POOR LEGIBILITY

ONE OR MORE PAGES IN THIS DOCUMENT ARE DIFFICULT TO READ
DUE TO THE QUALITY OF THE ORIGINAL

THOMAS L. SANSONETTI
Assistant Attorney General
Environment & Natural Resources Division
United States Department of Justice

STEVEN O'ROURKE
Environmental Enforcement Section
Environment & Natural Resources Division
United States Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Telephone: (202) 514-2779

DEBRA W. YANG
United States Attorney
Central District of California
LEON W. WEIDMAN
Chief, Civil Division

SUZETTE CLOVER
Assistant United States Attorney
300 North Los Angeles Street
Los Angeles, California 90012
Telephone: (213) 894-2442

Attorneys for Plaintiff United States of America

BILL LOCKYER
Attorney General of the State of California
RICHARD M. FRANK
Chief Assistant Attorney General
THEODORA BERGER
Assistant Attorney General
ANN RUSHTON
Deputy Attorney General
300 South Spring Street
Los Angeles, California 90013
Telephone: (213) 897-2608

Attorneys for Plaintiff California Department of Toxic Substances Control

1147

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

CV04-1490 RSWL (CWx)

UNITED STATES OF AMERICA, et al.,

Plaintiffs,

v.

ADAMS FAMILY TRUST, et al.,

Defendants.

CIVIL ACTION NO. _____

CONSENT DECREE

EL MONTE OU

CONSENT DECREE

7

TABLE OF CONTENTS

I. BACKGROUND

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), 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 for response actions at the El Monte Operable Unit of the San Gabriel Valley Area 1 Superfund Site in El Monte, Los Angeles County, California, together with accrued interest; and (2) performance of studies and response work by the defendants at the Site consistent with the National Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP").

C. The State of California ("State"), on behalf of the State Department of Toxic Substances Control ("DTSC"), also filed a complaint in this matter pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607. DTSC in its complaint seeks judgment against all defendants, jointly and severally, for all costs incurred by DTSC including legal expenses and interest, in connection with a release or threatened release of hazardous substances at the El Monte Operable Unit of the San Gabriel Valley Superfund Sites. DTSC also seeks declaratory judgment pursuant to § 113(g)(2) of CERCLA, 42 U.S.C. § 9613(g)(2), that the defendants, jointly and severally, are liable for all future response costs to be incurred by DTSC at this site.

D. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the United States Department of the Interior and the National Oceanic & Atmospheric Administration, federal natural resource trustees, on July 12, 2001 of negotiations with potentially responsible parties 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. Settling Defendants do not admit any liability to the Plaintiffs arising out of the transactions or occurrences alleged in the complaint, nor do they admit that the release or

threatened release of hazardous substances at or from the Site constitutes an imminent or 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 October 15, 1984, 49 Fed. Reg. 40320.

G. In response to a release or a substantial threat of a release of a hazardous substance(s) at or from the Site, a group of potentially responsible parties commenced in March 1995, a Remedial Investigation and Feasibility Study ("RI/FS") for the Site pursuant to 40 C.F.R. § 300.430.

H. The group completed the Remedial Investigation Report in April 1998 and the Feasibility Study Report in July 1998.

I. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the Feasibility Study and of the proposed plan for remedial action in October 1998, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action and conducted a public meeting to discuss the proposed plan in November 1998. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Regional Administrator based the selection of the response action.

J. On July 12, 2001, EPA sent special notice letters in accordance with Section 122 of CERCLA to the Settling Defendants as well as other potentially responsible parties ("PRPs"). These special notice letters solicited a good faith offer from the PRPs to implement the remedial design and remedial action for the Site. The list of recipients of the special notice letters is attached hereto as Appendix I. EPA considers the PRPs, other than the Settling Defendants, listed in Appendix F to be recalcitrant parties that have failed to cooperate with EPA.

K. The decision by EPA on the interim remedial action to be implemented at the Site is embodied in an Interim Record of Decision ("IROD"), executed on June 23, 1999, on which DTSC has given its concurrence. The IROD includes a responsiveness summary to the public comments. Notice of the final plan was published in accordance with Section 117(b) of

CERCLA. In August 2002, EPA issued an Explanation of Significant Differences ("ESD") modifying the IROD.

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

M. This Consent Decree provides for performance of the entire remedy selected in the IROD and ESD. The Settling Defendants have reached an agreement among themselves, separate from this Consent Decree, on an allocation of certain obligations imposed by this Consent Decree. The United States, to facilitate settlement of potential contribution claims among the Settling Defendants and to expedite the implementation of the Remedial Action selected in the IROD and ESD, has agreed to terms in this Consent Decree that implement the Settling Defendants' allocation. The United States does not, however, waive its position that the harm at the Site is not divisible and that the Settling Defendants' liability is not apportionable.

N. Solely for the purposes of Section 113(j) of CERCLA, the Remedial Action selected by the IROD, as supplemented by the ESD, and the Work to be performed by the Performing Settling Defendants shall constitute a response action taken or ordered by the President.

O. The United States has reviewed the financial information submitted by the Ability-to-Pay Settling Defendants to determine whether the Ability-to-Pay Settling Defendants are financially able to pay response costs incurred and to be incurred at the Site. Based upon this financial information, the United States has determined that the Ability-to-Pay Settling Defendants are able to pay the amounts required under this Consent Decree.

P. 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 the Site 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 and 1345, and 42 U.S.C. §§ 9606, 9607, 9613(b), and 6973. This Court also has personal jurisdiction over the 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.

III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States, 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. Performing Settling Defendant(s) 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 Performing Settling Defendant with respect to the Site 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. Performing Settling Defendant(s) 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. Performing Settling Defendant(s) shall nonetheless be responsible for ensuring that their respective contractors and subcontractors perform the Work contemplated herein in accordance with 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 the respective Performing Settling Defendant(s) within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

4. Unless otherwise expressly provided herein, 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 in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

"Ability-to-Pay Settling Defendants" shall mean those Settling Defendants identified in Appendix F (List of Settling Defendants and Defendant Subgroups) as Ability-to-Pay Settling Defendants.

"Basin-wide Response Costs" shall mean costs, including but not limited to direct and indirect costs, including accrued Interest, that the United States or the DTSC has paid or in the future pays for basin-wide (non-operable unit) response actions in connection with the San Gabriel Valley Superfund Sites, Areas 1 – 4, that have been, or in the future are, allocated to the Site.

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

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

"Contributing Settling Defendants" shall mean those Settling Defendants identified in Appendix F (List of Settling Defendants and Defendant Subgroups) as Contributing Settling Defendants.

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

"DTSC" shall mean the California Department of Toxic Substances Control and any successor departments or agencies.

"DTSC Past Response Costs" shall mean all costs, including but not limited to direct and indirect costs and all past Basin-Wide Response Costs, together with accrued Interest, that DTSC, and the State on behalf of DTSC, have paid through June 30, 2003, in response to the release or threatened release of hazardous substances at or in connection with the Site, but not including amounts reimbursed to DTSC by EPA.

"DTSC Future Response Costs" shall mean all costs that are incurred by DTSC for response actions with respect to the Site after June 30, 2003, including, but not limited to, direct and indirect costs that DTSC incurs in reviewing or developing plans, reports and other items pursuant to this Consent Decree, verifying 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. DTSC Future Response Costs shall not include any Basin-Wide response Costs.

"East Side Future Response Costs" shall mean those Future Response Costs and DTSC Future Response Costs associated with the East Side Work.

"East Side Performing Settling Defendant(s)" shall mean those Parties identified in Appendix F (List of Defendants and Defendant Subgroups) as East Side Performing Settling Defendant(s).

"East Side SOW" shall mean the RD/RA statement of work for implementation of the Remedial Design, Remedial Action and Operation and Maintenance at the Eastern Shallow and South East Deep Portions at the Site, as set forth in Appendix C and any modifications made in accordance with this Decree.

"East Side Work" shall mean the East Side Shallow and South East Deep remedies, described in the Eastside SOW. The East Side Work includes all requirements of this Decree associated with such Work.

"Effective Date" shall be the effective date of this Consent Decree as provided in Paragraph 116.

"EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

"Explanation of Significant Differences" or "ESD" shall mean the Explanation of Significant differences relating to the Site issued by EPA in August 2002. The ESD is attached as Appendix B.

"Future Response Costs" shall mean all costs that are incurred by the United States for response actions with respect to the Site after the Effective Date, including, but not limited to, direct and indirect costs that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Consent Decree, verifying the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Sections VII, IX (including, but not limited to, the cost of attorney time and any monies paid to secure access) , XV, and Paragraph 95 ("Work Takeover") of Section XXI. Future Response Costs shall not include any Basin-Wide response Costs.

"IROD" shall mean the Interim Record of Decision relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Sites signed on June 23, 1999 by the Regional Administrator, EPA Region 9, or his/her delegate, and all attachments thereto. The IROD is attached as Appendix A.

"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.

"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.

"Operation and Maintenance" or "O & M" shall mean all activities required to maintain the effectiveness of the Remedial Action as required, respectively, under the East Side and the West Side Operation and Maintenance Plans approved or developed by EPA pursuant to this Consent Decree and the applicable SOW.

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

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

"Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurred for response actions in connection with the Site, and all past Basin-Wide Response Costs, occurring prior to and including the Effective Date.

"Performance Standards" shall have the same meaning as "Performance Criteria," as that term is utilized in Section 11.1 of the IROD, as supplemented by the ESD.

"Performing Settling Defendant(s)" shall mean, with respect to the East Side Work, the East Side Performing Settling Defendant(s); and with respect to the West Side Work, the West Side Performing Settling Defendant. Notwithstanding that provisions of this Consent Decree refer to "Performing Settling Defendant(s)," those provisions are intended to and shall be implemented separately with respect to the East Side Work and the West Side Work and shall be read as if they referred separately to the East Side Performing Settling Defendant(s) or the West Side Performing Settling Defendant, as applicable.

"Plaintiffs" shall mean the United States and DTSC.

"Project Coordinator" shall mean the persons designated by East Side Performing Settling Defendants and West Side Performing Settling Defendant, respectively, pursuant to Section XII hereof.

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

"Remedial Action" shall mean those activities, except for Operation and Maintenance, to be undertaken by Performing Settling Defendant(s) to implement the IROD, as supplemented by the ESD, in accordance with the applicable SOW and the applicable final Remedial Design/ Remedial Action Work Plan and other plans approved by EPA.

"Remedial Design/Remedial Action (RD/RA) Work Plan" or "RD/RA Work Plan" shall mean the document developed pursuant to Paragraph 11 of this Consent Decree and approved by EPA with respect to, respectively, the East Side Work and the West Side Work, and any

amendments thereto.

"Remedial Design" shall mean those activities to be undertaken by Performing Settling Defendant(s) to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan.

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

"Settling Defendants" shall mean all those Parties identified as "Settling Defendants" in Appendix F (Lists of Defendants) and, unless otherwise specifically excluded in this Consent Decree, (i) where the Settling Defendant is a corporate entity, its officers, directors and shareholders acting in their capacity as such, and corporate predecessors, successors and parent(s), (ii) where the Settling Defendant is a partnership, its partners, (iii) where the Settling Defendant is an individual, that individual's heirs, and (iv) where the Settling Defendant is a trust, that trust's trustees and beneficiaries, but only to the extent that any person or entity within categories (i), (ii), (iii) or (iv) above has no independent liability for the Site other than the liability derived from that person's or entity's relationship to or affiliation with the Settling Defendant, as specified.

"Site" shall mean the El Monte Operable Unit of the San Gabriel Valley Area 1 Superfund Site, in El Monte, Los Angeles County, California and depicted generally on the map attached as Appendix E.

"State" shall mean the California Department of Toxic Substances Control ("DTSC").

"Statement of Work" or "SOW" shall mean the East Side SOW with respect to the East Side Work and the West Side SOW with respect to the West Side Work.

"Supervising Contractor" shall mean the respective principal contractor retained by each of the Performing Settling Defendant(s) to supervise and direct the implementation of the Work under this Consent Decree.

"United States" shall mean the United States of America.

"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); and (4) any "hazardous material" under the California Hazardous Waste Control Act Section 25100 *et seq.*

"West Side Future Response Costs" shall mean those Future Response Costs and DTSC Future Response Costs associated with the West Side Work.

"West Side Performing Settling Defendant" shall mean Hermetic Seal Corporation.

"West Side SOW" shall mean the RD/RA statement of work for the implementation of the Remedial Design, Remedial Action, and Operation and Maintenance at the Western Shallow and Northwestern Deep Portions at the Site, as set forth in Appendix D and any modifications made in accordance with this Decree.

"West Side Work" shall mean the West Shallow and Northwest Deep remedies, described in the Westside SOW. The West Side Work includes all requirements of this Consent Decree associated with such Work.

"Work" shall mean all activities Performing Settling Defendant(s) are respectively required to perform under this Consent Decree, except those required by Section XXV (Retention of Records). "Work" shall mean the East Side Work with respect to the East Side Performing Settling Defendant(s) and the West Side Work with respect to the West Side Performing Settling Defendant.

V. GENERAL PROVISIONS

5. Objectives of the Parties. The objectives of the Parties in entering into this Consent Decree are to protect public health and welfare and the environment at the Site by the design and implementation of response actions at the Site by Performing Settling Defendant(s), to reimburse response costs of the Plaintiffs, and to resolve the claims of Plaintiffs set forth in the Complaint against Settling Defendants as provided in this Consent Decree.

6. Commitments by Settling Defendants.

a. Performing Settling Defendant(s) shall finance and perform the Work in accordance with this Consent Decree, the IROD (as supplemented by the ESD), the SOW, and all work plans and other plans, standards, specifications, and schedules set forth herein or developed by Performing Settling Defendant(s) and approved by EPA pursuant to this Consent Decree.

Performing Settling Defendant(s) shall also reimburse the United States and DTSC for their respective Past Response Costs and Future Response Costs as provided in this Consent Decree; provided, however, that any failure or refusal by the West Side Performing Settling Defendant to comply with this Consent Decree or to pay West Side Past or Future Response Costs shall not require East Side Performing Settling Defendants to perform the West Side Work or to pay West Side Past or Future Response Costs; and any failure or refusal by the East Side Performing Settling Defendant to comply with this Consent Decree or to pay East Side Past or Future Response Costs shall not require West Side Performing Settling Defendant to perform the East Side Work or to pay East Side Past or Future Response Costs.

b. Performing Settling Defendant(s)' obligations under this Decree shall be independent of and unaffected by any nonperformance by Contributing Settling Defendants or Ability-to-Pay Settling Defendants and shall remain in full force and effect regardless of whether Contributing Settling Defendants or Ability-to-Pay Settling Defendants have complied with their obligations under this Decree. The respective obligations of the East Side Performing Settling Defendants and the West Side Performing Settling Defendant under this Decree shall be independent of and unaffected by any nonperformance by the other subgroup of Performing Settling Defendant(s) of their obligation under this Decree and shall remain in full force and effect regardless whether such other subgroup has complied with its obligations under this Decree.

c. Contributing Settling Defendants shall make payments to Performing Settling Defendant(s) in accordance with Appendix H. Evidence of payment of these required amounts by Contributing Settling Defendants shall be provided to EPA by either the relevant Performing Settling Defendant receiving such amount(s) or any escrow agent charged by any group of Contributing Settling Defendants to transfer such amount(s) to a Performing Settling Defendant. At such time as a Performing Settling Defendant or escrow agent provides such evidence of payment by one or more of the Contributing Settling Defendants of all monies necessary to satisfy their obligations to the relevant Performing Settling Defendant, such Contributing Settling Defendant(s) shall have no further payment obligations under this Consent

Decree except as otherwise specifically set forth in this Decree.

d. At such time as the Ability-to-Pay Settling Defendants have paid EPA all monies necessary to satisfy their obligations pursuant to Paragraph 54, the Ability-to-Pay Settling Defendants shall have no further obligations under this Consent Decree except as otherwise specifically set forth in this Decree.

7. Compliance With Applicable Law. All activities undertaken by Performing Settling Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. Performing Settling Defendant(s) must also comply with all applicable or relevant and appropriate requirements of all Federal and state environmental laws as set forth in the IROD, ESD, and the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be considered to be consistent with the NCP.

8. Permits.

a. As provided in Section 121(e) of CERCLA and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-site (i.e., 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 that is not on-site requires a federal or state permit or approval, Performing Settling Defendant(s) shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

b. Performing Settling Defendant(s) may seek relief under the provisions of Section XVIII (Force Majeure) of this Consent Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit required for the Work.

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.

