion;

(f) A description of any modifications to the work plans or other schedules that SWDs have proposed or that have been approved by EPA;

(g) A description of activities undertaken in support of the Community Involvement Plan (CIP) during the reporting period and those to be undertaken in the next six weeks;

(h) A summary of efforts to reach agreement with Golden State Water Company (GSWC) to shut down its three existing Pioneer water supply wells and replace those wells with a single deep well, and implement an agreement if reached. SWDs shall, upon request, submit plans or reports related to replacement of the existing Pioneer wells.

After completion of the RA, SWDs will continue to provide periodic reports to EPA in accordance with the approved O&M Plan and CMP.

6.2 **Notice of Progress Report Schedule Changes**. If the schedule for any future activities described in the Progress Reports changes, SWDs shall notify EPA of such change at least 7 days before performance of the activity when known, or when discovered if within 7 days of performance of the respective activity.

6.3 Annual Performance Evaluation Reports. After EPA issues a Certificate of Completion of the Remedial Action, SWDs shall submit annual performance evaluation reports to EPA for approval that provide and evaluate information generated during the preceding calendar year by implementation of the O&M Plan and CMP. The reports shall include or provide:

(a) An Executive Summary;

(b) An Introduction, including a brief Site background;

(c) A conceptual site model and any refinements made to the conceptual site model since the previous annual report;

(d) The status of the remedial action;

(e) A summary of groundwater monitoring activities completed since preparation of the previous annual report (e.g., monitoring well installation, groundwater level and potentiometric measurements, water quality analyses, aquifer testing);

(f) Groundwater monitoring and analytical results generated since preparation of the previous annual report, including validated data; potentiometric maps; hydrographs of groundwater elevations for key wells; isoconcentration contours and posted concentrations for key contaminants in plan view and cross section; concentration-time series for key contaminants for key wells; analysis of spatial and temporal trends (including statistical analysis where appropriate); and description of any significant changes in the nature and extent of contamination. Separate analyses and separate figures should be prepared for each hydrostratigraphic unit if conditions vary significantly between units;

(g) Areas and depths depicting groundwater targeted for hydraulic capture, and the results of capture zone analyses;

(h) A summary of the operation and performance of the treatment facility(ies), including days operational/ non-operational, treatment volumes and/or rates, untreated and treated water quality, contaminant mass removed, achievement of Performance Standards and compliance with permit requirements, significant operational problems, and disposal of treatment residuals (e.g., spent carbon and resin);

(i) Evaluation of institutional controls (e.g., description of institutional controls planned or in place, efforts completed to implement and/or evaluate the effectiveness of institutional controls);

(j) Any recommendations for RA optimization or improvements for consideration by EPA (e.g., proposed changes in routine monitoring, recommended or planned remedy improvements); and

(k) Laboratory analytical reports provided in an appendix.

EPA may require modifications to the report content over the life of the remedy.

7. DELIVERABLES

7.1 **Applicability**. SWDs shall submit deliverables for EPA approval or for EPA comment as specified in the SOW. If neither is specified, the deliverable does not require EPA's approval or comment. Paragraphs 7.2 (In Writing) through 7.4 (Technical Specifications) apply to all deliverables. Paragraph 7.5 (Certification) applies to any deliverable that is required to be certified. Paragraph 7.6 (Approval of Deliverables) applies to any deliverable that is required to be submitted for EPA approval.

7.2 **In Writing**. All deliverables under this SOW must be in writing unless otherwise specified.

7.3 **General Requirements for Deliverables**, All deliverables must be submitted by the deadlines in the RD Schedule, RA Schedule, or LEI Work Schedule, as applicable. SWDs shall submit all deliverables to EPA in electronic form. SWDs shall also, upon request, provide EPA and/or DTSC with paper copies of any deliverable.

7.4 **Technical Specifications**

(a) Sampling and monitoring data should be submitted in Electronic Data Deliverable (EDD) format acceptable to EPA. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.

(b) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at https://edg.epa.gov/EME/.

(c) Each file must include an attribute name for each site unit or sub-unit submitted. Consult http://www.epa.gov/geospatial/policies.html for any further available guidance on attribute identification and naming.

(d) Spatial data submitted by SWDs does not, and is not intended to, define the boundaries of the Site.

7.5 **Certification**. All deliverables that require compliance with this ¶ 7.5 must be signed by the SWDs' Project Coordinator, or other responsible official of SWDs, and must contain the following statement:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7.6 **Approval of Deliverables**

(a) **Initial Submissions**

(1) After review of any deliverable that is required to be submitted for EPA approval under the CD or the SOW, EPA shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.

(2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

(b) **Resubmissions**. Upon receipt of a notice of disapproval under ¶ 7.6(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under ¶ 7.6(a), SWDs shall, within 14 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (1) approve, in whole or in part, the resubmission; (2) approve the resubmission upon specified conditions; (3) modify the resubmission; (4) disapprove, in whole or in part, the resubmission, requiring SWDs to correct the deficiencies; or (5) any combination of the foregoing.

(c) **Implementation**. Upon approval, approval upon conditions, or modification by EPA under ¶ 7.6(a) (Initial Submissions) or ¶ 7.6(b) (Resubmissions), of any deliverable, or any portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and enforceable under the CD; and (2) SWDs shall take any

action required by such deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable submitted or resubmitted under ¶ 7.6(a) or ¶ 7.6(b) does not relieve SWDs of any liability for stipulated penalties under Section XV (Stipulated Penalties) of the CD.

7.7 **Supporting Deliverables**. SWDs shall submit each of the following supporting deliverables for EPA approval, except as specifically provided. The deliverables must be submitted, for the first time, by the deadlines in the RD Schedule, RA Schedule, or LEI Work Schedule, or any other EPA-approved schedule, as applicable. SWDs shall develop the deliverables in accordance with all applicable regulations, guidances, and policies (see Section 10 (References)). SWDs shall update each of these supporting deliverables as necessary or appropriate during the course of the Work, and/or as requested by EPA.

(a) **Health and Safety Plan**. The Health and Safety Plan (HASP) describes all activities to be performed to protect on site personnel and area residents from physical, chemical, and all other hazards posed by the Work. SWDs shall develop the HASP in accordance with EPA's Emergency Responder Health and Safety and Occupational Safety and Health Administration (OSHA) requirements under 29 C.F.R. §§ 1910 and 1926. The HASP should cover RD and LEI activities and should be, as appropriate, updated to cover activities during the RA and updated to cover activities after RA completion. EPA does not approve the HASP, but will review it to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment.