9. Intentionally Blank.

VI. PERFORMANCE OF THE WORK BY PERFORMING SETTLING DEFENDANT(S)

10. Selection of Supervising Contractor.

a. All aspects of the Work to be performed by Performing Settling Defendant(s) pursuant to Sections VI (Performance of the Work by Performing Settling Defendant(s)), VII (Remedy Review), VIII (Quality Assurance, Sampling and Data Analysis), and XV (Emergency Response) of this Consent Decree shall be under the direction and supervision of the respective Supervising Contractor(s), the selection of which shall be subject to disapproval by EPA. Within 90 days after the lodging of this Consent Decree, Performing Settling Defendant(s) shall notify EPA in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor(s). With respect to any contractor proposed to be a Supervising Contractor, the respective Performing Settling Defendant shall demonstrate that the proposed contractor has a quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan (QMP). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. EPA will issue a notice of disapproval or an authorization to proceed. If at any time thereafter, a Performing Settling Defendant proposes to change its Supervising Contractor, such Performing Settling Defendant shall give such notice to EPA and must obtain an authorization to proceed from EPA, before the new Supervising Contractor performs, directs, or supervises any Work under this Consent Decree.

b. If EPA disapproves a proposed Supervising Contractor, EPA will notify the relevant Performing Settling Defendant in writing. The Performing Settling Defendant shall submit to EPA a list of contractors, including the qualifications of each contractor, that would be acceptable to them within 30 days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect to any of the other contractors. The Performing

Settling Defendant may select any contractor from that list that is not disapproved and shall notify EPA of the name of the contractor selected within 21 days of EPA's authorization to proceed.

c. If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents a Performing Settling Defendant from meeting one or more deadlines in a plan approved by the EPA pursuant to this Consent Decree, the Performing Settling Defendant may seek relief under the provisions of Section XVIII (Force Majeure) hereof, but only if such failure relates to the Supervising Contractor retained by that Performing Settling Defendant.

11. Remedial Design/Remedial Action.

a. As specified in the approved schedules set forth in Section V of each SOW, Performing Settling Defendant(s) shall submit to EPA a work plan for the Remedial Design and Remedial Action at the Site ("RD/RA Work Plan"). The RD/RA Work Plan shall provide for design, construction, and implementation of the remedy set forth in the IROD and the ESD and achievement of the Performance Standards, in accordance with this Consent Decree, the IROD and the ESD, the SOW, and the design plans and specifications developed in accordance with the RD/RA Work Plan and approved by EPA. Upon its approval by EPA, the RD/RA Work Plan shall be incorporated into and become enforceable under this Consent Decree.

b. The RD/RA Work Plan shall include plans and schedules for implementation of all remedial design, pre-design tasks, and remedial action tasks identified in the SOW, including, but not limited to, the following: 1) treatability studies; 2) acquisition of permits, property, leases, easements, and agreements required for implementation of the RA (including the use of any existing facilities); 3) submittal of a Conceptual Design/Preliminary Design; 4) submittal of a Pre-Final Design and a Final Design; 5) submittal of a Construction Quality Assurance Plan; 6) submittal of a Sampling and Analysis Plan or addendum to an existing plan (including, but not limited to, a Remedial Design Quality Assurance Project Plan (QAPP) in accordance with Section VIII (Quality Assurance, Sampling and Data Analysis)); 7) submittal of an Operation and Maintenance Manual; 8) submittal of a Performance Standards

Evaluation Plan; and 9) submittal of a Final Remedy Evaluation Plan.

c. Upon approval of the RD/RA Work Plan by EPA, after a reasonable opportunity for review and comment by DTSC, and submittal of the Health and Safety Plan for all field activities to EPA, Performing Settling Defendant(s) shall implement the RD/RA Work Plan. Performing Settling Defendant(s) shall submit to EPA all plans, submittals and other deliverables required under the approved RD/RA Work Plan in accordance with the approved *schedule for review and approval pursuant to Section XI* (EPA Approval of Plans and Other Submissions). Unless otherwise approved by EPA, Performing Settling Defendant(s) shall not commence further Remedial Design activities at the Site prior to approval of the RD/RA Work Plan.

d. The Conceptual Design/Preliminary Design submittal shall include, at a minimum, the following: 1) a detailed design basis, which presents and justifies the concepts, assumptions, standards, and preliminary interpretations and calculations that will be used in the design; 2) an updated construction schedule; 3) Memoranda of Understanding (MOUs) and/or agreements between Performing Settling Defendant(s) and other entities expected to participate in the implementation of the remedy; 4) MOUs and/or agreements between Performing Settling Defendant(s) and other entities for use or disposition of treated groundwater; 5) an update on efforts to acquire permits, regulatory agency approvals, MOUs, access or use agreements, easements, third party agreements, and properties needed for construction or operation; 6) results of any treatability studies not previously submitted to EPA; 7) results of any additional field sampling and pre-design work; 8) preliminary plans, drawings, and sketches of groundwater extraction, treatment, conveyance and monitoring systems; and (9) an outline of required specifications.

f. The Pre-Final Design shall be a draft version of the Final Design. The Pre-Final Design submittal shall include, at a minimum, the following: (1) updates or changes to the Conceptual/Preliminary Design submittal; (2) a capital and operation and maintenance cost estimate; (3) reproducible drawings and specifications; and (4) a complete set of construction drawings in full and one-half size reduction.

g. During the design period, as specified in the approved schedules set forth in Section V of each SOW, Performing Settling Defendant(s) shall also submit the following planning documents: 1) Operation and Maintenance Manual; 2) Construction Quality Assurance Plan ("CQAP"); 3) Performance Standards Evaluation Plan (Compliance Monitoring Plan - directed at measuring progress towards meeting Performance Standards); 4) a Health and Safety Plan for field activities required by the RD/RA Work Plan which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R Section 1910.120; and 5) a Construction Health and Safety Plan. The CQAP shall describe the approach to quality assurance during construction activities at the Site and shall specify a quality assurance official ("QA Official"), independent of the Supervising Contractor, to conduct a quality assurance program during the construction phase of the project.

12. Intentionally Blank.

13. Performing Settling Defendant(s) shall continue to implement the Remedial Action and O&M until the Performance Standards are achieved and for so long thereafter as is otherwise required under this Consent Decree.

14. Modification of the SOW or Related Work Plans.

a. If EPA determines that modification to the work specified in the SOW and/or in work plans developed pursuant to the SOW is necessary to achieve and maintain the Performance Standards, EPA may require that such modification be incorporated in the SOW and/or such work plans, provided, however, that a modification may only be required pursuant to this Paragraph to the extent that it is consistent with the scope of the remedy selected in the IROD as supplemented by the ESD.

b. If Performing Settling Defendant(s) objects to any modification determined by EPA to be necessary pursuant to this Paragraph, they may seek dispute resolution pursuant to Section XIX (Dispute Resolution), Paragraph 75 (record review). The SOW and/or related work plans shall be modified in accordance with final resolution of the dispute.

c. Performing Settling Defendant(s) shall implement any work required by any modifications incorporated in the SOW and/or in work plans developed pursuant to the SOW

in accordance with this Paragraph.

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

15. Performing Settling Defendant(s) acknowledge and agree that nothing in this Consent Decree, the SOW, or the Remedial Design or Remedial Action Work Plans constitutes a warranty or representation of any kind by Plaintiffs that compliance with the work requirements set forth in the SOW and the Work Plans will achieve the Performance Standards.

16. a. Performing Settling Defendant(s) shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator of such shipment of Waste Material. However, this notification requirement shall not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

(1) Performing Settling Defendant(s) shall include in the written notification the following information, where available: (1) the name and location of the facility to which the Waste Material is to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. Performing Settling Defendant(s) shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

(2) The identity of the receiving facility and state will be determined by Performing Settling Defendant(s) following the award of the contract for Remedial Action construction. Performing Settling Defendant(s) shall provide the information required by this Paragraph as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

b. Before shipping any Waste Material from the Site to an off-site location, Performing Settling Defendant(s) shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3) and 40

C.F.R. 300.440. Performing Settling Defendant(s) shall only send Waste Material from the Site to an off-site facility that complies with the requirements of the statutory provision and regulations cited in the preceding sentence.

VII. REMEDY REVIEW

17. Periodic Review. Performing Settling Defendant(s) shall conduct any studies and investigations as requested by EPA, 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 years as required by Section 121(c) of CERCLA and any applicable regulations.

18. EPA Selection of Further Response Actions. If EPA determines, at any time, that the Remedial Action is not protective of human health and the environment, EPA may select further response actions for the Site in accordance with the requirements of CERCLA and the NCP.

19. Opportunity To Comment. Performing Settling Defendant(s) and, if required by Sections 113(k)(2) or 117 of CERCLA, the public, will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c) of CERCLA and to submit written comments for the record during the comment period.

20. Performing Settling Defendant(s)' Obligation To Perform Further Response Actions. If EPA selects further response actions for the Site, the Performing Settling Defendant(s) shall undertake such further response actions to the extent that the reopener conditions in Paragraph 94 (General reservations of rights) are satisfied. Notwithstanding any other provision of this Consent Decree, including but not limited to Paragraphs 14, 51 and 94, no Settling Defendant(s) shall be required by this Consent Decree to perform any Work related in any way to the Emerging Compounds ("ECs") identified in the ESD, including determining the source(s) of such ECs, the extent of any groundwater or soil contamination by such ECs, or the removal or remediation of such ECs from the soil or groundwater, other than as necessary to treat such ECs at the wellhead upon extraction so as to ensure compliance with the ARARs. Performing Settling Defendant(s) may invoke the procedures set forth in Section XIX (Dispute

Resolution) to dispute (1) EPA's determination that the reservations of rights conditions of Paragraph 94 of Section XXI (Covenants Not To Sue by Plaintiffs) are satisfied, (2) EPA's determination that the Remedial Action is not protective of human health and the environment, or (3) EPA's selection of the further response actions. Disputes pertaining to the whether the Remedial Action is protective or to EPA's selection of further response actions shall be resolved pursuant to Paragraph 75 (record review).

21. Submissions of Plans. If Performing Settling Defendant(s) are required to perform the further response actions pursuant to Paragraph 20, they shall submit a plan for such work to EPA for approval in accordance with the procedures set forth in Section VI (Performance of the Work by Performing Settling Defendant(s)) and shall implement the plan approved by EPA in accordance with the provisions of this Decree.

VIII. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

22. Performing Settling Defendant(s) shall use quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance and monitoring samples in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R5)" (EPA/240/B-01/003, March 2001) "Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998), and subsequent amendments to such guidelines upon notification by EPA to Performing Settling Defendant(s) of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Performing Settling Defendant(s) shall submit to EPA for approval, after a reasonable opportunity for review and comment by DTSC, a Quality Assurance Project Plan ("QAPP") that is consistent with the SOW, the NCP and applicable guidance documents. If relevant to the proceeding, the Performing Settling Defendants and Plaintiffs agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Decree. Performing Settling Defendant(s) shall use reasonable efforts to ensure that EPA personnel and its authorized representatives are allowed access at reasonable times to the respective laboratories utilized by Performing Settling

Defendant(s) in implementing this Consent Decree. In addition, Performing Settling Defendant(s) shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. Performing Settling Defendant(s) shall ensure that the respective laboratories they utilize for the analysis of samples taken pursuant to this Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the ["Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February 1988], and any amendments made thereto during the course of the implementation of this Decree; however, upon approval by EPA, after opportunity for review and comment by DTSC, Performing Settling Defendant(s) may use other analytical methods which are as stringent as or more stringent than the CLP-approved methods. Performing Settling Defendant(s) shall ensure that all laboratories they use for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent QA/QC program. Performing Settling Defendant(s) shall only use laboratories that have a documented Quality System which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," ("American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP) as meeting the Quality System requirements. Performing Settling Defendant(s) shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Decree will be conducted in accordance with the procedures set forth in the QAPP approved by EPA.

23. Upon request by EPA, Performing Settling Defendant(s) shall allow split or duplicate samples to be taken by EPA or its authorized representatives. Performing Settling Defendant(s) shall notify EPA not less than 28 days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Performing

Settling Defendant(s) to take split or duplicate samples of any samples it takes as part of the Plaintiffs' oversight of Performing Settling Defendant(s)' implementation of the Work.

24. Performing Settling Defendant(s) shall submit to EPA 2 copies of the results of all sampling and/or tests or other data obtained or generated by or on behalf of Performing Settling Defendant(s) with respect to the Site and/or the implementation of this Consent Decree unless EPA agrees otherwise.

25. Notwithstanding any provision of this Consent Decree, the United States and DTSC hereby retain all of their information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA and any other applicable statutes or regulations.

IX. ACCESS

26. If the Site, or any other property where access and/or land/water use restrictions are needed to implement this Consent Decree, is owned or controlled by any of the Settling Defendants, such Settling Defendant shall:

a. commencing on the date of lodging of this Consent Decree, provide the United States and its representatives, including EPA and its contractors, and DTSC with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this 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 relating to contamination at or near the Site;

(4) Obtaining samples;

(5) Assessing the need for, planning, or implementing additional response actions at or near the Site;

(6) Assessing implementation of quality assurance and quality control practices as defined in the approved Quality Assurance Project Plans;

(7) Implementing the Work pursuant to the conditions set forth in Paragraph 95 of this Consent Decree;

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

(9) Assessing Performing Settling Defendants' compliance with this Consent Decree.

27. If the Site, or any other property where access and/or land/water use restrictions are needed to implement this Consent Decree, is owned or controlled by persons other than any of the Performing Settling Defendants, the Performing Settling Defendant for which access is necessary shall use best efforts to secure from such persons:

a. an agreement to provide access thereto for such Performing Settling Defendant, as well as for the United States on behalf of EPA, as well as their representatives (including contractors), and DTSC, for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 26.a of this Consent Decree.

28. For purposes of Paragraphs 27 of this Consent Decree, "best efforts" includes the payment of reasonable sums of money in consideration of access, access easements, land/water use restrictions, restrictive easements, and/or an agreement to release or subordinate a prior lien or encumbrance. If any access or land/water use restriction agreements required by Paragraph 27 of this Consent Decree are not obtained within a reasonable period of time after the need for such access becomes known to the relevant Performing Settling Defendant, such Performing Settling Defendant shall promptly notify the United States in writing, and shall include in that notification a summary of the steps that the Performing Settling Defendant has taken to attempt to comply with Paragraph 27 of this Consent Decree. The United States may, as it deems appropriate, assist Performing Settling Defendant(s) in obtaining access or land/water use restrictions, either in the form of an order, or contractual agreements or in the form of easements running with the land, or in obtaining the release or subordination of a prior lien or encumbrance.

The relevant Performing Settling Defendant(s) shall reimburse the United States and DTSC in accordance with the procedures in Section XVI (Reimbursement of Response Costs), for all costs incurred, direct or indirect, by the United States or DTSC in obtaining such access, land/water use restrictions, and/or the release/subordination of prior liens or encumbrances including, but not limited to, the cost of attorney time and the amount of monetary consideration paid or just compensation.

29. If EPA determines that land/water use restrictions in the form of state or local laws, regulations, ordinances or other governmental controls are needed to implement the remedy selected in the ROD, ensure the integrity and protectiveness thereof, or ensure non-interference therewith, Performing Settling Defendants shall cooperate with EPA's and DTSC's efforts to secure such governmental controls. Each Settling Defendant shall cooperate with EPA's efforts to secure such governmental controls with respect to property owned by the Settling Defendant.

30. Notwithstanding any provision of this Consent Decree, the United States and DTSC retain all of their access authorities and rights, as well as all of its rights to require land/water use restrictions, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulations.

X. REPORTING REQUIREMENTS

31. In addition to any other requirement of this Consent Decree, Performing Settling Defendant(s) shall submit to EPA 2 copies of written monthly progress reports that: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous month; (b) include a summary of all results of sampling and tests and all other data received or generated by Performing Settling Defendant(s) or their contractors or agents in the previous month; (c) identify all work plans, plans and other deliverables required by this Consent Decree completed and submitted during the previous month; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next six weeks and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts and Pert charts; (e) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect

the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays; (f) include any modifications to the work plans or other schedules that Performing Settling Defendant(s) have proposed to EPA or that have been approved by EPA; and (g) describe all activities undertaken in support of the community Relations Plan during the previous month and those to be undertaken in the next six weeks. Performing Settling Defendant(s) shall submit these progress reports to EPA by the tenth day of every month beginning 30 days after lodging of this Consent Decree, until EPA notifies Performing Settling Defendant(s) pursuant to Section XIV (Certification of Completion). If requested by EPA, Performing Settling Defendant(s) shall also provide telephonic briefings for EPA to discuss the progress of the Work.

32. Performing Settling Defendant(s) shall notify EPA of any change in the schedule described in the monthly progress report for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than seven days prior to the performance of the activity.