(b) **Emergency Response Plan**. The Emergency Response Plan (ERP) must describe procedures to be used in the event of an accident or emergency that occurs as part of the performance of the Work (e.g., release of contaminated water, contaminated treatment media, or treatment chemicals to the environment.). The ERP must include:

(1) Name of the person or entity responsible for responding in the event of an emergency incident;

(2) Plan and date(s) for meeting(s) with the local community, including local, State, and federal agencies involved in the cleanup, as well as local emergency squads and hospitals;

(3) Notification activities in accordance with ¶ 4.4(b) (Release Reporting) in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of EPCRA, 42 U.S.C. § 11004; and

(4) A description of all necessary actions to ensure compliance with Paragraph 12 (Emergencies and Releases) of the CD in the event of an occurrence during the performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency or

may present an immediate threat to public health or welfare or the environment.

(c) **Field Sampling Plan**. One or more Field Sampling Plans (FSPs) shall be required to complete the PDI, conduct O&M, and conduct compliance monitoring. A FSP addresses sample collection activities and is supplemented by a QAPP. A FSP must be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. SWDs shall develop a FSP in accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988).

(d) **Quality Assurance Project Plan**. One or more Quality Assurance Project Plans (QAPPs) shall be required. A QAPP addresses sample analysis and data handling regarding the Work. A QAPP must include a detailed explanation of SWDs' quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance, and monitoring samples. SWDs shall develop one or more QAPPs in accordance with *EPA Requirements for Quality Assurance Project Plans*, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006); *Guidance for Quality Assurance Project Plans*., QA/G-5, EPA/240/R 02/009 (Dec. 2002); and *Uniform Federal Policy for Quality Assurance Project Plans*, Parts 1-3, EPA/505/B-04/900A though 900C (Mar. 2005). The QAPP(s) also must include procedures:

(1) To ensure that EPA and its authorized representatives have reasonable access to laboratories used by SWDs in implementing the CD (SWDs' Labs);

(2) To ensure that SWDs' Labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;

(3) To ensure that SWDs' Labs perform all analyses using EPA-accepted methods (i.e., the methods documented in *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis*, ILM05.4 (Dec. 2006); *USEPA Contract Laboratory Program Statement of Work for Organic Analysis*, SOM01.2 (amended Apr. 2007); and *USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration)*, ISM01.2 (Jan. 2010)) or other methods acceptable to EPA;

(4) To ensure that SWDs' Labs participate in an EPA-accepted QA/QC program or other program QA/QC acceptable to EPA;

(5) For SWDs to provide EPA with notice at least 14 days prior to any sample collection activity;

(6) For SWDs to provide split samples and/or duplicate samples to EPA upon request;

(7) For EPA to take any additional samples that it deems necessary;

(8) For EPA to provide to SWDs, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling; and

(9) For SWDs to submit to EPA and DTSC all sampling and tests results and other data in connection with the implementation of the CD.

(e) **Construction Quality Assurance/Quality Control Plan (CQA/QCP)**. The purpose of the Construction Quality Assurance Plan (CQAP) is to describe planned and systemic activities that provide confidence that the RA Construction will satisfy all plans, specifications, and related requirements, including quality objectives. The purpose of the Construction Quality Control Plan (CQCP) is to describe the activities to verify that RA Construction has satisfied all plans, specifications, and related requirements, including quality objectives. The CQA/QCP must be reviewed and approved by EPA prior to the initiation of the RA and include the following:

(1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQA/QCP, including qualifications and lines of authority;

(2) Describe the Performance Standards (PS) required to be met to achieve Completion of the RA;

(3) Describe the activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;

(4) Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQA/QCP;

(5) Describe industry standards and technical specifications used in implementing the CQA/QCP;

(6) Describe procedures for tracking construction deficiencies from identification through corrective action;

(7) Describe procedures for documenting all CQA/QCP activities; and

(8) Describe procedures for retention of documents and for final storage of documents.

(f) **O&M Plan**. The O&M Plan describes requirements for inspecting, operating, and maintaining the RA after achievement of Performance Standards. SWDs shall develop the O&M Plan in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001). The O&M Plan and CMP should complement each other, with the O&M Plan focused on extraction well and treatment plant operation and maintenance and the CMP

focused on requirements related to hydraulic control and treatment plant effluent quality. SWDs shall provide a draft O&M Plan during the design process, and subsequently update the plan to incorporate any manufacturer or vendor information and any design modifications implemented during the construction or startup phases of the RA. The O&M Plan must be reviewed and approved by EPA prior to initiation of O&M activities and include the following:

(1) A description of material and maintenance needs, and anticipated equipment replacement for significant components;

(2) Criteria to determine when activated carbon and resin replacement are needed, if applicable;

(3) A summary of O&M staffing, training and certification requirements;

(4) A description of routine data collection and analysis activities to be conducted during O&M, including:

(i) Flow rates and volume of groundwater extracted from each extraction well;

(ii) Water quality at remedy extraction wells and within the treatment system(s) to monitor operation and determine the need for activated carbon and resin replacement, if applicable;

(iii) Water quality measurements from new and existing monitoring wells and/or piezometers within the capture zones of the NE/CE Area extraction wells to provide early warning of conditions that may require changes in remedy operation. The O&M Plan shall identify the existing (or new) multi-level monitoring wells (or well clusters) located within the predicted capture zones. The early warning monitoring shall include the collection of samples from multiple depths in the contaminated portion of the aquifer;

(5) Description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, maintenance records, and monitoring reports;

(6) A description of planned routine reporting to EPA and DTSC;

(7) A description of the plans for the disposal of materials used and wastes generated during O&M (e.g., spent treatment media, wastewater);

(8) Provisions for submittal of a FSP, QAPP, and HASP, or addendums to approved plans, to address data collection and analysis related to O&M;

(9) Provisions for notification to EPA and DTSC at least 72 hours in advance of any planned shutdowns lasting more than 72 hours; and

(10) Description of planned corrective actions in case of systems failure, including: (i) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve the Performance Standards; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements.