33. Upon the occurrence of any event during performance of the Work that Performing Settling Defendant(s) are required to report pursuant to Section 103 of CERCLA or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), Performing Settling Defendant(s) shall within 24 hours of the onset of such event orally notify the EPA Project Coordinator or the Alternate EPA Project Coordinator (in the event of the unavailability of the EPA Project Coordinator), or, in the event that neither the EPA Project Coordinator or Alternate EPA Project Coordinator is available, the Emergency Response Section, Region 9, United States Environmental Protection Agency. These reporting requirements are in addition to the reporting required by CERCLA Section 103 or EPCRA Section 304.

34. Within 20 days of the onset of such an event, Performing Settling Defendant(s) shall furnish to Plaintiffs a written report, signed by Performing Settling Defendant(s)' Project Coordinator, setting forth the events which occurred and the measures taken, and to be taken, in response thereto. Within 30 days of the conclusion of such an event, Performing Settling

Defendant(s) shall submit to Plaintiffs a report setting forth all actions taken in response thereto.

35. Performing Settling Defendant(s) shall submit 2 copies of all plans, reports, and data required by the SOW, the Remedial Design Work Plan, the Remedial Action Work Plan, or any other approved plans to EPA in accordance with the schedules set forth in such plans. Performing Settling Defendant(s) shall simultaneously submit 2 copies of all such plans, reports and data to DTSC. Upon request by EPA, Performing Settling Defendant(s) shall submit in electronic form all portions of any report or other deliverable Performing Settling Defendant(s) are required to submit pursuant to the provisions of this Consent Decree.

36. All reports and other documents submitted by Performing Settling Defendant(s) to EPA (other than the monthly progress reports referred to above) which purport to document Performing Settling Defendant(s)' compliance with the terms of this Consent Decree shall be signed by an authorized representative of Performing Settling Defendant(s).

XI. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS

37. After review of any plan, report or other item which is required to be submitted for approval pursuant to this Consent Decree, EPA shall: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that Performing Settling Defendant(s) modify the submission; or (e) any combination of the above. However, EPA shall not modify a submission without first providing Performing Settling Defendant(s) at least one notice of deficiency and an opportunity to cure within 7 Days, except where to do so would cause serious disruption to the Work or where previous submission(s) have been disapproved due to material defects and the deficiencies in the submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

38. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Paragraph 37(a), (b), or (c), Performing Settling Defendant(s) shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA subject only to their right to invoke the Dispute Resolution procedures set forth in Section XIX (Dispute Resolution) with respect to the modifications or conditions made by EPA. In the event that EPA

modifies the submission to cure the deficiencies pursuant to Paragraph 37 and the submission has a material defect, EPA retains its right to seek stipulated penalties, as provided in Section XX (Stipulated Penalties).

39. Resubmission of Plans.

a. Upon receipt of a notice of disapproval pursuant to Paragraph 37(d), Performing Settling Defendant(s) shall, within 21 Days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other item for approval. Any stipulated penalties applicable to the submission, as provided in Section XX, shall accrue during the 21 Day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraphs 40 and 41.

b. Notwithstanding the receipt of a notice of disapproval pursuant to Paragraph 37(d), Performing Settling Defendant(s) shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Performing Settling Defendant(s) of any liability for stipulated penalties under Section XX (Stipulated Penalties).

40. In the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA, EPA may again require Performing Settling Defendant(s) to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to modify or develop the plan, report or other item. Performing Settling Defendant(s) shall implement any such plan, report, or item as modified or developed by EPA, subject only to their right to invoke the procedures set forth in Section XIX (Dispute Resolution).

41. If upon resubmission, a plan, report, or item is disapproved or modified by EPA due to a material defect, Performing Settling Defendant(s) shall be deemed to have failed to submit such plan, report, or item timely and adequately unless Performing Settling Defendant(s) invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution) and EPA's action is overturned pursuant to that Section. The provisions of Section XIX (Dispute Resolution) and Section XX (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's

disapproval or modification is upheld, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XX.

42. All plans, reports, and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event EPA approves or modifies a portion of a plan, report, or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

XII. PROJECT COORDINATORS

43. Within 20 days of lodging this Consent Decree, Performing Settling Defendant(s) and EPA will notify each other, in writing, of the name, address and telephone number of their respective designated Project Coordinators and Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other Parties at least 5 Working Days before the changes occur, unless impracticable, but in no event later than the actual day the change is made. Performing Settling Defendant(s)' Project Coordinators shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the Work. The Project Coordinators may assign other representatives, including other contractors, to serve as Site representatives for oversight of performance of daily operations during remedial activities.

44. Plaintiffs may designate other representatives, including, but not limited to, EPA employees, and federal contractors and consultants, to observe and monitor the progress of the Work undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and an On-Scene Coordinator (OSC) by the National Contingency Plan, 40 C.F.R. Part 300. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the National Contingency Plan, to halt any Work required by this Consent Decree and to take any necessary response action when s/he determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

45. EPA's Project Coordinator and Performing Settling Defendant(s)' Project Coordinators will meet in person or confer telephonically, at a minimum, on a monthly basis. The East Side Performing Settling Defendants and the West Side Performing Settling Defendant will meet or confer with EPA's Project Coordinator together or separately, as appropriate under the circumstances at the time.

XIII. ASSURANCE OF ABILITY TO COMPLETE WORK

46. Within 60 days of entry of this Consent Decree, the East Side Performing Settling Defendant(s) shall establish and maintain financial security in the amount of $21,400,000. Within 30 days of entry of this Consent Decree, the West Side Performing Settling Defendant shall establish and maintain financial security in the amount of $16,700,000. Financial security shall be established and maintained in one or more of the following forms:

a. A surety bond guaranteeing performance of the East Side or West Side Work, as applicable;

b. One or more irrevocable letters of credit;

c. A trust fund;

d. A guarantee to perform the East Side or West Side Work, as applicable, by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with at least one of Performing Settling Defendant(s);

e. A demonstration that one or more of Performing Settling Defendants satisfy the requirements of 40 C.F.R. Part 264.143(f) for the East Side or West Side Work, as applicable.

f. Any combination of the above.

47. If a Performing Settling Defendant seeks to demonstrate the ability to complete its respective portion of the Work through a guarantee by a third party pursuant to Paragraph 46(d) of this Consent Decree, such Performing Settling Defendant shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f). If a Performing Settling Defendant seeks to demonstrate its ability to complete the Work by means of the financial test or the corporate guarantee pursuant to Paragraph 46(d) or 43(e), such Performing Settling Defendant shall

resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) annually, on the anniversary of the Effective Date. In the event that EPA determines at any time that the financial assurances provided by a Performing Settling Defendant pursuant to this Section are inadequate, the Performing Settling Defendant shall, within 90 days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 46 of this Consent Decree. Performing Settling Defendant(s)' inability to demonstrate financial ability to complete their respective portion of the Work shall not excuse performance of any activities required under this Consent Decree.

48. If a Performing Settling Defendant can show that the estimated cost to complete the remaining Work has diminished below the amount set forth in Paragraph 46 above after entry of this Consent Decree, such Performing Settling Defendant may, on any anniversary date of entry of this Consent Decree, or at any other time agreed to by the Parties, reduce the amount of the respective financial security provided under this Section to the estimated cost of the remaining work to be performed. The Performing Settling Defendant shall submit a proposal for such reduction to EPA, in accordance with the requirements of this Section, and may reduce the amount of the security upon approval by EPA. In the event of a dispute, Performing Settling Defendant(s) may reduce the amount of their respective security in accordance with the final administrative or judicial decision resolving the dispute.

49. Performing Settling Defendant(s) may change the form of their respective financial assurance provided under this Section at any time, upon notice to and approval by EPA, provided that the new form of assurance meets the requirements of this Section. In the event of a dispute, the Performing Settling Defendant involved in the dispute may change the form of its financial assurance only in accordance with the final administrative or judicial decision resolving the dispute.

XIV. CERTIFICATION OF COMPLETION

50. Intentionally Blank.

51. Completion of the Work.

a. Within 45 days after a Performing Settling Defendant concludes that all

phases of its portion of the Work (including O & M), have been fully performed, such Performing Settling Defendant shall schedule and conduct a pre-certification inspection to be attended by such Performing Settling Defendant and EPA. If, after the pre-certification inspection, Performing Settling Defendant still believes that the Work has been fully performed, Performing Settling Defendant(s) shall submit a written report by a registered professional engineer stating that the Work has been completed in full satisfaction of the requirements of this Consent Decree, within 30 days of the pre-certification inspection. The report shall contain the following statement, signed by a responsible corporate official of the Performing Settling Defendant or Performing Settling Defendant's Project Coordinator:

> To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is 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.

If, after review of the written report, EPA determines that any part of the Performing Settling Defendant's portion of the Work has not been completed in accordance with this Consent Decree, EPA will notify the Performing Settling Defendant in writing of the activities that must be undertaken by the Performing Settling Defendant pursuant to this Consent Decree to complete its portion of the Work, provided, however, that EPA may only require Performing Settling Defendant(s) to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy selected in the IROD as supplemented by the ESD" as that term is defined in Paragraph 14(b). EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require the Performing Settling Defendant to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). The Performing Settling Defendant shall perform all activities described in the notice in accordance with the specifications and schedules established therein, subject to its right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution).

b. If EPA concludes, based on the initial or any subsequent request for Certification of Completion by a Performing Settling Defendant, that its respective portion of the

Work has been performed in accordance with this Consent Decree, EPA will so notify the Performing Settling Defendant in writing.

XV. EMERGENCY RESPONSE

52. In the event of any action or occurrence during the performance of the East Side or West Side Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, the relevant Performing Settling Defendant shall, subject to the following Paragraph, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall immediately notify the EPA's Project Coordinator, or, if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these persons is available, the Performing Settling Defendant shall notify the EPA [Emergency Response Unit], Region 9. The Performing Settling Defendant shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, the Contingency Plans, and any other applicable plans or documents developed pursuant to the SOW. In the event that Performing Settling Defendant fails to take appropriate response action as required by this Section, and EPA takes such action instead, the Performing Settling Defendant shall reimburse EPA for all costs of the response action not inconsistent with the NCP pursuant to Section XVI (Payments for Response Costs).

53. Nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States 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 Site, 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 Site, subject to Section XXI (Covenants Not to Sue by Plaintiffs).

XVI. PAYMENTS FOR RESPONSE COSTS

54. Payments for Plaintiffs' Past Response Costs.

a. The East Side Performing Settling Defendant(s) shall pay to EPA $1,250,000.00 (One Million Two Hundred and Fifty Thousand Dollars) in payment for Past Response Costs as follows:

i) $350,000.00 within 30 days of the Effective Date

ii) $450,000.00 one year from the Effective Date

iii) $450,000.00 two years from the Effective Date.

The last two payments shall bear Interest on the declining principal balance calculated from 30 days after the Effective Date.

b. The West Side Performing Settling Defendant shall pay to EPA $250,000.00 (Two Hundred and Fifty Thousand Dollars) in payment for Past Response Costs as follows:

i) $50,000.00 within 30 days of the Effective Date

ii) $100,000.00 one year from the Effective Date

iii) $100,000.00 two years from the Effective Date.

The last two payments shall bear Interest on the declining principal balance calculated from 30 days after the Effective Date.

c. Safety-Kleen Systems, Inc. shall pay to EPA $400,000.00 (Four Hundred Thousand Dollars) as follows:

i) $100,000.00 within 30 days of the Effective Date

ii) $150,000.00 one year from the Effective Date

iii) $150,000.00 two years from the Effective Date.

The last two payments shall bear Interest on the declining principal balance calculated from 30 days after the Effective Date.

d. Within 30 days of the Effective Date, Paul Lee shall pay to EPA $32,500.00 (Thirty-Two Thousand Five Hundred Dollars) in payment for Past Response Costs.

e. All payments set forth in this Paragraph shall be made by FedWire Electronic Funds Transfer ("EFT") to the U.S. Department of Justice account in accordance with current EFT procedures, referencing EPA Site/Spill ID Number 097B, and DOJ Case Number

90-11-2-354/3. Payment shall be made in accordance with instructions provided to the Settling Defendants specified above by the Financial Litigation Unit of the United States Attorney's Office for the Central District of California following lodging of the Consent Decree. Any payments received by the Department of Justice after 4:00 p.m. (Eastern Time) will be credited on the next business day.

f. At the time of payment, the Settling Defendants specified above 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 XXVI (Notices and Submissions).

g. The total amount to be paid by the Settling Defendants specified pursuant to this Paragraph shall be deposited in the El Monte Operable Unit Special Account within the EPA Hazardous Substance Superfund 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.

h. Payment of DTSC Past Response Costs to DTSC. Within 30 days of entry of this Consent Decree, Performing Settling Defendants shall pay to DTSC $50,000 in the form of a certified check or cashier's check, in reimbursement of DTSC Past Response Costs. Performing Settling Defendants' check shall be made payable to Cashier, Department of Toxic Substances Control, and shall be forwarded to:

Department of Toxic Substances Control
State of California
Accounting Office
1001 I Street
Sacramento, California 95814

Performing Settling Defendants shall send a transmittal letter with the check referencing the San Gabriel Valley Superfund Sites, El Monte Operable Unit. Performing Settling Defendants shall also send a copy of the check and transmittal letter to DTSC, as specified in Section XXVI (Notices and Submissions).

55. Payments for Plaintiffs' Future Response Costs by Performing Settling Defendants.

a. Performing Settling Defendant(s) shall pay to EPA all Future Response

Costs that EPA incurs with respect to the Work, in accordance with Paragraph 6.a. and b. and the following sub-paragraphs.

b. Performing Settling Defendant(s) shall pay to EPA all Future Response Costs not inconsistent with the National Contingency Plan. On a periodic basis the United States will send Performing Settling Defendants a bill requiring payment that includes a standard Regionally-prepared cost summary, which includes direct and indirect costs incurred by EPA and its contractors, and a DOJ-prepared cost summary which reflects costs incurred by DOJ and its contractors, if any. Performing Settling Defendant(s) shall make all payments within 45 days of Performing Settling Defendant(s)' receipt of each bill requiring payment, except as otherwise provided in the following Paragraph. Performing Settling Defendant(s) shall make all payments required by this Paragraph by a certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party making the payment, EPA Site/Spill ID Number 097B, and DOJ Case Number 90-11-2-354/3. Performing Settling Defendant(s) shall send the check(s) to:

EPA Hazardous Substances Superfund
US EPA
Region 9
Attn: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251.

c. At the time of payment, Performing Settling Defendant(s) 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 XXVI (Notices and Submissions).

d. Performing Setting Defendants' payments pursuant to this Paragraph shall be deposited in the El Monte Operable Unit Special Account within the EPA Hazardous Substance Superfund 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.

e. Payment of DTSC Future Response Costs to DTSC. Performing Settling Defendant(s) shall pay to DTSC all DTSC Future Response Costs not inconsistent with the National Contingency Plan. On a periodic basis DTSC will send Performing Settling Defendants

a bill requiring payment that includes a standard DTSC cost summary, which includes direct and indirect costs incurred by DTSC and its contractors. Performing Settling Defendant(s) shall make all payments within 45 days of Performing Settling Defendant(s)' receipt of each bill requiring payment, except as otherwise provided in the following Paragraph. Performing Settling Defendant(s) shall make all payments required by this Paragraph in the form of a certified check or cashier's check made payable to Cashier, Department of Toxic Substances Control, and shall be forwarded to:

Department of Toxic Substances Control
State of California
Accounting Office
1001 I Street
Sacramento, California 95814

Performing Settling Defendants shall send a transmittal letter with the check referencing the San Gabriel Valley Superfund Sites, El Monte Operable Unit. Performing Settling Defendants shall also send a copy of its check and transmittal letter to DTSC, as specified in Section XXVI (Notices and Submissions).

56. Performing Settling Defendant(s) may contest payment of any Future Response Costs under the preceding Paragraph ("Payments for Plaintiffs' Future Response Costs") if they determine that the United States or DTSC has made an accounting error or if they allege that a cost item that is included represents costs that are inconsistent with the NCP. Such objection shall be made in writing within 45 days of receipt of the bill and must be sent to the United States or DTSC, as applicable, pursuant to Section XXVI (Notices and Submissions). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Performing Settling Defendant(s) shall, within the 45-day period, pay all uncontested Future Response Costs to the United States or DTSC in the manner described in the preceding Paragraph ("Payments for Plaintiffs' Future Response Costs"). Simultaneously, Performing Settling Defendant(s) shall establish an interest-bearing escrow account in a federally insured bank duly chartered in the State of California and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Performing Settling Defendant(s) shall send to the United States or DTSC, as applicable, as

provided in Section XXVI (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. Simultaneously with establishment of the escrow account, Performing Settling Defendant(s) shall initiate the Dispute Resolution procedures in Section XIX (Dispute Resolution). If the United States or DTSC prevails in the dispute, within 5 days of the resolution of the dispute, Performing Settling Defendant(s) shall pay the sums due (with accrued interest) to the United States or DTSC in the manner described in the preceding Paragraph ("Payments for Plaintiffs' Future Response Costs"). If Performing Settling Defendant(s) prevail concerning any aspect of the contested costs, Performing Settling Defendant(s) shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to the United States or DTSC in the manner described in the preceding Paragraph ("Payments for Plaintiffs' Future Response Costs"); any balance of the escrow account shall be disbursed to Performing Settling Defendant(s). The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIX (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Performing Settling Defendant(s)' obligation to reimburse the United States or DTSC for their respective Future Response Costs.

57. In the event that the payments required by Paragraph 54 ("Payments for Plaintiffs' Past Response Costs") are not made on the date due, or the payments required by Paragraph 55 ("Payments for Plaintiffs' Future Response Costs") are not made on the date due, Performing Settling Defendants, Safety Kleen or Paul Lee, as applicable, shall pay Interest on the unpaid balance. The Interest to be paid on Past Response Costs under this Paragraph shall begin to accrue on the date due. The Interest on Future Response Costs shall begin to accrue on the due date of the bill. The Interest shall accrue through the date of the respective Settling Defendant's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of a specified Settling Defendant's failure

to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to Paragraph 79. The specified Settling Defendants shall make all payments required by this Paragraph in the manner described in Paragraph 54.

58. Payments between Settling Defendants.

a. The East Side Performing Settling Defendants shall pay $3.3 million into a fund established by the West Side Performing Settling Defendant within 70 days of the Effective Date (unless an appeal of the entry of the Consent Decree is taken, in which case the payment will not become due until 10 days after final resolution of the appeal in favor of entry). EPA shall be a co-signatory on all disbursements from such fund by West Side Performing Settling Defendant.

b. Within 70 days of the Effective Date, the Union Pacific Railroad Company shall pay Two Hundred Fifty Thousand Dollars ($250,000.00) to the West Side Performing Settling Defendant and shall provide evidence of such payment to EPA concurrently therewith; provided, however, that if an appeal of the entry of the Consent Decree is taken, the payment will not become due until 10 days after final resolution of the appeal in favor of entry.

59. All other payments to Performing Settling Defendants by Contributing Settling Defendants will be made in accordance with Appendix H.

60. Intentionally Blank

61. Intentionally Blank

62. Intentionally Blank

63. Intentionally Blank

64. Intentionally Blank

XVII. INDEMNIFICATION AND INSURANCE

65. Performing Settling Defendant(s)' Indemnification of the United States and DTSC.

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

shall indemnify, save and hold harmless the United States and DTSC and their officials, agents, employees, contractors, subcontractors, or 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 Performing Settling Defendant(s), 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 Performing Settling Defendant(s) as EPA's authorized representatives under Section 104(e) of CERCLA. Further, Performing Settling Defendant(s) 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 Performing Settling Defendant(s), 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. The United States or DTSC shall not be held out as a party to any contract entered into by or on behalf of Performing Settling Defendant(s) in carrying out activities pursuant to this Consent Decree. Neither Performing Settling Defendant(s) nor any such contractor shall be considered an agent of the United States or DTSC.

b. The United States and DTSC shall give Performing Settling Defendant(s) notice of any claim for which the United State or DTSC s plans to seek indemnification pursuant to this Paragraph, and shall consult with Performing Settling Defendant(s) prior to settling such claim.

66. Performing Settling Defendant(s) waive all claims against the United States and 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 Performing Settling Defendant(s) and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Performing Settling Defendant(s) 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 Performing Settling Defendant(s) and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

67. No later than 15 days before commencing any on-site Work, each of the Performing Settling Defendants shall secure, and shall maintain until the first anniversary of EPA's Certification of Completion pursuant to Section XIV (Certification of Completion), comprehensive general liability insurance with limits of 2 million dollars, combined single limit, and automobile liability insurance with limits of 1 million dollars, combined single limit, naming the United States and DTSC as additional insureds. In addition, for the duration of this Consent Decree, each of the Performing Settling Defendants shall satisfy, or shall ensure that their respective 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 the respective Performing Settling Defendant in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, each of the Performing Settling Defendants shall provide to EPA certificates of such insurance and a copy of each insurance policy. Each of the Performing Settling Defendants shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. If a Performing Settling Defendant demonstrates 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, such Performing Settling Defendant need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

XVIII. FORCE MAJEURE

68. "Force Majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of the Settling Defendants, of any entity controlled by Settling Defendants, or of Settling Defendants' contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendants' best efforts to fulfill the obligation. The requirement that the Settling Defendants exercise "best

efforts to fulfill the obligation" includes using best efforts to anticipate any potential Force Majeure event and best efforts to address the effects of any potential Force Majeure event (1) as it is occurring and (2) following the potential Force Majeure event, 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 attain the Performance Standards. Only the East Side Performing Settling Defendant(s) may invoke the provisions of this Section with respect to the East Side Work; and only the West Side Performing Settling Defendant may invoke the provisions of this Section with respect to the West Side Work.

69. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, the Settling Defendant responsible for performing such obligation shall notify orally EPA's Project Coordinator 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 Hazardous Waste Management Division, EPA Region 9, within 48 hours of when Settling Defendants first knew that the event might cause a delay. Within 14 days thereafter, such Settling Defendant shall provide in writing to EPA 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; the Settling Defendant's rationale for attributing such delay to a Force Majeure event if they intend to assert such a claim; and a statement as to whether, in the opinion of the Settling Defendant, such event may cause or contribute to an endangerment to public health, welfare or the environment. The Settling Defendant shall include with any notice all available documentation supporting their claim that the delay was attributable to a Force Majeure event. Failure to comply with the above requirements shall preclude the Settling Defendant from asserting any claim of Force Majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. The Settling Defendant shall be deemed to know of any circumstance of which Settling Defendant, any entity controlled by Settling Defendant, or Settling Defendant's contractors knew or should reasonably have known.

70. If EPA agrees that the delay or anticipated delay is attributable to a Force Majeure event, the time for performance of the obligations under this Consent Decree that are affected by the Force Majeure event 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 event 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 event, EPA will notify the Settling Defendant in writing of its decision. If EPA agrees that the delay is attributable to a Force Majeure event, EPA will notify the Settling Defendant in writing of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event.

71. If any Settling Defendant elects to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution), it shall do so no later than 15 days after receipt of EPA's notice of its Force Majeure decision. In any such proceeding, the Settling Defendant 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 event, 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 the Settling Defendant complied with the requirements of Paragraphs 68 and 69, above. If the Settling Defendant carries this burden, the delay at issue shall be deemed not to be a violation by the Settling Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.

XIX. DISPUTE RESOLUTION

72. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce the obligations of any Settling Defendant that has not been disputed in accordance with this Section. Only the East Side Performing Settling Defendant(s) may invoke the provisions of this Section with respect to the East Side Work; and only the West Side Performing Settling Defendant may invoke the

provisions of this Section with respect to the West Side Work.

73. Any dispute which arises under or with respect to 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 30 days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

74. 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 21 days after the conclusion of the informal negotiation period, the Settling Defendant involved in the dispute invokes the formal dispute resolution procedures of this Section by serving on the United States 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 the Settling Defendant. The Statement of Position shall specify the Settling Defendant's position as to whether formal dispute resolution should proceed under Paragraph 75 or Paragraph 76.

b. Within 21 after receipt of the Settling Defendant's Statement of Position, EPA will serve on the Settling Defendant 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 75 or 76. Within 10 days after receipt of EPA's Statement of Position, the Settling Defendant(s) may submit a Reply.

c. If there is disagreement between EPA and the Settling Defendant as to whether dispute resolution should proceed under Paragraph 75 or 76, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if the Settling Defendant ultimately appeals 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 75 and 76.

75. 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: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and (2) 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 Defendants regarding the validity of the provisions of the IROD as supplemented by the ESD.

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 Waste Management Division, EPA Region 9, will issue a final administrative decision resolving the dispute based on the administrative record described in the preceding sub-paragraph. This decision shall be binding upon the Settling Defendant involved in the dispute, subject only to the right to seek judicial review pursuant to the next two sub-paragraphs.

c. Any administrative decision made by EPA pursuant to the preceding sub-paragraph shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by the Settling Defendant with the Court and served on all parties within 10 days of 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 Defendant's motion.

d. In proceedings on any dispute governed by this Paragraph, the Settling Defendant involved shall have the burden of demonstrating that the decision of the Waste Management 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 sub-paragraph a of this Paragraph.

76. 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. Following receipt of a Settling Defendant's Statement of Position submitted pursuant to Paragraph 74, the Director of the Waste Management Division, EPA Region 9 will issue a final decision resolving the dispute. The Waste Management Division Director's decision shall be binding on the Settling Defendant unless, within 10 days of receipt of the decision, the Settling Defendant files with the Court and serves 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 the Settling Defendant's motion.

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

77. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or affect in any way any obligation of the Settling Defendants under this Consent Decree, not directly in dispute, unless EPA or the Court agrees otherwise. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 86. 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 the Settling Defendant involved does not prevail on the disputed issue, stipulated penalties may be assessed and shall be paid as provided in Section XX (Stipulated Penalties).

XX. Stipulated Penalties

78. Performing Settling Defendants shall be liable for stipulated penalties in the

amounts set forth in Paragraphs 79 and 80 to the United States for failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XVIII (Force Majeure). "Compliance" by Performing Settling Defendants shall include completion of the activities under this Consent Decree or any work plan or other plan approved under this Consent Decree identified below in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any plans or other documents approved by EPA pursuant to this Consent Decree and within the specified time schedules established by and approved under this Consent Decree. Only the East Side Performing Settling Defendant(s) shall be responsible for stipulated penalties relating to the East Side Work; and only the West Side Performing Settling Defendant shall be responsible for stipulated penalties relating to the West Side Work.

79. Stipulated Penalty Amounts - Work.

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

Penalty Per Violation Per Day	Period of Noncompliance
$1,500	1st through 14th day
$2,500	15th through 30th day
$3,500	31st day and beyond

b. Compliance Milestones. Failure to submit or perform any of the following within the specified time schedule provided for in this Decree shall incur the stipulated penalties set out in Subparagraph a.

i. Compliance and Sentinel Well Network Plan

ii. Draft and Final RD/RA Work Plan

iii. Preliminary Remedial Design

iv. Pre-final Remedial Design

v. Final Remedial Design

vi. Initiation of Construction of Remedial Action

vii. Remedial Action Construction Report

viii. Interim Remedial Action Report

ix. Performance Evaluation Reports

x. Non-compliance Notification

xi. Failure to make timely payments for Past or Future Response Costs of the United States

xi. Failure to make timely payments for Past or Future Response Costs of DTSC.

80. Stipulated Penalty Amounts - Reports. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other written documents.

Penalty Per Violation Per Day	Period of Noncompliance
$1,500	1st through 14th day
$2,500	15th through 30th day
$3,500	31st day and beyond

81. In the event that EPA assumes performance of a portion or all of the East Side or West Side Work pursuant to Paragraph 95 ("Work Takeover") of Section XXI (Covenants Not to Sue by Plaintiffs), the East Side or West Side Performing Settling Defendants, as applicable, shall be liable for a stipulated penalty in the amount of $3.5 million or twice the cost of the remainder of the East Side or West Side Work (as applicable), whichever is less.

82. 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: (1) with respect to a deficient submission under Section XI (EPA Approval of *Plans and Other Submissions), during the period, if any, beginning on the 31st day after EPA's* receipt of such submission until the date that EPA notifies the respective Performing Settling Defendant of any deficiency; (2) with respect to a decision by the Director of the Waste Management Division, EPA Region 9, under Section XIX (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that such Performing Settling Defendant's reply to EPA's Statement of Position is received until the date that the Director issues a final

decision regarding such dispute; or (3) with respect to judicial review by this Court of any dispute under Section XIX (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 herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

83. Following EPA's determination that a Performing Settling Defendant has failed to comply with a requirement of this Consent Decree, EPA may give such Performing Settling Defendant written notification of the same and describe the noncompliance. EPA may send the Performing Settling Defendant 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 the Performing Settling Defendant of a violation.

84. All penalties accruing under this Section shall be due and payable to the United States within 30 days of the Performing Settling Defendant's receipt from EPA of a demand for payment of the penalties, unless such Performing Settling Defendant invokes the Dispute Resolution procedures under Section XIX (Dispute Resolution). All payments to the United States under this Section shall be paid by certified or cashier's check(s) made payable to "EPA Hazardous Substances Superfund," shall be mailed to

EPA Hazardous Substances Superfund
US EPA
Region 9
Attn: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251.

shall indicate that the payment is for stipulated penalties, and shall reference the EPA Region and Site/Spill ID # 097B, the DOJ Case Number 90-11-2-354/3, and the name and address of the party making payment. Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to the United States as provided in Section XXVI (Notices and Submissions). However, any penalties accruing under this Section for Settling Defendants' failures to pay DTSC Past Response Costs or DTSC Future Response Costs shall be due and payable to DTSC, pursuant to the payment terms set forth in Paragraph 54.h.

85. The payment of penalties shall not alter in any way Performing Settling

Defendants' obligation to complete the performance of the Work required under this Consent Decree.

86. Penalties shall continue to accrue as provided in Paragraph 82 during any dispute resolution period, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owing shall be paid to EPA within 15 days of 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, the Performing Settling Defendant filing such appeal shall pay all accrued penalties determined by the Court to be owed to EPA within 60 days of receipt of the Court's decision or order, except as provided in Subparagraph c below;

c. If the District Court's decision is appealed by any Party, the Performing Settling Defendant involved in the appeal shall pay all accrued penalties determined by the District Court to be owing to the United States into an interest-bearing escrow account within 60 days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every 60 days. Within 15 days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to the Performing Settling Defendant to the extent that they prevail.

87. If a Performing Settling Defendant fails to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as interest. The Performing Settling Defendant shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 84.

88. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of Performing Settling Defendants' violation of this 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, 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 herein, except in the case of a willful violation of the Consent Decree.

89. 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.

XXI. COVENANTS NOT TO SUE BY PLAINTIFFS

90. In consideration of the actions that will be performed and the payments that will be made by the Settling Defendants under the terms of the Consent Decree, and except as specifically provided in Paragraph 94 ("General reservations of rights") of this Section, the United States covenants not to sue or to take administrative action against Settling Defendants, other than the Ability-to-Pay Settling Defendants, pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), or Section 7003 of RCRA, 42 U.S.C. § 6973 for performance of the Work and for recovery of Past Response Costs, Future Response Costs and future Basin-Wide Response Costs. These covenants not to sue shall take effect for Performing Settling Defendant(s) upon receipt by EPA of the payments required of them by Paragraph 54 a.i) and 54 b.i) of Section XVI (Payments for Response Costs). These covenants not to sue shall take effect for each Contributing Settling Defendant upon EPA's receipt of notification, pursuant to Paragraph 6 c., that such Contributing Settling Defendant has discharged its payment obligations pursuant to this Decree. With respect to each Settling Defendant, these covenants not to sue are conditioned upon the satisfactory performance by that Settling Defendant of its obligations under this Consent Decree, including, for each Performing Settling Defendant, its obligations under Paragraphs 54 a.ii) and a.iii) or 54 b.ii) and b.iii) as applicable. These covenants not to sue extend only to Settling Defendants (other than the Ability-to-Pay Settling Defendants) and do not extend to any other person.

91. Except as specifically provided in this Paragraph, the United States covenants not to sue or to take administrative action against the Ability-to-Pay Settling Defendants pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), with regard to the Site. With respect to present and future liability, this covenant shall take effect upon receipt by DOJ of the payments required by Paragraph 54 of Section XVI (Payments for Response Costs). This

covenant not to sue is conditioned upon the satisfactory performance by Ability-to-Pay Settling Defendants of their obligations under this Consent Decree including but not limited to, payment of all amounts due by them under Section XVI (Payments for Response Costs), and any amounts due under Section XX (Stipulated Penalties). This covenant not to sue is also conditioned upon the veracity and completeness of any financial information previously provided to EPA by Ability-to-Pay Settling Defendants. If any such financial information is subsequently determined by EPA to be false or, in any material respect, inaccurate, the submitting Ability-to-Pay Settling Defendant shall forfeit all payments made pursuant to this Consent Decree and this covenant not to sue and the contribution protection shall be null and void. Such forfeiture shall not constitute liquidated damages and shall not in any way foreclose the United States' right to pursue any other causes of action arising from Ability-to-Pay Settling Defendant's false or materially inaccurate information. This covenant not to sue extends only to Ability-to-Pay Settling Defendants and does not extend to any other person. Safety-Kleen Systems, Inc., has advised EPA that it is in the process of reorganization under Chapter 11 of the Bankruptcy Code.