(g) **Compliance Monitoring Plan**. The CMP describes data collection and analysis activities needed to demonstrate that the Work satisfies requirements related to hydraulic control and complies with treatment plant effluent requirements. It shall complement the O&M Plan and be supplemented by the Periodic Review Support Plan. The CMP shall be implemented after EPA approval. It shall be amended, with EPA approval, as necessary over the life of the remedy and include or accomplish the following:

(1) Identify requirements related to hydraulic control and treatment plant performance, including "performance criteria" described in this SOW and the Performance Criteria subsection of Section 2.12.2 in the ROD as appropriate when applied to the NE/CE Area and the water end use selected in the RD, minimum groundwater extraction rates established during design, and treatment plant effluent requirements;

(2) Describe the types of data to be collected, sampling and data gathering methods, monitoring locations, and sampling and measurement frequencies. The data shall include the following at a minimum:

(i) The measurement of hydraulic head at two or more nested wells or piezometer clusters installed adjacent to each extraction well. The wells shall be placed and constructed to allow measurements at multiple locations and depth intervals to help evaluate whether the groundwater extraction system is achieving the required hydraulic control. Water level measurements at the performance monitoring points coupled with groundwater flow modeling will be the primary means of evaluating the extent of capture associated with the NE/CE Area extraction well fields. Performance monitoring points shall be sufficient in number and adequately located to verify that groundwater moving from the area of contaminated groundwater targeted for hydraulic control is intercepted by the remedy extraction wells. Initial monitoring frequency for hydraulic head shall be high enough to assess temporal variability, and the cause of the variability, and may be reduced over time with EPA approval.

(ii) Water quality measurements at one or more depths in multiple groundwater compliance wells downgradient of the NE/CE Area

capture zone. Analytical data will be collected from the monitoring wells before startup to establish baseline conditions and during operation. Wells monitored to establish baseline conditions may or may not serve as compliance wells. The assessment and identification of locations where groundwater quality data that are not impacted by sources outside the NE/CE Area capture zone will be conducted. One of the monitoring objectives will be to collect groundwater quality data able to screen out sources from outside the target zone that impact groundwater quality down-gradient of the CE Area extraction well field. The compliance wells shall be new multi-level monitoring wells (or well clusters). Compliance well screens shall be designed to minimize the dilution of groundwater samples and be sufficient in number and adequately located to verify that groundwater moving from the area of contaminated groundwater targeted for hydraulic control is intercepted by the remedy extraction wells. Each multi-level compliance well or well cluster shall allow the collection of samples from aquifer zones corresponding to the contaminated portion of the aquifer.

(iii) Water quality monitoring of treated water to verify compliance with Performance Standards and other requirements

(iv) Air emission monitoring to verify that air emissions, if any, comply with Performance Standards.

(3) Describe how monitoring and performance data shall be analyzed, interpreted, and reported to determine compliance, measure progress, and provide early warning of conditions that may require changes in remedy operation. Evaluations of compliance with hydraulic control requirements shall use multiple lines of evidence, including (but not limited to) groundwater flow gradients computed from water levels, groundwater flow model simulations, and groundwater analytical results. Claims of change, difference, or trend in water quality shall include the use of appropriate statistical concepts and tests.

(4) Provisions for periodic reporting, initially monthly, of compliance information to EPA and the DTSC. The reports will include a summary of remedy performance and compliance status in the reporting period, along with tabularized operational and performance data, including (but not limited to) system operating times, extraction rates, and noteworthy highlights and problems (and how they were resolved);

(5) Provisions for submittal of a FSP, QAPP, and HASP, or addendums to approved plans;

(6) Procedures for notification to EPA and the DTSC after SWDs' receipt of information indicating noncompliance or potential noncompliance with Performance Standards. Notification shall occur within one working day of receipt of information indicating noncompliance or potential noncompliance.

(h) **Institutional Controls Implementation and Assurance Plan**. The Institutional Controls Implementation and Assurance Plan (ICIAP) describes plans to implement, maintain, and enforce the Institutional Controls (ICs) at the Site related to the Work. SWDs shall develop the ICIAP in accordance with *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012), and *Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites*, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012). Specific provisions required by the ROD (Section 2.12.2) are:

(1) Annual notifications to all water rights holders in the Central Basin to explain the goals of the remedy, the status of the remedy's implementation, the nature and extent of OU2 groundwater contamination and the most recent available groundwater data, and discuss any related State or local restrictions and prohibitions on well-drilling and groundwater use without necessary approvals and permits;

(2) Periodic meetings with EPA, State and local agencies with jurisdiction over well drilling and groundwater use within the Central Basin to exchange information on the planned or current operation of production wells within OU2 or its vicinity;

(3) An annual review of available documentation maintained by the State and local entities to determine if water supply wells have been installed or a purveyor or other water rights holder had increased groundwater production or production capacity within OU2 or its vicinity;

(4) Provisions, to the extent feasible, for contemporaneous notification from State and local agencies with jurisdiction over well drilling and groundwater use within the Central Basin.

The ICIAP should specify SWD roles and responsibilities, which should include drafting and submitting to EPA a notice containing the information described in 7.7(h)(1) relevant to the Work Area; participation, if requested, in meetings described in 7.7(h)(2); the annual review described in 7.7(h)(3); and efforts to assist State and local agencies in implementing the provisions described in 7.7(h)(4).

(i) **Periodic Review Support Plan**. The Periodic Review Support Plan addresses the studies and investigations that SWDs shall conduct to support EPA's reviews of

(j) whether the RA is protective of human health and the environment in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c) (also known as "Five-year Reviews"). SWD shall develop the plan in accordance with *Comprehensive Five-year Review Guidance*, OSWER 9355.7-03B-P (June 2001), and any other relevant five-year review guidances.

The Periodic Review Support Plan shall identify information that SWDs will submit to EPA before each Five-year Review in time to allow its use or consideration. EPA typically begins a Five-year Review nine to 12 months before its completion date. The Plan may specify that the information will be provided as part of an Annual Performance Evaluation Report, or separately.

8. SCHEDULES

8.1 Applicability and Revisions. All deliverables and tasks required under this SOW must be submitted or completed by the deadlines or within the time durations listed in the RD, RA, and LEI Work Schedules set forth below. SWDs may submit proposed revised schedules for EPA approval. Upon EPA's approval, the revised schedules supersede the RD, RA, and LEI Work Schedules set forth below, and any previously-approved schedules.