92. Covenant Not to Sue by DTSC. Except as specifically provided in Paragraph 94 ("General reservations of rights") of this Section, DTSC covenants not to sue Settling Defendants, and each of them, pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and Section 7003 of the Resource Conservation and Recovery Act and comparable state laws, including but not limited to, the California Civil Code § 3494, and California Health and Safety Code §§ 25300 *et seq.*, to recover DTSC Past Response Costs, DTSC Future Response Costs or future Basin-wide Response Costs. This covenant not to sue shall take effect as to the Settling Defendants upon payment to DTSC of all payments required from Performing Settling Defendants by Paragraph 54h (Payment of Past Response Costs to DTSC). The covenant not to sue granted to each Settling Defendant is conditioned upon the satisfactory performance by that Settling Defendant of its obligations under this Consent Decree. This covenant not to sue extends only to Settling Defendants and does not extend to any other person. In the event of a breach by a Settling Defendant of its obligations under this Consent Decree, the covenant shall remain in effect as to the other Settling Defendants.

93. Intentionally Blank.

94. General reservations of rights. The United States and DTSC reserve, and this Consent Decree is without prejudice to, all rights against Settling Defendants with respect to all matters not expressly included within Plaintiffs' covenant not to sue. Notwithstanding any other provision of this Consent Decree, the United States and DTSC reserve all rights against Performing Settling Defendant(s), and all rights other than those set out in subsections (e) and (f) against Contributing Settling Defendants and Ability-to-Pay Settling Defendants, with respect to:

a. claims against a Settling Defendant based on a failure by such Settling Defendant to meet a requirement of such Settling Defendant under this Consent Decree;

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

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

d. criminal liability;

e. liability for violations of federal or state law which occur during or after implementation of the Remedial Action; and

f. liability, prior to Certification of Completion of the Remedial Action, for additional response actions that EPA determines are necessary to achieve Performance Standards, but that cannot be required pursuant to Paragraph 14 (Modification of the SOW or Related Work Plans);

g. liability for any other operable units of the San Gabriel Valley Superfund Site.

95. Work Takeover In the event EPA determines that Performing Settling Defendant(s) have ceased implementation of any portion of the East Side or West Side Work, are seriously or repeatedly deficient or late in their respective performance of the Work, or are implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portions of the East Side or West Work as EPA determines necessary. Performing Settling Defendant(s) may invoke the

procedures set forth in Section XIX (Dispute Resolution), Paragraph 75, to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by the United States in performing the Work pursuant to this Paragraph, which are not reimbursed through the financial assurance mechanism(s) established by the relevant Performing Settling Defendant pursuant to Paragraph 46, shall be considered Future Response Costs that Performing Settling Defendant(s) shall pay pursuant to Section XVI (Payment for Response Costs).

96. 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.

XXII. COVENANTS BY SETTLING DEFENDANTS

97. Covenant Not to Sue. Subject to the reservations in the following Paragraph, Settling Defendants hereby 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 East Side Work and the West Side Work, past response actions, Past Response Costs and Future Response Costs as defined herein, or this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113 or any other provision of law;

b. any claims against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113 related to the Site, or

c. any claims arising out of response actions at or in connection with the Site, 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, as amended, or at common law.

Except as provided in Paragraph 106 (waiver of Claim-Splitting Defenses), these covenants not to sue shall not apply in the event that the United States or DTSC brings a cause of action or issues an order pursuant to the reservations set forth in paragraph 94 (b) - (d) or 94 (g), 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.

98. The 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, 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 while acting within the scope of his office or employment under circumstances where the United States, 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, any such claim shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a federal employee as that term is defined in 28 U.S.C. § 2671; nor shall any such claim include a claim based on EPA's selection of response actions, or the oversight or approval of the Settling Defendants' plans or activities. The foregoing applies only to claims which are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA.

99. 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).

100. Intentionally Blank.

101. Each Settling Defendant covenants not to sue any other Settling Defendant with respect to the East Side Work and the West Side Work, past response actions, Past Response Costs, DTSC Past Response Costs, Future Response Costs, DTSC Future Response Costs, and future Basin-Wide Response Costs, as defined herein, or this Consent Decree. Settling Defendants Hermetic Seal Corporation, Clayton Industries, Plato Products, Inc., and the Adams Family Trust specifically release any and all causes of action assigned to them by Southern California Water Company against any and all other Settling Defendants.

XXIII. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

102. 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. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this decree may have under applicable law. Plaintiffs and each Settling Defendant expressly reserve any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which each of them may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person other than Plaintiffs and/or Settling Defendants.

103. The Parties agree, and by entering this Consent Decree this Court finds, that the Settling Defendants are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2) for matters addressed in this Consent Decree. The "matters addressed" in this Consent Decree are past response actions, Past Response Costs, Future Response Costs, and future Basin-Wide Response Costs, the East Side Work and West Side Work, and all work required in the IROD, the ESD and the SOW and any further response required under Section VIII, Paragraph 20 (Performing Settling Defendant(s)' Obligation to Perform Further Response Actions), and DTSC Past Response Costs and DTSC Future Response Costs. The parties hereto intend that this settlement will afford each Settling Defendant full protection against any contribution claims relating to the matters addressed in this Consent Decree.

104. East Side Performing Defendants retain all contribution rights against NavCom Defense Electronics, Inc., Ernest Jarvis, and Hyrum Jarvis. West Side Performing Defendant retains all contribution rights against Crown City Plating Company, Inc. NavCom, the Jarvis Brothers and Crown City are not Settling Defendants under this Consent Decree.

105. The Settling Defendants agree that with respect to any suit or claim for contribution brought by them for matters addressed in this Consent Decree they will notify the United States and DTSC in writing no later than 30 days prior to the initiation of such suit or claim.

106. The Settling Defendants also agree that with respect to any suit or claim for contribution brought against them for matters addressed in this Consent Decree they will notify

in writing the United States and DTSC within 30 days of service of the complaint on them. In addition, Settling Defendants shall notify the United States and DTSC within 30 days of service or receipt of any Motion for Summary Judgment and within 30 days of receipt of any order from a court setting a case for trial.

107. 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 XXI (Covenants Not to Sue by Plaintiffs).

XXIV. ACCESS TO INFORMATION

108. Settling Defendants shall provide to EPA, upon request, and within a reasonable time, copies of all documents and information 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 related to the Work. Settling Defendants shall also make available to EPA, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

109. Business Confidential and Privileged Documents.

a. Settling Defendants may assert business confidentiality claims covering part or all of the documents or information 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). Documents or information 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 documents or information when they are submitted to EPA, or if

EPA has notified Settling Defendants that the documents or information 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 documents or information without further notice to Settling Defendants.

b. The Settling Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Settling Defendants assert such a privilege in lieu of providing documents, they shall provide the Plaintiffs with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the contents of the document, record, or information; and (6) the privilege asserted by Settling Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

110. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XXV. RETENTION OF RECORDS

111. Until 10 years after the Performing Settling Defendants' receipt of EPA's notification pursuant to Section XIV (Certification of Completion of the Work), each Settling Defendant shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to its liability under CERCLA with respect to the Site; provided, however, that Settling Defendants shall not be required to retain documents and records that relate to the liability of any other person under CERCLA with respect to the Site, which were obtained from governmental agencies or received from other Settling Defendants or non-settling PRPs in the course of allocation negotiations between and among such parties. Each

Performing Settling Defendant must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above all non-identical copies of the last draft or final version of any documents or records (including documents or records in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work, provided, however, that each Performing 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 documents required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

112. At the conclusion of this document retention period, Settling Defendants shall notify the United States at least 90 days prior to the destruction of any such records or documents, and, upon request by the United States, Settling Defendants shall deliver any such records or documents to EPA. The Settling Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Settling Defendants assert such a privilege, they shall provide the Plaintiffs with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Settling Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

113. Each Settling Defendant hereby 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, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by the United States or DTSC or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Section 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.

114. The Ability-to-Pay Settling Defendants hereby certify that, to the best of their knowledge and belief, after thorough inquiry, they have submitted to EPA financial information that fairly, accurately, and materially sets forth their financial circumstances, and that those circumstances have not materially changed between the time the financial information was submitted to EPA and the time Ability-to-Pay Settling Defendants execute this Consent Decree. Safety-Kleen Systems, Inc., has advised EPA that it is in the process of reorganization under Chapter 11 of the Bankruptcy Code.

XXVI. NOTICES AND SUBMISSIONS

115. 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 listed in Appendix G, 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. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, DTSC, and the Settling Defendants, respectively.

XXVII. EFFECTIVE DATE

116. The effective date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court, except as otherwise provided herein.

XXVIII. RETENTION OF JURISDICTION

117. This Court retains jurisdiction over both the subject matter of this Consent Decree and the 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 XIX (Dispute Resolution) hereof.

XXIX. APPENDICES

118. The following appendices are incorporated into this Consent Decree:

"Appendix A" is the IROD.

"Appendix B" is the ESD.

"Appendix C" is the SOW-East Side.

"Appendix D" is the SOW-West Side.

"Appendix E" is the description and/or map of the Site.

"Appendix F" is the complete list of the Settling Defendants.

"Appendix G" is the list of Addresses for Notice pursuant to Section XXVI (Notices and Submissions) and for Service pursuant to Section XXXIII (Signatories/Service).

"Appendix H" is the list of Payment Obligations of Contributing Settling Defendants.

"Appendix I" is EPA's list of recipients of the special notice letters.

XXX. COMMUNITY RELATIONS

119. Performing Settling Defendants shall propose to EPA their participation in the community relations plan to be developed by EPA. EPA will determine the appropriate role for the Performing Settling Defendants under the Plan. Performing Settling Defendants shall also cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Performing Settling Defendants shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

XXXI. MODIFICATION

120. Schedules specified in this Consent Decree for completion of the Work may be modified by agreement of EPA and Performing Settling Defendant(s). All such modifications shall be made in writing.

121. Except as provided in Paragraph 14 (Modification of the SOW or Related Work Plans), no material modifications shall be made to the SOW without written notification to and written approval of the United States, Performing Settling Defendant(s), and the Court, if such modifications fundamentally alter the basic features of the selected remedy within the meaning of 40 C.F.R. 300.435(c)(2)(B)(ii). Prior to providing its approval to any modification, the United

States will provide DTSC with a reasonable opportunity to review and comment on the proposed modification. Modifications to the SOW that do not materially alter that document, or material modifications to the SOW that do not fundamentally alter the basic features of the selected remedy within the meaning of 40 C.F.R.300.435(c)(2)(B)(ii), may be made by written agreement between EPA, after providing DTSC with a reasonable opportunity to review and comment on the proposed modification, and Performing Settling Defendant(s).

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

XXXII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

123. 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 reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. Settling Defendants consent to the entry of this Consent Decree without further notice.

124. 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.

XXXIII. SIGNATORIES/SERVICE

125. Each undersigned representative of a Settling Defendant 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.

126. Each Settling Defendant hereby 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 the Settling Defendants in writing that it no longer supports entry of the Consent Decree.

127. Each Settling Defendant shall identify, in Appendix G, the name, address and facsimile 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 hereby 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. The parties agree that 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.

XXXIV. FINAL JUDGMENT

128. This Consent Decree and its appendices constitute the final, complete, and exclusive agreement and understanding among the parties with respect to 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.

129. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between and among the United States, DTSC, and the 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.

DATED: April 16, 2004

UNITED STATES DISTRICT JUDGE

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR THE UNITED STATES OF AMERICA
Department of Justice

11/26/03
Date

Kelly A Johnson
~~THOMAS L. SANSONETTI~~
Acting
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

11/12/2003
Date

STEVEN O'ROURKE
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611

2/26/04
Date

SUZETTE CLOVER
Assistant United States Attorney
300 North Los Angeles Street
Los Angeles, California 90012
Telephone: (213) 894-2442

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR THE UNITED STATES OF AMERICA
EPA

11-14-03
Date

KEITH TAKATA
Director of the Superfund Division
United States Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

11/07/03
Date

JAMES COLLINS
Assistant Regional Counsel
United States Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL:

DATE: 2/6/04

THOMAS M. COTA, Chief
Southern California Cleanup Operations Branch--
Cypress Office
Department of Toxic Substance Control
5796 Corporate Avenue
Cypress, California 90630
(714) 484-5459

DATE: 2/24/04

ANN RUSHTON
Deputy Attorney General
300 South Spring Street
Los Angeles, California 90013
Telephone: (213) 897-2608

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Adams Family Trust dtd. 11/14/86

DATE: September 30, 2003

Signature: _____

Name (print): John H. Adams

Title: Trustee

Address: 110 Mason Circle, Suite D

Concord, CA 94520

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Sparling Instruments Co., Inc.

(a California Corporation)

DATE: September 30, 2003

Signature: _____

Name (print): John H. Adams

Title: President

Address: 110 Mason Circle, Suite D

Concord, CA 94520

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Ball Glass Container Corporation

DATE: 9/26/03 Signature: Kent Bickell

Name (print): Kent Bickell

Title: Manager, Environmental Services

Address: 9300 W. 108th Circle

Broomfield, CO 80021-3682

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Beagle Manufacturing Co., Inc.

DATE: 9-29-03 Signature: Robert S McCracken

Name (print): Robert S. McCracken

Title: President

Address: 2136 Kings Crest Drive

West Covina, CA 91791

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Beagle Properties, Inc.

DATE: 9/29/03 Signature: Jean L. Drabble

Name (print): Jean L. Drabble

Title: President

Address: 300 N. Lake Ave.
Suite 930
Pasadena, CA 91101

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States. et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Brown Jordan Company

DATE: 9-29-03

Signature: Frank Taff

Name (print): Frank Taff

Title: C.O.O., Brown Jordan Co.

Address: 9860 Gidley St
El Monte, CA.
91731

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR Chadbury Company, Inc., a California corporation, f/k/a Chadwick-Helmuth Company, Inc.

DATE: 25 Sept 2003 Signature: William H Chadwick

Name: William H. Chadwick

Title: President

Address: 102 Andre Drive

Arroyo Grande, CA 93420

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR Chadwick Associates, a California partnership

DATE: 25 Sept 2003 Signature: William H Chadwick

Name: William H. Chadwick

Title: General Partner

Address: 102 Andre Drive

Arroyo Grande, CA 93420

DATE: 25 Sept. 2003 Signature: John Chadwick

Name: John W. Chadwick

Title: General Partner

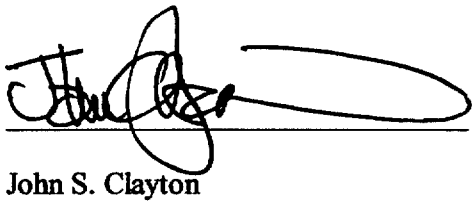
Address: 73 Hidden Valley Road

Monrovia, CA 91016

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR: Clayton Industries A California Corporation:

DATE: September 29, 2003

Signature: 

Name: John S. Clayton

Title: President

Address: Clayton Industries a California Corporation

4213 N. Temple City Blvd

El Monte, California 91731

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): CLAYTON LAND HOLDING CO., INC.

DATE: September 26, 2003 Signature: Andrew MacKenzie

Name (print): ANDREW MacKENZIE

Title: Vice President

Address: 402 North Division Street

Carson City, Nevada 89703

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name) FAIRCHILD HOLDING CORP.

DATE: 10-7-03

Signature: Donald E. Miller

Name (print): Donald E. Miller

Title: Vice President

Address: 45025 Aviation Drive

Dulles, VA 20166

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): NIKKO MATERIALS USA, Inc. d/b/a GOULD ELECTRONICS

DATE: 10/24/03

Signature: Thomas N. Rich

Name (print): THOMAS N. RICH

Title: CHIEF FINANCIAL OFFICER & SECRETARY

Address: 34929 CURTIS BLVD
EASTLAKE, OH 44095

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name) HCC Industries Inc.

DATE: OCT 1, 2003

Signature: [signature]

Name (print): Christopher H. Bateman

Title: Vice President

Address: 4232 Temple City Blvd
Rosemead, CA. 91770

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name) Johnson Controls, Inc.

DATE: September 29, 2003 Signature: _____

Name (print): Jerome D. Okarma

Title: Deputy General Counsel

Address: P.O. Box 591, X-32

Milwaukee, WI 53201

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States et al. v. Adams Family Trust et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR:

DATE: 9-25-03

Signature: [signature]

Name (print): PAUL LEE

Title: OWNER

Address: 9264 STEELE ST
Rosemead CA 91770

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR: M. C. Gill Corporation

DATE: September 25, 2003 Signature: Kenneth A Boudreau

Name (print): Kenneth A. Boudreau

Title: Chief Executive Officer

Address: 4056 Easy Street

El Monte, California 91731

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Miller Die Corp.