8.2 RD Schedule

	Primary Deliverable	Supporting Deliverables (due at same time as primary deliverable)	¶ Ref.	Deadline
1	Remedial Design Work Plan (RD Work Plan)	Work Area Monitoring Plan (WAMP) and Pre-Design Work Plan (PDIWP) (which include a HASP, FSP, and QAPP)	3.1	60 days after the Effective Date and EPA's Authorization to Proceed regarding SWD Project Coordinator under CD Paragraph 10.c
2	Treatability Study Work Plan & Treatability Study Evaluation Report (if required by RD Work Plan)		3.6	As (and if) required by approved RD Work Plan
3	PDI Report		3.3	As specified in approved PDI WP
4	Groundwater Flow Modeling Work Plan		3.4	As specified in approved RD Work Plan
5	Groundwater Flow Model Development and Calibration Report		3.4	As specified in approved Groundwater Flow Modeling Plan
6	Groundwater Flow Model Predictive Simulations Report		3.4	60 days after EPA approval of Groundwater Development and Calibration Report
7	Work Area Monitoring Report		3.5	60 days after receipt of final laboratory reports from Work Area samples
8	Preliminary (30%) RD		3.7	90 days after EPA approval of Groundwater Modeling Predictive Simulations Report
9	Intermediate (60%) RD	CQA/QCP, O&M Plan, CMP, ICIAP, ERP	3.8	90 days after EPA approval of the Preliminary Design if SWDs select and EPA approves a design/build approach
10	Pre-final (95%) RD	CQA/QCP, O&M Plan, CMP, ICIAP, ERP	3.9	90 days after EPA comments on Preliminary RD if SWDs select and EPA approves a design/bid/build approach
11	Final (100%) RD	Same as above	3.10	60 days after EPA comments on Pre-final RD if SWDs select and EPA approves a design/bid/build approach
12	Submittal of Analytical Data, whether or not validated		3.3, 3.5, 3.6, 5.1, 7.7(f), 7.7(g), 7.7(i)	45 calendar days after sample shipment to the laboratory or 14 days after receipt of analytical results from the laboratory, whichever occurs first
13	Progress Reports		6.1	As specified in approved RD Work Plan

8.3 RA and O&M Schedule

	Description of Deliverable / Task	¶ Ref.	Deadline
1	RA Work Plan	4.1	60 days after EPA Approval of the Final RD
2	Award RA contract	3.1, 4.1	60 days after EPA Approval of the Final RD
3	Pre-Construction Conference	4.3(a)	15 days after award of RA contact
4	Start of Construction	3.1, 4.1	30 days after award of RA contact
5	Completion of Construction and Start-Up activities	4.6	As specified in approved RA Work Plan
6	Pre-final Inspection	4.6	60 days after completion of construction and start up
7	Pre-final Inspection Report	4.6	45 days after completion of Pre-final Inspection
8	Final Inspection	4.6	45 days after Completion of Work identified in Pre-final Inspection Report
9	RA Report	4.6	45 days after Final Inspection
10	Work Completion Report	4.7	60 days after completion of Work
11	Annual Performance Evaluation Report	6.3	March 30 of each year after the completion of RA
12	Periodic Review Support Plan	7.7(i)	At the same time as the first Annual Performance Evaluation Report

8.4 Leading Edge Investigation Work Schedule

	Description of Deliverable, Task	Supporting Deliverables (due at same time as primary deliverable)	¶ Ref.	Deadline
1	Leading Edge Investigation Work Plan	FSP and QAPP, or addendums to approved plans	5.1	60 days after Effective Date and EPA's Authorization to Proceed regarding SWD Project Coordinator under CD Paragraph 10.c
2	Leading Edge Investigation Report		5.1	As specified in approved LEI Work Plan

9. DTSC PARTICIPATION

9.1 **Copies**. SWDs shall, at any time they send a deliverable to EPA, send a copy of such deliverable to the DTSC unless copies to DTSC are not required under the CD. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to SWDs, send a copy of such document to the DTSC.

9.2 **Review and Comment**. The DTSC will have a reasonable opportunity for review and comment prior to:

(a) Any EPA approval or disapproval under ¶ 7.6 (Approval of Deliverables) of any deliverables that are required to be submitted for EPA approval; and

(b) Any disapproval of, or Certification of RA Completion under ¶ 4.6 (Certification of RA Completion), and any disapproval of, or Certification of Work Completion under ¶ 4.7 (Certification of Work Completion).

EPA will coordinate in advance with DTSC to clarify EPA/DTSC lead roles and minimize duplication to the maximum extent practicable.

10. REFERENCES

10.1 The following regulations and guidance documents, among others, apply to the Work. Any item for which a specific URL is not provided below should be available on one of the two EPA Web pages listed in ¶ 10.2:

(a) A Compendium of Superfund Field Operations Methods, OSWER 9355.0-14, EPA/540/P-87/001a (Aug. 1987).

(b) CERCLA Compliance with Other Laws Manual, Part I: Interim Final, OSWER 9234.1-01, EPA/540/G-89/006 (Aug. 1988).

(c) Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER 9355.3-01, EPA/540/G-89/004 (Oct. 1988).

(d) CERCLA Compliance with Other Laws Manual, Part II, OSWER 9234.1-02, EPA/540/G-89/009 (Aug. 1989).

(e) Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, OSWER 9355.5-01, EPA/540/G-90/001 (Apr.1990).

(f) Guidance on Expediting Remedial Design and Remedial Actions, OSWER 9355.5-02, EPA/540/G-90/006 (Aug. 1990).

(g) Guide to Management of Investigation-Derived Wastes, OSWER 9345.3-03FS (Jan. 1992).

(h) Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, OSWER 9355.7-03 (Feb. 1992).

(i) Guidance for Conducting Treatability Studies under CERCLA, OSWER 9380.3-10, EPA/540/R-92/071A (Nov. 1992).

(j) National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, 40 C.F.R. Part 300 (Oct. 1994).

(k) Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (Mar. 1995).

(l) Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA/540/R-95/059 (June 1995).

(m) EPA Guidance for Data Quality Assessment, Practical Methods for Data Analysis, QA/G-9, EPA/600/R-96/084 (July 2000).

(n) Operation and Maintenance in the Superfund Program, OSWER 9200.1-37FS, EPA/540/F-01/004 (May 2001).

(o) Comprehensive Five-year Review Guidance, OSWER 9355.7-03B-P, 540-R-01-007 (June 2001).

(p) Guidance for Quality Assurance Project Plans, QA/G-5, EPA/240/R-02/009 (Dec. 2002).

(q) Institutional Controls: Third Party Beneficiary Rights in Proprietary Controls (Apr. 2004).

(r) Quality management systems for environmental information and technology programs -- Requirements with guidance for use, ANSI/ASQ E4-2004 (American Society for Quality. 2004).

(s) Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3, EPA/505/B-04/900A though 900C (Mar. 2005).

(t) Superfund Community Involvement Handbook, EPA/540/K-05/003 (Apr. 2005).

(u) EPA Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, EPA/240/B-06/001 (Feb. 2006).

(v) EPA Requirements for Quality Assurance Project Plans, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006).

(w) EPA Requirements for Quality Management Plans, QA/R-2, EPA/240/B-01/002 (Mar. 2001, reissued May 2006).

(x) USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4 (Dec. 2006).

(y) USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2 (amended Apr. 2007).

(z) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2008), available at http://www.epa.gov/geospatial/policies.html and http://www.epa.gov/geospatial/docs/National_Geospatial_Data_Policy.pdf.

(aa) Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration, OSWER 9283.1-33 (June 2009).

(bb) Principles for Greener Cleanups (Aug. 2009), available at http://www.epa.gov/oswer/greenercleanups/.

(cc) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).

(dd) Close Out Procedures for National Priorities List Sites, OSWER 9320.2-22 (May 2011).

(ee) Groundwater Road Map: Recommended Process for Restoring Contaminated Groundwater at Superfund Sites, OSWER 9283.1-34 (July 2011).

(ff) Recommended Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance," OSWER 9355.7-18 (Sep. 2011).

(gg) Construction Specifications Institute's MasterFormat 2012, available from the Construction Specifications Institute, www.csinet.org/masterformat.

(hh) Updated Superfund Response and Settlement Approach for Sites Using the Superfund Alternative Approach , OSWER 9200.2-125 (Sep. 2012)

(ii) Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012).

(jj) Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012).

(kk) EPA's Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), http://www.epaosc.org/_HealthSafetyManual/manual-index.htm

(ll) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).

(mm) Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions, OSWER 9355.0-129 (Nov. 2013).

(nn) Groundwater Remedy Completion Strategy: Moving Forward with the End in Mind, OSWER 9200.2-144 (May 2014).

10.2 A more complete list may be found on the following EPA Web pages:

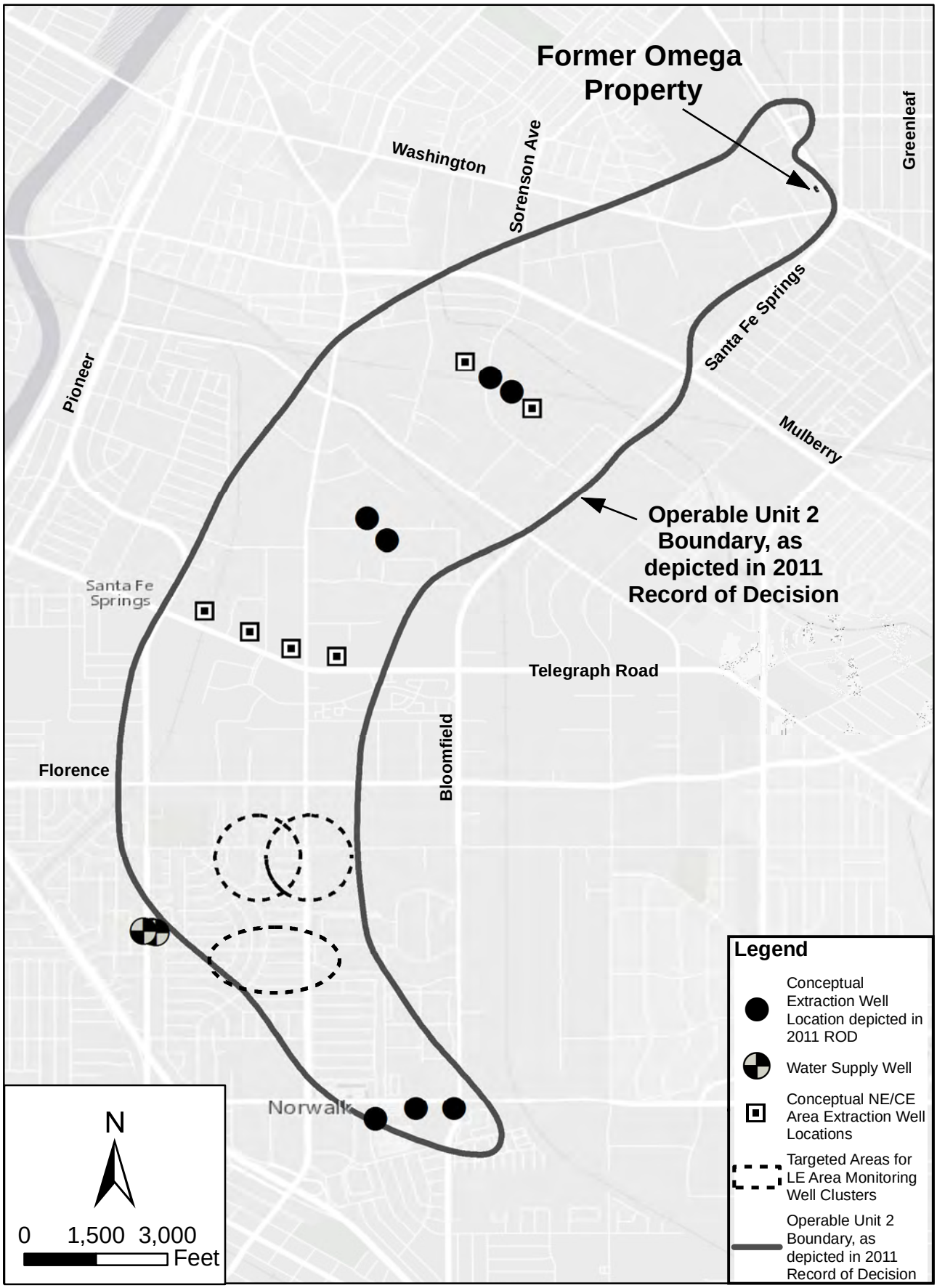
Laws, Policy, and Guidance http://www.epa.gov/superfund/policy/index.htm

Test Methods Collections http://www.epa.gov/fem/methcollectns.htm

10.3 For any regulation or guidance referenced in the CD or SOW, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after SWDs receive notification from EPA of the modification, amendment, or replacement.