DATE: 9/24/03

Signature:

Name (print): Philip Rutten

Title: CEO

Address: 4400 N. Temple City Blvd
El Monte CA 91731

To Kelly McTigue 213 612 2554

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR

DATE: 10/27/03

Signature: D Lynn Mackay

Name (print): D LYNN MACKAY

Title: Sec PARKS PROPERTIES, INC

Address: 903 E ROUTE 66 STE D

GLENDORA, CA 91740

(626) 963-0274

FAX (626) 963-6269

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): PerkinElmer, Inc.

DATE: 9/29/03

Signature: [signature]

Name (print): John L. Healy

Title: Associate General Counsel

Address: PerkinElmer Legal Dept.
45 William Street
Wellesley MA
02481

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR: Birtcher Medical Systems, Inc.

DATE: September 26, 2003 Signature: _____

Name: Daniel S. Jonas

Title: Authorized Agent

Address: ConMed Corporation
525 French Road
Utica, New York 13502

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

Name: Daniel S. Jonas

Title: Authorized Agent

Address: ConMed Corporation
525 French Road
Utica, New York 13502

Ph. Number: (315) 624-3208

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name) PLATO PRODUCTS, INC.

DATE: 9/29/03

Signature: William D. Eldred

Name (print): WILLIAM D. ELDRED

Title: VICE PRESIDENT

Address: 18731 RAILROAD ST.
CITY OF INDUSTRY
CA 91748

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name) KENEL, INC.

DATE: 9/29/03

Signature: William D Eldred

Name (print): WILLIAM D. ELDRED

Title: VICE PRESIDENT

Address: 18731 RAILROAD ST.
CITY OF INDUSTRY
CA 91748

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name) ELDRED + KENT

DATE: 9/29/03

Signature: William D Eldred

Name (print): WILLIAM D. ELDRED

Title: GENERAL PARTNER

Address: 18731 RAILROAD ST.
CITY OF INDUSTRY
CA 91748

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Precision Coil Spring Co

DATE: 9/29/03

Signature: [signature]

Name (print): Bert Goering

Title: President

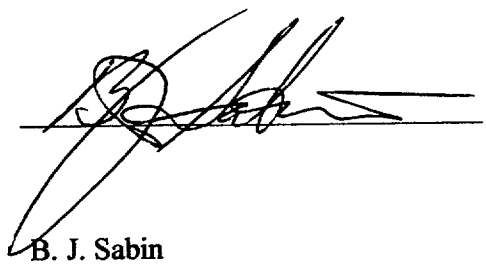
Address:

Precision Coil Spring Company
10107 ROSE AVENUE
EL MONTE, CA 91731

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR: B. J. SABIN

DATE: September 25, 2003

Signature: 

Name: B. J. Sabin

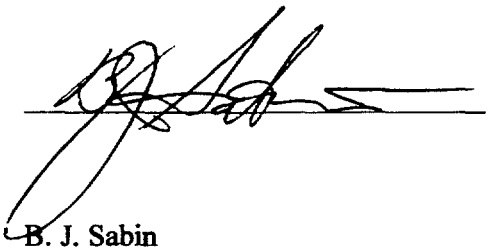
Title: An Individual

Address: 145 Alamo Hills Court

Alamo, CA 94507

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR: SABIN CONSTRUCTION, INC.

DATE: September 25, 2003 Signature: 

Name: B. J. Sabin

Title: President

Address: 145 Alamo Hills Court

Alamo, CA 94507

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR: SAFETY-KLEEN SYSTEMS, INC.,
a Wisconsin Corporation

DATE: 9/29/03

Signature: _____

Name (print): Virgil W. Duffie, III

Title: Secretary and Senior Corporate Counsel

Address: 5400 Legacy Drive
Cluster II, Bldg. 3
Plano, Texas 75024

9/

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR: TRAIL CHEMICAL CORPORATION

DATE: September 29, 2003

Signature: William J Peters

Name (print): William J. Peters

Title: Chairman of the Board

Address: 9904 Gidley Street

El Monte, CA 91731

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): UNION PACIFIC RAILROAD COMPANY

DATE: 9-29-03

Signature: J. Michael Hemmer

Name (print): J. MICHAEL HEMMER

Title: VICE PRESIDENT - LAW

Address: UNION PACIFIC RAILROAD COMPANY
1416 DODGE STREET
ROOM 830
OMAHA, NE 68179

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Harbert Grand Investment Company, LLC, a California limited liability company

DATE: 9-26-03

Signature: Raymond E. Harbert

Name (print): Ray Harbert

Title: Grand Avenue Industrial Park Group memb OWNER 25%

Address: 11706 Ramona Boulevard
Suite 204
El Monte, California 91732

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Larry G. Lindquist, an individual

DATE: 9-26-03

Signature: Larry G Lindquist

Name (print): Larry G. Lindquist

Title: Grand Avenue Industrial Park Group mem OWNER 25%

Address: 627 Hampton Road
Arcadia, California 91006

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Charleen S. Lindquist, an individual

DATE: 9-24-03 Signature: Charleen S. Lindquist

Name (print): Charleen S. Lindquist

Title: Grand Avenue Industrial Park Group mem OWNER 25%

Address: 627 Hampton Road
Arcadia, California 91006

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): David Rodriguez, Jr., an individual

DATE: Sept. 26, 2003 Signature: David Rodriguez Jr.

Name (print): David Rodriguez, Jr.

Title: Grand Avenue Industrial Park Group mem Owners (18 %).

Address: 1070 Beachwood Drive

Alta Loma, California 91737

97

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Dolores Rodriguez, an individual

DATE: 10-1-03 Signature:

Name (print): Dolores Rodriguez

Title: Grand Avenue Industrial Park Group member

Address: 10705 Beechwood Drive

Alta Loma, California 91737

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Glen E. Powell, an individual

DATE: 9/26/03 Signature: Glen E. Powell

Name (print): Glen E. Powell

Title: Grand Avenue Industrial Park Group mem Owner 25/6

Address: 11706 Ramona Boulevard
Suite 200
El Monte, California 91732

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): The estate of Thalia Powell

DATE: 9/26/03

Signature: Glen E Powell

Name (print): Glen E. Powell

Title: Grand Avenue Industrial Park Group mem Owner 25%

Address: 11706 Ramona Boulevard
Suite 200
El Monte, California 91732

100

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Lyle A. Schmidt, an individual

DATE: Sept 26, 2003 Signature: Lyle A. Schmidt

Name (print): Lyle A. Schmidt

Title: Grand Avenue Industrial Park Group mem

Address: 8111 Waynemer Way
Houston, Texas 77040

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States, et al. v. Adams Family Trust, et al., relating to the El Monte Operable Unit of the San Gabriel Valley Superfund Site.

FOR (insert Party's name): Karen L. Schmidt, an individual

DATE: Sept. 24, 2003 Signature: Karen L. Schmidt

Name (print): Karen L. Schmidt

Title: Grand Avenue Industrial Park Group mem

Address: 8111 Waynemer Way
Houston, Texas 77040

Appendix A

Interim Record of Decision

Appendix A to the Consent Decree

INTERIM RECORD OF DECISION

SAN GABRIEL VALLEY SUPERFUND SITE
EL MONTE OPERABLE UNIT
LOS ANGELES COUNTY, CALIFORNIA

June 1999

United States Environmental Protection Agency
Region IX - San Francisco, California

Contents

Contents

Contents

Contents

Contents

Part I
Declaration

Part I - Declaration

1.1 Site Name and Location

This Interim Record of Decision (ROD) addresses groundwater contamination at the El Monte Operable Unit (El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California.

1.2 Statement of Basis and Purpose

This ROD presents the selected interim remedial action for the El Monte OU of the San Gabriel Valley Superfund Site in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §§ 9601 et. seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (collectively referred to herein as CERCLA) and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 (NCP). This decision is based on the Administrative Record for this site.

The State of California, acting through the California Department of Toxic Substances Control (DTSC) and the Los Angeles Regional Water Quality Control Board (RWQCB), concur with the selected remedy.

1.3 Assessment of the Site

EPA has determined that volatile organic compounds (VOCs) have been released into groundwater within the El Monte OU, and that a substantial threat of release to groundwater still 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

This interim action ROD addresses groundwater contaminated with VOCs. EPA's objective is to protect human health and the environment. The selected remedy is containment of groundwater contaminated with VOCs in the shallow and deep zones in the El Monte OU to prevent further migration of existing groundwater contamination. This remedy includes performance criteria that will require extraction and treatment of contaminated groundwater at certain locations along the downgradient edge of the contamination and will require continued monitoring and evaluation at other locations. Most likely, the treated groundwater will be discharged to Eaton Wash (more probable for shallow groundwater) or provided to local water purveyors (more probable for deep groundwater). Other discharge options may be evaluated. In addition, this remedy includes monitoring in the shallow and deep groundwater zones in the El Monte OU. This remedy is one of five interim remedial actions that are under evaluation or have

been selected to contain contaminated groundwater plumes within the San Gabriel Valley Superfund Sites.

1.5 Statutory Determinations

The selected interim action remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the interim remedial action, is cost effective, and utilizes permanent solutions 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 materials through treatment).

Because this interim remedy will result in hazardous substances remaining onsite above health-based levels and does not limit groundwater use or restrict exposure, a review will be conducted at least once every five years after commencement of the interim remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

1.6 ROD Data Certification Checklist

The following information is presented in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern (COCs) and their respective concentrations
- Baseline risk represented by the COCs
- Current and future groundwater use assumptions used in the baseline risk assessment and ROD
- Groundwater use that will be available at the site as a result of the selected remedy
- 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
- Decisive 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)

Cleanup levels in the aquifer are not included in this interim action ROD because this is an interim action remedy focused on groundwater containment.

Keith A. Takata
Director of Superfund Division
U.S. Environmental Protection Agency, Region IX

Date

Part II
Decision Summary

Part II - Decision Summary

This Decision Summary portion of the interim Record of Decision (ROD) summarizes the information and approaches that the U.S. Environmental Protection Agency (EPA) used to reach a decision on this remedy. It also establishes the remedy that EPA has selected.

1 Site Name, Location and Description

This ROD presents EPA's selected remedial action to address groundwater contamination at the El Monte Operable Unit (El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California.

1.1 Site Description

The El Monte OU is part of the San Gabriel Valley Superfund Site Area 1, located in eastern Los Angeles County, California (Figure 1). The term "Operable Unit" (OU) is used to define a discrete action that is an incremental step toward a comprehensive site remedy. Operable units may address certain geographic areas, specific site problems, initial phases of a remedy, or a set of actions over time. In addition to the El Monte OU, EPA has identified other OUs at the San Gabriel Valley Superfund Site. These are the Baldwin Park OU, Alhambra OU, Puente Valley OU, Richwood OU, South El Monte OU, Suburban OU, and Whittier Narrows OU. EPA is the lead regulatory agency overseeing the cleanup at the San Gabriel Valley Superfund Site. The San Gabriel Valley Superfund Site Area 1 has a CERCLIS ID CAD980677355.

The San Gabriel Valley encompasses a basin that is approximately 170 square miles. Groundwater in the San Gabriel Basin is the primary drinking water source for more than one million people. Regional groundwater contamination by volatile organic compounds (VOCs) prompted EPA to place the San Gabriel Valley on the National Priorities List (NPL) in 1984. This list identifies the highest priority hazardous waste sites in the United States for investigation and cleanup.

The El Monte OU covers approximately 10 square miles in the south central portion of the San Gabriel Basin. The El Monte OU is generally bounded by the San Bernardino Freeway (Interstate 10) on the south, Rosemead Boulevard on the west, and Santa Anita Avenue and the Rio Hondo on the east. The El Monte OU is highly developed and lies within the cities of El Monte, Rosemead, and Temple City. Most of the area is zoned for residential use and is likely to remain residential. Industrial activity in the El Monte OU is primarily concentrated in the central portion of the OU.

Groundwater flow in the El Monte OU is principally from east to west. However, there is also a southerly component of groundwater flow in the eastern portion of the OU. Both of the aquifer zones (shallow and deep) in the El Monte OU are considered to be drinking water sources by the State of California and the deep zone is currently used for drinking water. VOCs are the primary organic contaminants found above state and federal drinking water standards (maximum contaminant levels or

MCLs) in the El Monte OU. Tetrachloroethene (PCE) and trichloroethene (TCE) are the VOCs that have been detected most often in groundwater, although other VOCs, including 1,2-dichloroethane (1,2-DCA), 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), and carbon tetrachloride (CCl_4) have also been detected above drinking water standards in the El Monte OU. In general, VOC concentrations are highest in the shallow groundwater in the vicinity of industrial facility source areas where releases have occurred. VOCs have also spread downward into the deep zone beneath the shallow zone, then migrated downgradient in the deep zone towards drinking water production wells. Several drinking water wells in the El Monte OU have been impacted by VOC contamination. These wells have had to be shut down or equipped with wellhead treatment to reduce contaminant levels. To address the industrial areas that contain the sources of groundwater contamination, the Los Angeles Regional Water Quality Control Board (RWQCB), with funding from EPA, oversees site-specific investigations and cleanups at facilities where releases have occurred. Figures 2 and 3 show 1997 VOC concentrations in the shallow and deep zones.

2 Site History and Enforcement Activities

2.1 Site History

The San Gabriel Valley has been the subject of environmental investigation since 1979 when groundwater contaminated with VOCs was first identified. In May 1984, four broad areas of contamination within the basin were listed as San Gabriel Areas 1 through 4 on EPA's NPL. EPA subsequently divided the basin into eight operable units (OUs) to provide a means of describing hydrogeology and contaminant distribution, and planning remedial activities in the basin. The source of groundwater contamination in the basin is from industrial facilities.

In 1986, data were compiled and reviewed to develop a preliminary conceptual hydrogeologic model of the San Gabriel Valley, as described in the Supplemental Sampling Program (SSP) Report (EPA, 1986). The results of the SSP investigations provided much of the basis for planning the remedial investigations that have been performed in the San Gabriel Valley since 1986. The Interim San Gabriel Basin Remedial Investigation Report (EPA, 1992a) describes these investigations and incorporates their results into an integrated discussion of EPA's understanding of hydrogeologic conditions in the basin.

EPA issued a draft Statement of Work (SOW) for a remedial investigation and feasibility study (RI/FS) to address the El Monte OU. On March 16, 1995, EPA entered into an Administrative Order on Consent (AOC) with the Northwest El Monte Community Task Force (NEMCTF), a group of PRPs in the El Monte OU, in which the NEMCTF agreed to perform the investigation detailed in the final SOW.

Sources of groundwater contamination in the El Monte OU include industrial facilities engaged in the manufacture of electronic, aviation, navigational, and vibration analysis equipment, aircraft flooring, glass container, generators, high precision instruments, precision sheet metals, spring coils, nails, industrial paint, flow meters, name plates, gazebos, and patio furniture; paper printing; metal plating; chemical handling and transfer; and dry cleaning.

2.2 Remedial Investigation Activities

EPA developed the RI/FS process for conducting environmental investigations under Superfund. The RI/FS approach is the methodology that the Superfund program has established for characterizing the nature and extent of risks posed by uncontrolled hazardous waste sites to evaluate potential remedial options. The RI serves as a mechanism to collect data for site characterization. The FS serves as the mechanism for development, screening, and evaluation of potential remedial alternatives.

As stated in the Statement of Work, the RI/FS was designed to meet the following goals:

> Assess aquifer characteristics and characterize the vertical and lateral distribution of concentrations of VOCs in groundwater in the El Monte OU area to support a focused FS and the selection of one of more interim actions for the El Monte OU area.

Develop and analyze alternatives for appropriate interim remedial actions to control the vertical and horizontal migration of groundwater with relatively higher concentrations of VOCs to areas in the El Monte OU with relatively lower concentrations of VOCs. .

An RI field program was conducted for the El Monte OU during the period from September 1996 through November 1997. In addition, a production wells investigation was conducted from mid-1995 through early-1996 by the NEMCTF. The RI field program consisted of shallow and deep (multi-port) monitoring well installation, groundwater monitoring and aquifer testing. The final RI Report was submitted to EPA in April 1998.

An FS was performed for the El Monte OU in 1997 and 1998. The FS identified remedial action objectives, assembled remedial action alternatives, and provided an evaluation of the remedial action alternatives using the nine Superfund evaluation criteria established by EPA. The final FS Report was submitted to EPA in July 1998.

2.3 Enforcement Activities

EPA began its enforcement efforts in the El Monte OU in 1985 by searching historical federal, state, and local records for evidence of chemical usage, handling, and disposal in the El Monte OU area. At approximately the same time, the RWQCB initiated its Well Investigation Program (WIP) to identify sources of groundwater contamination. In 1989, EPA entered into a cooperative agreement with the RWQCB to expand the WIP program, to assist EPA in determining the nature and extent of the sources of groundwater contamination in the San Gabriel Valley, and to identify responsible parties. The RWQCB directly oversees facility-specific investigations in the El Monte OU area; EPA helps fund these activities and, when necessary, uses its enforcement authority to obtain information and ensure that facility investigations are promptly completed.