Appendix C

Map of Omega Site



Appendix C: Map of Site with Locations of Key Work Components Notated and Compared with ROD Locations

Appendix D

List of Settling Cash Defendants

Appendix D

Settling Cash Defendants

No.	Entity Name	Associated Facility (See Footnote for Code)
1	Abex Aerospace	1
2	ABM CMS, INC. (fka Commair Mechanical Services)	1
3	Air Conditioning Company, Inc.	1
4	Air Products and Chemicals, Inc.	1
5	Aircraft Cylinder & Turbine, Inc.	1
6	Allen Foam Corporation	1
7	Allen L Bender, Inc.	1
8	Anzon Company	1
9	Appropriate Technologies II, Inc.	1
10	Armor All Products Corporation	1
11	Arrowhead Brass Products, Inc.	1
12	Avery Dennison Corporation	1
13	BC Laboratories, Inc.	1
14	Bell Industries, Inc.	1
15	Betterbilt Chemicals	1
16	Bonanza Aluminum Corp.	1
17	Bourns, Inc.	1
18	Bowen Printing, Inc.	1
19	Broadway Stores, Inc.	1
20	Building Materials Corporation of America / GAF	1
21	Burke Street LLC	2
22	Cabot Ceramics, Inc.	1
23	CAL-AIR, INC.	1
24	California Department of Corrections and Rehabilitation	1
25	California Mart	1
26	Calsonic North America, Inc.	1
27	Canon Business Machines, Inc.	1
28	CAState, Metropolitan State Hospital	1
29	Catholic Healthcare West	1
30	Centre Properties Ltd.	1
31	Ceradyne, Inc.	1
32	Chemical Waste Management, Inc.	1
33	Cherokee International	1
34	City of Carlsbad	1
35	City of Costa Mesa	1
36	City of Irvine	1
37	City of Los Angeles, Department of Airports	1
38	City of Santa Barbara	1
39	City of Santa Maria	1
40	CoastCast Corporation	1
41	College of The Desert	1
42	County of San Bernardino	1
43	Covidien	1
44	Datatronics Romoland, Inc.	1

Appendix D

Settling Cash Defendants

No.	Entity Name	Associated Facility (See Footnote for Code)
45	Del Mar Avionics	1
46	Deutsch Engineered Connecting Devices, Inc.	1
47	Dole Dried Fruit and Nut Company	1
48	Domestic Linen Supply Company, Inc.	1
49	Eastman Kodak Company	1
50	Eaton Corporation	1
51	El Paso Energy International Company	1
52	Elan Pharmaceuticals, Inc.	1
53	Federal-Mogul Corporation	1
54	Fort Kent Holdings, Inc.	1
55	Fresno Unified School District	1
56	Gaiser Tool Co.	1
57	Gambro, Inc.	1
58	General Electric Company	1
59	George Industries	1
60	Giumarra Vineyards Corporation	1
61	Golden West Refining Company	1
62	Great Western Chemical Company	1
63	Greenbridge Technology, Inc.	1
64	GSF Energy LLC	1
65	Hartwell Corporation	1
66	Henkel Corporation	1
67	Hilton Hotels Corporation	1
68	HLM Labeling Incorporated	1
69	Hubbell Inc. and Marvin Electric Mfg. Co., Inc.	1
70	Huntington Park Rubber Stamp Co.	1
71	I Coat Company	1
72	IMO Industries, Inc.	1
73	Indalex Inc., d/b/a Columbia Pacific Aluminum	1
74	Integrated Microelectronics, Inc. for AVX Corp.	1
75	International Rectifier Corporation	1
76	ITT Corporation	1
77	Ivy Hill Corporation	1
78	Jan-Kens Enameling Company	1
79	Johanson Dielectrics, Inc.	1
80	K C Photo Engraving Company	1
81	Kester Solder Division, Litton Systems, Inc.	1
82	Key Mechanical Service Company	1
83	Kolmar Laboratories, Inc.	1
84	L.A. Supply Company, dba Label House	1
85	La Mirada Products Co., Inc.	1
86	Lansdale Semiconductor, Inc.	1
87	Lear Siegler Diversified Holding Corp.	1
88	Leucadia, Inc.	1

Appendix D

Settling Cash Defendants

No.	Entity Name	Associated Facility (See Footnote for Code)
89	LeVan Specialty Company, Inc.	1
90	Lockheed Martin Librascope Corp.	1
91	Loma Linda University	1
92	Los Angeles Unified School District	1
93	Madison Industries	1
94	Martek Power Abbott, Inc.	1
95	Maxon Industries, Inc.	1
96	Maxwell Technologies, Inc.	1
97	McGraw-Edison Company	1
98	Medeva Pharmaceuticals CA, Inc.	1
99	Melles Griot, Inc.	1
100	Mico, Inc.	1
101	Minnesota Mining and Manufacturing (3M) Riker	1
102	Montgomery Tank Lines, Inc.	1
103	MTI Engineering Corporation (Mituloyo American Corporation)	1
104	NCR Corporation	1
105	New Hampshire Ball Bearings, Inc.	1
106	Northrop Grumman Space & Mission Systems Corp.	1
107	Northrop Grumman Systems Corporation	1
108	Novacap, Inc.	1
109	Ojai Manufacturing Technology, Inc.	1
110	Omni Metal Finishing, Inc.	1
111	Pacesetters Systems Inc./Siemens Corporation	1
112	Pacific Gas and Electric Company	1
113	Petro Lock, Inc.	1
114	Pharmavite LLC	1
115	Pioneer Video Manufacturing Inc.	1
116	PolyOne Corporation	1
117	Putzmeister Corporation	1
118	Quad Chemical Corporation	1
119	Quaker Chemical Corporation	1
120	Quality Fabrication, Inc.	1
121	Rathon Corp. (f/k/a Diversey)	1
122	Reed & Graham, Inc.	1
123	Remet Corporation	1
124	Resinart Corporation	1
125	Ricoh Printing Systems America, Inc.	1
126	Robinson Helicopter Company, Incorporated	1
127	Rockwell Collins Optronics, Inc.	1
128	Rogers Corporation	1
129	Sears, Roebuck and Co.	1
130	Shamrock Scientific Specialty Systems, Inc.	1
131	Shell Oil Company	1
132	Siemens Building Technologies, Inc. (fka MCC Powers)	1

Appendix D

Settling Cash Defendants

No.	Entity Name	Associated Facility (See Footnote for Code)
133	Sierracin Corporation	1
134	Southern California Edison Company	1
135	Stadler Family Limited Partnership	2
136	Structural Composites Industries, Inc.	1
137	Superior Controls Co., Inc.	1
138	Supracote, Inc.	1
139	Symmetricom, Inc.	1
140	TDY Industries, Inc.	1
141	Teledyne Technologies	1
142	Tension Envelope Corporation	1
143	Teradyne Inc	1
144	Textron Inc.	1
145	The A&T Group, Inc.	1
146	The City of Whittier, California	1
147	The Fairchild Corporation	1
148	The Hertz Corporation	1
149	The May Department Stores Company	1
150	Timemed Labeling Systems, Inc.	1
151	Titan Corporation	1
152	Todd Pacific Shipyards Corporation	1
153	Tribune Company	1
154	Tubing Seal Cap, Inc. Pacific Precision Metals, Inc.	1
155	Tyco Electronics	1
156	Tyoo International	1
157	United Parcel Service, Inc.	1
158	University of Southern California (USC)	1
159	Valeant Pharmaceuticals International	1
160	Valley Motor Center, Inc.	1
161	Ventura Townehouse, Inc.	1
162	Vertex Microwave Products, Inc.	1
163	VIASYS Healthcare, Inc.	1
164	W & B Marketing, Inc.	1
165	Warner-Lambert Company	1
166	Western Metal Decorating Co.	1
167	Western Tube & Conduit Corporation	1
168	Westmont College	1
169	Xard Corp.	1
170	Yellow Transportation, Inc.	1
171	York International Corporation	1

Facility Code

1	The Former Omega Chemical Recycling Facility located at 12512 and 12504 Whittier Blvd, Whittier, California 90603

Appendix D

Settling Cash Defendants

No.	Entity Name	Associated Facility (See Footnote for Code)
2	Site A, a portion of the former Chrysler Nu-Car Prep property as referenced in the August 2010 Operable Unit 2 Remedial Investigation Report Volume 1 (page 5-18), located at 12128 Burke Street, Santa Fe Springs, California. Site A is approximately 4.6 acres and consists of two parcels: APN 8168-002-418 and APN 8168-002-407.	

Appendix E

List of Settling Work Defendants

Appendix E

Settling Work Defendants

No.	Entity Name	Associated Facility (See Footnote for Code)
1	Alcoa Inc.	1
2	Alpha Therapeutic Corporation	1
3	Applied Micro Circuits Corporation	1
4	Arlon Products Inc.	1
5	Astro Aluminum Treating Co. Inc.	1
6	Atlantic Richfield Company	1
7	BASF Corporation	1
8	Baxter Healthcare Corporation	1
9	Boeing Satellite Systems, Inc.	1
10	BP Amoco Chemical Company	1
11	C.T.L. Printing Industries, Inc.	1
12	California Hydroforming Company, Inc.	1
13	Cintas Corporation (successor to Unitog Company)	1
14	Columbia Showcase & Cabinet Company, Incorporated	1
15	County of Los Angeles	1
16	Crosby & Overton, Inc.	1
17	Disney Enterprises Inc.	1
18	FHL Group	1
19	Forenco, Inc.	1
20	General Dynamics Corporation	1
21	GulfStream Aerospace Corporation	1
22	Hercules Incorporated	1
23	Hexcel Corporation	1
24	Hitachi Home Electronics (America), Inc.	1
25	Honeywell International Inc.	1
26	Howmet Aluminum Casting, Inc.	1
27	International Paper Company	1
28	Johns Manville Celite Corporation	1
29	Kimberly Clark Worldwide Inc., Fullerton Mill	1
30	Kinder Morgan Liquids Terminals LLC	1
31	LA County MTA (So. California RTD)	1
32	Luxfer USA Limited by British Alcan Aluminum plc	1
33	Masco Corporation of Indiana	1
34	Mattel, Inc.	1
35	McDonnell Douglas Helicopter Company	1
36	McKesson Corporation	2
37	Metropolitan Water District of Southern California	1
38	NBCUniversal Media, LLC	1
39	Pacific Bell Telephone Company	1
40	Pfizer Inc.	1
41	Pilkinton PLC	1

Appendix E

Settling Work Defendants

No.	Entity Name	Associated Facility (See Footnote for Code)
42	Quest Diagnostics Clinical Laboratories, Inc.	1
43	Raytheon Company	1
44	Robison Prezioso Inc.	1
45	Safety-Kleen Systems, Inc.	1
46	Schering Corporation	1
47	Scripto-Tokai Corporation	1
48	Sempra Energy Solutions	1
49	Signet Armorlite, Inc.	1
50	Soco West, Inc. as successor to Holchem, Inc.	1
51	Sonoco Products Company	1
52	Sparton Technology, Inc.	1
53	State of California DOT	1
54	Texaco	1
55	Texas Instruments Incorporated	1
56	Trane U.S. Inc.	1
57	The Boeing Company	1
58	The Dow Chemical Company	1
59	The Regents of the University of California	1
60	The Sherwin-Williams Company	1
61	TriMas Corporation	1
62	Union Oil Company of California	1
63	Univar Corporation Univar USA Inc.	1
64	Universal City Studios LLC	1
65	Weber Aircraft Corporation	1
66	Yort, Inc.	1

Facility Code

1	Former Omega Chemical Recycling Facility located at 12512 and 12504 Whittier Blvd, Whittier, California 90602
2	The property located at 9005 Sorensen Avenue, Santa Fe Springs, California 90670, and any facilities thereon