As of March 1999, the RWQCB has sent chemical use questionnaires to approximately 231 facilities in the El Monte OU area; inspected approximately 228 of these facilities; and directed approximately 73 facilities to perform soil, soil gas, and/or groundwater investigations. EPA has concurrently used its authority under Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to request information from more than 110 current and former owners and operators in the El Monte OU. From these investigations, EPA has identified 20 facilities as sources of groundwater contamination for the El Monte OU.

From 1990 through 1994, EPA sent General Notice of Liability letters to approximately 40 entities in and around the El Monte OU area. On October 7, 1994, EPA sent Special Notice letters to 17 potentially responsible parties (PRPs), requesting that these parties present a good faith offer to perform the RI/FS for the El Monte OU. Fifteen of these PRPs formed the NEMCTF and in March 1995 entered into an AOC with EPA to conduct the RI/FS. In May 1995, EPA issued a Unilateral Administrative Order (UAO) to one PRP, Crown City Plating, that failed to present a good faith offer. Crown City Plating completed the activities that the UAO required in 1997, and the NEMCTF completed the RI/FS in July 1998.

Since 1995, EPA and the RWQCB have continued to investigate potential sources of contamination. In August and October 1997, EPA notified 4 additional entities that they had been identified as PRPs. EPA is now in the process of identifying a final group of PRPs for the El Monte OU. EPA anticipates issuing Special Notice letters to the El Monte OU PRPs after the ROD is issued; however, EPA may offer to settle with some of the smaller PRPs in lieu of issuing Special Notice letters.

EPA and the RWQCB have undertaken enforcement activities elsewhere in the San Gabriel Valley,

including facility investigations, issuance of CERCLA section 104(e) requests for information, issuance of General and Special Notice letters, and filing of cost recovery litigation. PRPs in the Puente Valley and South El Monte OUs have entered into Administrative Consent Orders to perform the RI/FS activities for their respective OUs. EPA also issued a UAO to two parties in the Puente Valley OU. In the Baldwin Park OU, EPA issued a ROD in March 1993, and in May 1997 sent Special Notice letters to 19 PRPs seeking performance of the remedial design and remedial action (RD/RA). Soon thereafter, perchlorate contamination was discovered in the Baldwin Park OU, leading EPA to extend the deadline for the submission of a good faith offer to July 1999.

3 Community Participation

The Proposed Plan for this remedy, in the form of a fact sheet, was distributed to the parties on EPA's mailing list for the El Monte OU in October 1998. The Proposed Plan, together with the Final El Monte OU RI (CDM, 1998a) and FS (CDM, 1998b) reports and other pertinent documents, were also included in the Administrative Record file available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library. The Administrative Record for the El Monte OU was placed in CD-ROM format in each repository.

In addition, EPA held a public meeting to present the Proposed Plan and EPA's preferred alternative on November 18, 1998, at the South El Monte High School in South El Monte, California. At this meeting, EPA answered questions and accepted oral comments pertaining to the El Monte OU and the preferred alternative. A transcript of this meeting is available at the EPA's Superfund Records Center and at the two information repositories.

Notice of EPA's public meetings, availability of the Proposed Plan, and the announcement of a 60-day public comment period was published in the following newspaper:

- San Gabriel Valley Daily Tribune October 26, 1998

The public comment period ran from October 26 to December 26, 1998. EPA received several sets of written comments during the public comment period. These comments and the significant oral comments are addressed in the Responsiveness Summary, included as Part III of this ROD.

4 Scope and Role of Operable Unit

There are four areas of groundwater contamination in the San Gabriel Basin aquifer listed on the NPL as San Gabriel Valley Areas 1 through 4. Groundwater contamination in the San Gabriel Valley extends over very large areas (approximately 30 square miles). In the valley, there are a number of different areas of contamination with distinct conditions and contaminant sources. To facilitate implementation of remedial actions, EPA has divided the site into eight different OUs (Figure 1):

- Alhambra OU- RI/FS underway
- Baldwin Park OU- ROD signed, EPA is negotiating with PRPs to implement remedy
- **El Monte OU- Subject of this ROD**
- South El Monte OU- Nearing completion of the RI/FS process
- Whittier Narrows OU- Previous groundwater monitoring only ROD, EPA is currently preparing a ROD Amendment
- Suburban OU- No action remedy selected in ROD.
- Richwood OU- State has taken the lead on implementing the water supply remedy
- Puente Valley OU- ROD signed, EPA is negotiating with PRPs to implement remedy

The El Monte OU remedial action selected in this ROD is classified as an interim action because it is intended to control the migration of contamination. Additional remediation may be needed to clean up VOC contamination remaining in the groundwater. EPA will use information collected during operation of the selected remedy to help determine the need for additional actions and the nature of the final remedy. The final remedy may include additional remedial actions at or in the vicinity of industrial facilities identified as groundwater contamination sources in the El Monte OU. This interim action will neither be inconsistent with, nor preclude, implementation of the final remedy. The OU-specific actions currently being undertaken in the San Gabriel Valley are primarily interim actions. It is anticipated that a final ROD will be issued for the entire San Gabriel Valley Superfund site once remedial design/remedial action (RD/RA) implementation has been initiated at all of the individual OUs.

5 Site Characteristics

5.1 Location and Topography

The El Monte OU lies in the central portion of the San Gabriel Valley (Figure 1), approximately 25 miles from the Pacific Ocean, in eastern Los Angeles County. Located within the San Gabriel Valley is the San Gabriel Basin, a broad piedmont plain that slopes gradually to the southwest at a gradient of approximately 65 feet per mile (California Department of Water Resources {CDWR}, 1966). This structural basin is a natural ground-water reservoir that collects rainfall on the valley floor and run-off from the surrounding highlands, recharging the groundwater aquifer.

The San Gabriel Basin is bounded to the north by the San Gabriel Mountains and to the southwest, south, and southeast by a crescent-shaped system of low hills. The hills making up the system, from west to east, are the Repetto, Merced, Puente, and San Jose Hills. The only significant break along this boundary falls between the Merced and Puente Hills at Whittier Narrows. Whittier Narrows is the lowest point in the San Gabriel Valley and is the exit for the San Gabriel and Rio Hondo Rivers and their tributaries, which serve as the drainage system for the valley.

The El Monte OU covers a surface area of approximately 10 square miles. The OU is not defined by any significant physiographic features, though the eastern boundary is roughly adjacent to the Rio Hondo. The El Monte OU varies from approximately 340 feet mean above sea level (MSL) in the northeast to 260 feet above MSL in the southeast.

Santa Anita Avenue defines the eastern boundary of the El Monte OU. The western and southern boundaries coincide with Rosemead Boulevard and the San Bernardino Freeway (Interstate 10), respectively. Several streets that traverse a residential area between Lower Azusa Road and Live Oak define the northern boundary.

Most of the annual precipitation in the El Monte OU occurs intermittently during the winter months of December through March. The long-term average precipitation for the San Gabriel Basin is about 18 inches per year. Temperatures are usually moderate; the average annual temperature in the San Gabriel Valley is about 62 degrees Fahrenheit (°F). January and July are the coldest and warmest months of the year, respectively.

5.2 Surface Water

Two major stream systems carry surface flow from the San Gabriel Valley: the San Gabriel River and the Rio Hondo and their tributaries. The headwaters for these two systems are in the San Gabriel Mountains. The systems transverse the San Gabriel Valley in a southwesterly direction and exit the valley at Whittier Narrows. Except in the case of significant storms, these channels do not carry much natural run-off. There is considerable non-natural flow from wastewater plant discharge, imported surface water intended for groundwater recharge.

Nearly all of the stream channels comprising the surface water drainage of the San Gabriel Valley have been modified and concrete-lined (including the Rio Hondo and its tributaries in the El Monte OU

vicinity). This lining minimizes recharge of the aquifer by surface water flow.

The Rio Hondo and Eaton Wash are the major surface water features crossing the El Monte OU and vicinity areas. The Rio Hondo drains the northwest portion of the San Gabriel Valley. The Rio Hondo traverses the El Monte OU from the northeast to the south and is roughly adjacent to the eastern boundary. The Eaton Wash crosses the western portion of the El Monte OU from the north to the south, where it joins the Rio Hondo beyond the southern boundary of the OU. Most of the flow in the Rio Hondo is diverted into the Peck Road Spreading Grounds just north of the El Monte OU, so significant flow in the Rio Hondo through the El Monte OU is limited to substantial storm events.

5.3 Geology

5.3.1 San Gabriel Basin

The San Gabriel Basin is filled with alluvial deposits, primarily of Quaternary age, which overlie relatively impermeable rock. These deposits are 2,000 to 4,000 feet thick over the center of the basin and range between approximately 250 to 800 feet thick at the basin outlet in Whittier Narrows.

There are two distinct sources of sediment in the basin: the coarse-grained crystalline rocks of the San Gabriel Mountains and the finer-grained sedimentary rocks of the hills to the southeast and southwest. Sediment derived from the San Gabriel Mountains to the north is generally coarser-grained than that from the hills to the south. Consequently, hydraulic conductivity of the alluvium generally increases with proximity to the San Gabriel Mountains. The distribution of the sediments deposited in the basin is also controlled by the position relative to river and tributary courses. In particular, coarse-grained sediments are prevalent in the San Gabriel River proximity. Most of the San Gabriel Basin is characterized by interfingering lenses of alluvial deposits (e.g., cobbles, gravel, silt, and clay) and the alluvial deposits show a high degree of variability in sediment type, both vertically and laterally.

Major structural features controlling regional ground-water flow in the San Gabriel Basin include the topographic highs (i.e., San Gabriel Mountains and southern hills) and topographic lows (i.e., Whittier Narrows). Four major faults in the San Gabriel Basin potentially impact ground-water flow: the Sierra Madre Fault System, the Raymond Fault, the Lone Hill-Way Hill Fault, and the Workman Hill Fault.

5.3.2 El Monte OU

Most of the El Monte OU is located west of the Rio Hondo, where the alluvial deposits are more stratified. A small portion of the OU is located east of the Rio Hondo in an area with coarser river deposits.

Significant intervals of silty or clayey soils have been noted at a number of locations in the El Monte OU, including the locations of deeper monitoring wells installed during the El Monte OU RI. The subsurface materials encountered during the RI consisted of interbedded gravels, sands, silts and clays. The majority of the silts and clays were encountered in the upper 100 feet below grade.

There do not appear to be any areally extensive uniform aquitards, however, there are considerable finer-grained sediments present in the general depths of 90 to 120 feet bgs. The sediments in the eastern portion of the OU area, proximal to the Rio Hondo, are coarser-grained, consisting predominantly of sands and gravels with interbedded silts and clays. Toward the western edge of the OU, the materials become less coarse, with silty sands and sands predominating. Because of the fluvial nature of the depositional environment, the lithologic logs do not correlate well, even over short distances.

5.4 Hydrogeology

5.4.1 San Gabriel Basin

The San Gabriel Groundwater Basin comprises approximately 167 square miles of water-bearing valley land (CDWR, 1966). The maximum depth of alluvial fill within the main basin is unknown, though CDWR (1966) shows an alluvial depth of more than 4,000 feet at a location north of Whittier Narrows (CDWR, 1966).

Natural features that control the regional pattern of groundwater movement in the San Gabriel Basin include topographic highs (San Gabriel Mountains and southern hills) and lows (the valley floor, especially Whittier Narrows), and to some extent faults. Generally, groundwater in the basin flows from topographically high to low areas in the absence of groundwater pumping. In addition, groundwater flow is also controlled by the locations of significant recharge, such as undeveloped alluvial fans, riverbeds and spreading basins. Recharged groundwater moves away from these areas, generally towards topographically lower areas. Under natural groundwater flow conditions, such as those encountered in the first half of this century, groundwater generally flowed away from the margins of the basin towards the center of the alluvial valley, and then towards Whittier Narrows (EPA, 1992a).

In parts of the basin, concentrated groundwater withdrawal by pumping significantly affects the direction and rate of groundwater flow. With the increased use of wells to extract groundwater from the basin, the pattern of groundwater flow in the basin has changed over time (EPA, 1992a). About 80 percent of the groundwater discharge from the San Gabriel Basin is now to production wells (EPA, 1992a). The remaining groundwater discharge consists of subsurface outflow through Whittier Narrows and minimal discharge to surface water in Whittier Narrows and Puente Valley.

5.4.2 El Monte OU

As noted above, there do not appear to be any areally extensive aquitards in the El Monte OU area, but there are considerable fine-grained sequences present, particularly in the general depths between 90 and 120 feet bgs. The unconsolidated deposits in the El Monte OU are of fluvial origin and consist of interbedded sediments comprised of gravel, sand, silt, and clay and mixtures of these materials.

Depth-to-water in the El Monte OU at the end of the RI was between 50 and 60 feet below ground surface (bgs) in the eastern portion of the OU, approximately 110 feet bgs along the western boundary of the OU and less than 40 feet near the southern OU boundary.

Based on the lithologic, water-level, and contamination data generated during the RI, the aquifer in the El Monte OU area has been divided into a shallow zone (representing approximately the upper 50 to 100 feet of the aquifer) and a deeper zone (representing the interval from base of the shallow zone down to approximately 400 feet bgs).

5.4.2.1 Hydraulic Conductivity

Hydraulic conductivity is a measure of how easily fluids can flow through porous media. The geologic materials in the El Monte OU vary from clay to gravel over short distances, thus estimates of hydraulic conductivity in the area are very location- and scale-dependent. During the RI, aquifer tests were performed at deeper production wells and shallow monitoring wells.

Average conductivity estimates for the deep production wells tested ranged from 11 to 22 feet/day for the

wells west of the Rio Hondo and 71 ft/day for the one well located east of the Rio Hondo. Tests of three shallow site assessment wells in the El Monte OU yielded conductivity estimates ranging from 3 to 106 ft/day.

The aquifer testing performed during the RI indicates that hydraulic conductivity values are similar in the shallow and deep zones and are generally less than 50 ft/day.

5.4.2.2 Groundwater Flow Conditions

Groundwater flow is described below in terms of flow direction and gradient, both in the horizontal and vertical dimensions. Horizontal flow is discussed for the shallow zone, where higher levels of VOC contamination occur, and the deep zone, where lower levels of VOC contamination occur.

Within the river deposits generally east of the Rio Hondo (and east of the El Monte OU), the direction of groundwater flow in the shallow zone is generally southwestward towards Whittier Narrows. The flow direction in the shallow zone in the western portion of the El Monte OU is predominantly from east to west, presumably as a result of influences from deeper pumping west of the OU. In the eastern portion of the OU, just west of the Rio Hondo, groundwater flow directions in the shallow zone vary considerably, but the net flow direction is towards the south. The hydraulic gradient towards the west in the shallow zone ranged from 0.0028 to 0.0036 feet per feet during the RI. Using average gradient and hydraulic conductivity values described above for the shallow zone results in estimated groundwater velocities of between 40 and 120 feet/year (the slower velocities are in the eastern portion of the OU where flow directions vary considerably).

The groundwater flow direction in the deeper zone in both eastern and western portions of the El Monte OU is consistently from east to west. The western trend is the result of deeper extraction west of the OU in Alhambra and Monterey Park. Gradients in the deep zone are similar to those listed above for the shallow zone. The hydraulic heads in the deeper aquifer are about 15 to 20 feet lower than those in the shallow aquifer. The groundwater flow velocity in the deeper zone is estimated at about 110 feet per year, which is generally higher than the estimates for the shallow zone.

Four multi-port monitoring wells were installed in the El Monte OU area during the RI. These multi-port wells have multiple, isolated screen intervals and provide information on water levels and water quality at different depths in the aquifer. Pronounced head differences are present at all four locations. The maximum difference in hydraulic heads between the shallowest and deepest intervals ranged from 20.65 feet to 33.34 feet. The associated downward vertical gradients ranged from 0.0836 to 0.1396 feet per feet.

The downward vertical gradients are the result of pumping in the deeper aquifer and resistance to vertical flow caused by the interbedded fine-grained strata in the aquifer. These large vertical gradients indicate that there is some degree of separation between the shallow and deep zones.

5.5 Groundwater Management

The El Monte OU is located in the Main San Gabriel Basin. The rights to pump groundwater from the San Gabriel Basin is adjudicated (i.e., assigned to specified users in accordance with a court judgment). There are two judgments that govern groundwater management in the El Monte OU vicinity.

5.5.1 San Gabriel Basin Judgment

Water rights in the Main San Gabriel Basin were adjudicated in a stipulated judgment by the Superior

Court of Los Angeles County in 1973 (amended in 1989). This adjudication resulted in assigning water rights to approximately 50 parties that each hold rights to greater than one percent of the natural safe yield of the basin (152,700 acre-feet per year, established in the judgment), and approximately 100 parties that each hold rights to less than 1 percent of the natural safe yield. Also, according to the judgment, only selected parties have the right to export groundwater out of the Main San Gabriel Basin.