Appendix F

List of Parties that Collectively Comprise OPOG

Appendix F

OPOG Members

No.	Entity Name
1	Alcoa Inc.
2	Alpha Therapeutic Corporation
3	Applied Micro Circuits Corporation
4	Arlon Products Inc.
5	Astro Aluminum Treating Co. Inc.
6	Atlantic Richfield Company
7	BASF Corporation
8	Baxter Healthcare Corporation
9	Boeing Satellite Systems, Inc.
10	BP Amoco Chemical Company
11	C.T.L. Printing Industries, Inc.
12	California Hydroforming Company, Inc.
13	Cintas Corporation (successor to Unitog Company)
14	Columbia Showcase & Cabinet Company, Incorporated
15	County of Los Angeles
16	Crosby & Overton, Inc.
17	Disney Enterprises Inc.
18	FHL Group
19	Forenco, Inc.
20	General Dynamics Corporation
21	GulfStream Aerospace Corporation
22	Hercules Incorporated
23	Hexcel Corporation
24	Hitachi Home Electronics (America), Inc.
25	Honeywell International Inc.
26	Howmet Aluminum Casting, Inc.
27	International Paper Company
28	Johns Manville Celite Corporation
29	Kimberly Clark Worldwide Inc., Fullerton Mill
30	Kinder Morgan Liquids Terminals LLC
31	LA County MTA (So. California RTD)
32	Luxfer USA Limited by British Alcan Aluminum plc
33	Masco Corporation of Indiana
34	Mattel, Inc.
35	McDonnell Douglas Helicopter Company
36	Metropolitan Water District of Southern California
37	NBCUniversal Media, LLC
38	Pacific Bell Telephone Company
39	Pfizer Inc.
40	Pilkinton PLC
41	Quest Diagnostics Clinical Laboratories, Inc.
42	Raytheon Company

Appendix F

OPOG Members

No.	Entity Name
43	Robison Prezioso Inc.
44	Safety-Kleen Systems, Inc.
45	Schering Corporation
46	Scripto-Tokai Corporation
47	Sempra Energy Solutions
48	Signet Armorlite, Inc.
49	Soco West, Inc. as successor to Holchem, Inc.
50	Sonoco Products Company
51	Sparton Technology, Inc.
52	State of California DOT
53	Texaco
54	Texas Instruments Incorporated
55	Trane U.S. Inc.
56	The Boeing Company
57	The Dow Chemical Company
58	The Regents of the University of California
59	The Sherwin-Williams Company
60	TriMas Corporation
61	Union Oil Company of California
62	Univar Corporation Univar USA Inc.
63	Universal City Studios LLC
64	Weber Aircraft Corporation
65	Yort, Inc.

Appendix G

List of Certain Noticed PRPs (Subject to Cost-Sharing Provisions)

Appendix G
Certain Noticed PRPs

11756 Burke Street, Santa Fe Springs, CA 90670

- Pilot Chemical Company

11845 Burke Street, Santa Fe Springs, CA 90670

- Bodycote Thermal Processing, Inc.

11862 Burke Street, Santa Fe Springs, CA 90670

- Claudette Earl (if this party does not sign an "Ability to Pay" Agreement with EPA)
- Earl Mfg, Co. Inc. (if this party does not sign an "Ability to Pay" Agreement with EPA)

11920 E. Washington Blvd, Whittier, CA 90606

- Mission Linen Supply

12128 Burke Street, Santa Fe Springs, CA 90670

- Burke Street LLC
- Palmtree Acquisition Corporation

8140 Secura Way, Santa Fe Springs, CA 90670

- Foss Plating Company, Inc. (if this party does not sign an "Ability to Pay" Agreement with EPA)

8851 Dice Road, Santa Fe Springs, CA 90670

- First Dice Road Company, A California Limited Partnership
- Phibro-Tech, Inc.
- Union Pacific Railroad Company

10643 Norwalk Blvd, Santa Fe Springs, CA 90670

- Continental Heat Treating, Inc.

10628 Fulton Wells & 10629 Norwalk Bvld, Santa Fe Springs, CA 90670

- Exxon Mobil Oil Corporation

Appendix H

CERCLA Performance Guarantee Sample Letter

APPENDIX H

CERCLA Performance Guarantee Sample Letter

[To be printed on Settling Defendant letterhead]

[Insert date]

EPA Regional Financial Management Officer
U.S. EPA Region 9
75 Hawthorne Street
San Francisco, CA. 94105

Dear EPA Regional Financial Management Officer:

I am the chief financial officer of **[insert name of Settling Defendant]** ("the Company"). This letter is in support of the Company's use of a financial test to demonstrate financial assurance of the obligations of the Company under Section IX, paragraph 21.f, of the Consent Decree regarding Operable Unit 2 at the Omega Chemical Corporation Superfund Site, entered pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. §§ 9601-1975 ("the Consent Decree"). This letter confirms the Company's satisfaction of certain financial criteria that makes the Company eligible to utilize the financial test as financial assurance under the Consent Decree. I hereby certify that our company fulfills the requirement of 40 C.F.R. **[select either § 264.143(f)(1)(i) or § 264.143(f)(1)(ii)]**

All necessary relevant information supporting this certification is attached to the letter. This includes:

- A copy of the Company's 10-K report submitted to the Securities and Exchange Commission, which includes:
    - A copy of a letter signed by our chief financial officer certifying the integrity and accuracy of the financial data, as required pursuant to the Sarbanes-Oxley Act of 2002, 15 U.S.C. § 7241, and ,
    - A copy of our independent certified public accountant's report for the latest completed fiscal year which provides the necessary information to support our certification.
- **[If certification under § 264.143(f)(1)(ii) is selected, add the following language:]** a report, including a printout from ratings available online from the Standard and Poor's or Moody's rating services, indicating the Company's current bond rating.

The dollar amount of financial assurance required by paragraph 21 of the Consent Decree is $70 million of financial assurance plus the amount of any other federal or state environmental obligations financially assured through the use of a financial test or guarantee. For the Company, the total amount of such other federal or state environmental obligations is **[fill in total dollar value for other applicable**

environmental obligations]. The total aggregate amount covered by this financial assurance letter is **[fill in total amount of performance guarantee]**.

I hereby certify that, to the best of my knowledge after thorough investigation, the information contained in this letter and its attachments is true, accurate, and complete.

By [signature]: _____
Printed name: _____
Title: _____
Address: _____
Email: _____
Date: _____

Cc:
EES Case Management Unit
Wayne Praskins
Deborah Gitin
Don Indermill