The judgment also establishes the duties of a Watermaster, which include annually determining an operating safe yield for the basin, monitoring pumpers' compliance with the judgment, issuing permits for all new and increased pumping in the basin, and preparing an annual report that includes details of pumping activities in the basin. The amount of groundwater that each water rights holder can pump in any year is adjusted by prorating the pumper's prescriptive rights (percentage of natural safe yield) by the operating safe yield, as established by the Watermaster.

The majority of the groundwater pumped from the Main San Gabriel Basin is used for drinking water, supplied to the public by purveyors that are regulated as public water supply systems. Annually, pumping typically equals or exceeds the operating safe yield of the basin. When excess extraction occurs, the judgment has established provisions for assessing pumpers the cost of importing replacement water to replenish the excess amount extracted. Replacement water is imported water purchased by the Upper San Gabriel Valley Municipal Water District and artificially recharged within the basin. The 1997-98 replacement water assessment is $246.65 per acre-foot.

5.5.2 Long Beach Judgment

The Long Beach Judgment is the 1964 settlement of a lawsuit between parties in the Central and San Gabriel Basins. This judgment mandates that an average of 98,415 acre-feet of useable water will be delivered to the Central Basin each year. This water consists of: (1) surface flow that passes through Whittier Narrows, (2) subsurface (groundwater) flow through Whittier Narrows, and (3) a portion of the water exported (piped) from the San Gabriel Basin to the Central Basin.

Although the Long Beach Judgment specifies an average entitlement of 98,415 acre-feet per year, the actual entitlement is calculated yearly by the court-appointed San Gabriel River Watermaster. The San Gabriel River Watermaster tabulates the water discharge through Whittier Narrows. If more than 98,415 acre-feet are delivered to the Central Basin from the San Gabriel Basin in a year, then the San Gabriel Basin is credited with the excess. Conversely, if less is delivered, the San Gabriel Basin is required to make up the difference either from past credits or, if that is not sufficient, through delivery of imported surface water as makeup water to the Central Basin.

5.6 Groundwater Contamination

VOCs are the primary organic contaminants found in groundwater above state and federal drinking water standards in the El Monte OU. PCE and TCE are the VOCs that have been detected most often in groundwater, although other VOCs, including 1,2-DCA, 1,1-DCA, cis-1,2-DCE, 1,1-DCE, and CCl_4 have also been detected above drinking water standards in the El Monte OU. In general, VOC concentrations are highest in the shallow groundwater in the vicinity of industrial facility source areas where releases have occurred. Figure 2 shows the extent of VOC contamination in the El Monte OU in the shallow zone. As shown in this figure, there are fairly large areas where VOC concentrations exceed 10 times the drinking water standards (or 50 µg/L) and isolated smaller areas where concentrations exceed 100 times drinking water standards (or 500 µg/L). In these areas, concentrations of PCE and TCE detected during the last round of sampling for the El Monte OU RI range from about 81 to 2,200 µg/L and 70 to 1,000

µg/L, respectively.

TCE and PCE concentrations in the deeper zone in the El Monte OU are much lower, generally less than 20 µg/L with a maximum of just over 50 µg/L. TCE is detected at higher concentrations than PCE in the deep zone. The extent of deep zone contamination is shown in Figure 3. Only one area had concentrations that exceeded 10 times the drinking water standards. Depth-specific samples collected from a production well indicated TCE exceedances down to 550 feet bgs, but in general the PCE and TCE exceedances in the deep zone occur above 350 feet bgs. In both the shallow and deep zones, VOC concentrations at the El Monte OU boundary are below drinking water standards. This indicates that at present groundwater contamination has not substantially migrated beyond the boundaries of the El Monte OU.

As described above, EPA has identified a number of industrial facilities in the El Monte OU as contaminant sources where releases have impacted groundwater quality. To address the industrial areas that contain these sources, the RWQCB, with funding from EPA, oversees site-specific investigations and cleanups.

Within the El Monte OU, EPA's RI efforts focused on regional groundwater contamination and EPA has not yet identified any specific areas of principal threat wastes. At some of the individual industrial facilities, where elevated concentrations of contaminants have been identified in the vadose zone and shallow groundwater, the RWQCB is overseeing facility-specific remedial actions. These focused actions should address the more highly-contaminated source areas.

6 Current and Potential Future Site and Resource Uses

6.1 Land Uses

Most of the El Monte OU is densely populated residential communities, with some commercial and light and heavy industrial areas. The area is essentially fully developed with very limited undeveloped or open areas. In the portions of the El Monte OU where the shallow groundwater contamination addressed in this ROD is found, land use is primarily light and heavy industrial. Residential areas are found adjacent to these industrial areas.

The El Monte OU is located in the cities of El Monte, Rosemead and Temple City. Eighty-three percent of the City of El Monte is zoned for residential use, seven percent is zoned for professional office purposes, five percent is zoned for industrial use, and five percent is zoned for commercial use. The city population was estimated at 136,938 in 1994. According to a demographic profile provided by the City of El Monte Planning Division, the population is expected to grow at a moderate rate during the late 1990s. The population in the City of Rosemead was estimated at 51,638 in 1990. The City of Rosemead is zoned primarily residential and commercial, with some light manufacturing. The population of Temple City was estimated at 32,000 in 1995. Temple City is zoned primarily residential, with some commercial and heavy industrial. Land use in the El Monte OU area is not expected to change significantly over time.

6.2 Groundwater Uses

The State of California has designated all portions of the San Gabriel Basin aquifer as either a current or potential source of drinking water. Currently, groundwater extracted in the vicinity of the El Monte OU is used as municipal water supply for residential, commercial and industrial purposes. As discussed previously, water rights in the Main San Gabriel Basin are fully adjudicated. Thus, the Main San Gabriel Basin Watermaster monitors all extraction. The producers that extract groundwater from within the El Monte OU are: California American Water Company, Clayton Manufacturing Company (industrial user), Crown City Plating Company (industrial user), City of El Monte, Driftwood Dairy (agricultural user), and Southern California Water Company. VOCs are detected in all production wells in the El Monte OU area. California American Water Company and the City of El Monte have had to shut down wells because of contamination and both the City of El Monte and Southern California Water Company have installed wellhead treatment systems to address VOC contamination in production wells.

Production from the shallow zone is limited as most of the production wells are perforated in the deeper zone. There are currently no drinking water supply wells that draw water from the shallow, highly contaminated zones in the vicinity of industrial facilities. Future groundwater use in the OU vicinity is expected to be similar to current use, with active extraction occurring in many portions of the OU. Future extraction will likely be primarily from the deeper zones.

7 Summary of Site Risks

EPA completed a Preliminary Baseline Risk Assessment (RA) for the El Monte OU in 1997 (EPA, 1997a). The baseline risk assessment estimates the human health and environmental risks that the site could pose if no action were taken. It is one of the factors that EPA considers in deciding whether to take action at a site. In the El Monte OU, EPA's decision to take action is based principally on the presence of contamination in groundwater at levels that exceed drinking water standards, evidence that contamination will continue to migrate into groundwater areas that are presently clean or less contaminated, and the current and potential use of groundwater in and around the El Monte OU as a source of drinking water. The risk assessment is also used to identify the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the Preliminary Baseline RA for the El Monte OU.

7.1 Summary of Human Health Risk Assessment

This summary of human health risk includes sections on the identification of chemicals of concern (COCs), exposure assessment, toxicity assessment, and risk characterization.

7.1.1 Identification of Chemicals of Concern

In the two-year period between January 1993 and January 1995, 25 VOCs were detected in groundwater from the El Monte OU area. Sampling data were available from 16 production wells and 52 site assessment monitoring wells during this period. All 25 VOCs were considered chemicals of potential concern (COPCs) for evaluation in the Preliminary Baseline RA. Of these 25 COPCs, only three contributed significantly to the estimated risks and are discussed as chemicals of concern (COCs) in this RA summary. Table 1 provides information on these COCs in each of two well groupings and three individual production wells considered in the RA.

As shown in Table 1, the three primary COCs found in groundwater in the El Monte OU were trichloroethylene (TCE), tetrachloroethylene (PCE), and carbon tetrachloride. All of the COCs are VOCs and all are present in the most contaminated portion of the shallow zone. Only two of the COCs, PCE and TCE, were also found in the deeper production wells. The table also shows that frequency of detection (i.e., the number of times the chemical was detected in the samples collected from each well grouping or production well during 1993 through 1995 groundwater sampling). The table indicates that PCE and TCE are the most frequently detected COCs in the El Monte OU and represent the extent of contamination in groundwater at the site shown in Figures 2 and 3.

Table 1 presents the exposure point concentration for each of the COCs detected in each of the well groupings and production wells evaluated. In all cases, the highest exposure point concentrations were from either TCE or PCE. The 95th percentile (95%) upper confidence limit (UCL) on the arithmetic mean concentration was used as the exposure point concentration for all of the COCs in the well groupings and production wells.

7.1.2 Exposure Assessment

Exposure refers to the potential contact on an individual (or receptor) with a chemical. Exposure assessment is the determination or estimation of the magnitude, frequency, duration, and route of potential exposure. This section briefly summarizes the potentially exposed populations, the exposure pathways evaluated, and the exposure quantification from the preliminary baseline RA performed for the El Monte OU.

Land use in the El Monte OU is primarily residential, commercial and industrial. There are nine active production wells in the El Monte OU. Of these, six are drinking water wells used for domestic purposes, one is an industrial well also used for drinking water, one is used for industrial purposes only and one is used for irrigation. Exposure to contaminants in groundwater could occur through the use of groundwater for domestic purposes, such as ingestion of tap water, inhalation of contaminants from water used for bathing, cooking and laundering, and dermal contact with the water. In the baseline RA, EPA evaluated two scenarios under which individuals might be exposed to contaminated groundwater:

1. Potential for a current resident to be exposed to contamination in groundwater through domestic use
2. Potential for a future resident to be exposed to contamination in groundwater through domestic use

It should be noted that the assumption that residents could be exposed to untreated groundwater from the well groupings or production wells evaluated is conservative. There are not currently any wells producing water for public drinking water supply from the highly contaminated shallow groundwater areas in the western or eastern portions of the El Monte OU. Further, regulations, such as the Safe Drinking Water Act, currently prohibit water purveyors from serving water contaminated in excess of drinking water standards to consumers. Based on potential for exposure frequency, duration, and estimated intake, residents exposed to contaminated groundwater used for domestic purposes are expected to be the maximally exposed population.

7.1.3 Toxicity Assessment

Table 1 shows the three COCs that are the major risk contributors for the El Monte OU. Based on data from various animal studies, all three of the compounds (carbon tetrachloride, PCE and TCE) are classified as probable human carcinogens (EPA weight of evidence class B2) and have the following oral carcinogenic slope factors (toxicity values) :

- Carbon Tetrachloride - 0.13 $(mg/kg/day)^{-1}$ (Source: Integrated Risk Information System (IRIS), EPA, 1995a).
- PCE - 0.052 $(mg/kg/day)^{-1}$ (Source: Environmental Criteria and Assessment Office, EPA, 1995b).
- TCE – 0.011 $(mg/kg/day)^{-1}$ (Source: Environmental Criteria and Assessment Office, EPA, 1995b).

All three of the above compounds are also considered carcinogenic through the inhalation route. Based on data from various animal studies, the inhalation carcinogenic slope factors are:

- Carbon Tetrachloride – 0.053 $(mg/kg/day)^{-1}$ (Source: Integrated Risk Information System (IRIS), EPA, 1995a).
- PCE – 0.002 $(mg/kg/day)^{-1}$ (Source: Environmental Criteria and Assessment Office, EPA, 1995b).
- TCE – 0.006 $(mg/kg/day)^{-1}$ (Source: Environmental Criteria and Assessment Office, EPA, 1995b).

The dermal route of exposure was incorporated into the preliminary baseline RA using an equation that incorporates the exposure point concentration and a dermal permeability constant (in centimeters/hour [cm/hr]). The dermal permeability constants for the three compounds are:

- Carbon Tetrachloride – 0.022 cm/hr.
- PCE – 0 .048 cm/hr.
- TCE – 0.016 cm/hr.

In addition to their classification as probable human carcinogens, the three compounds have toxicity data indicating their potential for adverse noncarcinogenic health effects in humans. The available toxicity data indicate that all three of the compounds primarily affect the liver. The chronic toxicity data available for these compounds have been used to develop oral reference doses (RfDs). An RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effect. The oral RfDs are:

- Carbon Tetrachloride – 0.0007 mg/kg/day (Source: Integrated Risk Information System (IRIS), EPA, 1995a).
- PCE – 0.01 mg/kg/day (Source: Integrated Risk Information System (IRIS), EPA, 1995a).
- TCE – 0.006 mg/kg/day (Source: Environmental Criteria and Assessment Office, EPA, 1995b).

Carbon tetrachloride is also considered to have noncarcinogenic effects via inhalation. The inhalation reference dose for carbon tetrachloride is 0.00057 milligrams per kilogram per day (mg/kg/day) (Source: Environmental Criteria and Assessment Office, EPA, 1995b).

7.1.4 Risk Characterization

This section presents the results of the evaluation of the potential risks to human health associated with exposure to contaminated groundwater in the El Monte OU. Exposure scenarios are evaluated by estimating the noncarcinogenic and carcinogenic risks associated with them.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. These risks are probabilities that usually are expressed in scientific notation (e.g., 1×10^{-6}). An excess lifetime cancer risk of 1×10^{-6} indicates that an individual has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it 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 developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for site-related exposures is 10^{-4} to 10^{-6}. An excess lifetime cancer risk of greater than one in ten thousand (1×10^{-4}) is the point at which action is generally required at a site (EPA, 1991a).

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., a life-time) with a reference dose (RfD) derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than one indicates that a receptor's dose of a single contaminant is less than the RfD and that toxic noncarcinogenic effects from exposure to that chemical are unlikely. HQs for all COCs that affect the same target organ (e.g., liver) are added together to generate the Hazard Index (HI). An HI less than one indicates that noncarcinogenic effects from all the contaminants are unlikely. Conversely, an HI greater than one indicates that site-related exposures may present a risk to human health.

7.1.4.1 Conclusions

Tables 2 and 3 present the risk characterization summaries for carcinogenic and noncarcinogenic effects, respectively. The risk estimates presented in Tables 2 and 3 are based on average and reasonable maximum exposure (RME) and were developed by taking into account various conservative assumptions about the frequency and duration of exposure to groundwater, as wells as the toxicity of the primary COCs.

To assess potential current residential exposure to groundwater through domestic use, data from all active drinking water wells sampled from January 1993 through January 1995 that had positive detections of VOCs were used (wells 01900918, 01902948, and 08000101 on Tables 2 and 3). The cumulative estimated hazard index was less than one for the average exposure and RME scenarios (see the production wells on Table 3). The estimated excess lifetime cancer risk ranged from $1x10^{-8}$ to $9x10^{-8}$ for the average exposure scenario and $1x10^{-7}$ to $1x10^{-6}$ for the RME scenario (see the production wells on Table 2). The estimated excess lifetime cancer risks based on exposure to groundwater from the production wells that are currently active are less than the 10^{-4} to 10^{-6} acceptable risk range used by EPA to manage risks at Superfund sites. In addition, the estimated risks for these production wells are conservative because they do not take into account treatment of groundwater or the blending of groundwater from these wells with other production wells.

To assess potential future residential exposure to contamination in groundwater through domestic use, the preliminary RA focused on two areas within the OU that had groundwater concentrations exceeding 10 times the primary drinking water standards (i.e., MCLs). These two areas are represented by Well Group 1 (western El Monte OU) and Well Group 2 (eastern El Monte OU) on Tables 2 and 3. The two well groups consist primarily of shallow monitoring wells at or near industrial facilities and include those wells with the highest VOC concentrations in the OU area. The shallow intervals monitored by these wells are not currently used for drinking water supply. Use of these well groups to evaluate potential future risk is a conservative approach. The estimated hazard index ranged from 2 to 3 for the average residential exposure scenario and 6 to 10 for the RME residential scenario (see Well Groups 1 and 2 on Table 3). Major chemical contributors to the estimated hazard indices include carbon tetrachloride, PCE and TCE. The estimated excess lifetime cancer risk ranged from $7x10^{-5}$ to $2x10^{-4}$ for the average exposure scenario and $5x10^{-4}$ to $2x10^{-3}$ for the RME (see Well Groups 1 and 2 on Table 2). Major chemical contributors to the estimated excess lifetime cancer risk include PCE and TCE. The estimated hazard indexes and excess lifetime cancer risks based on potential future exposure to groundwater from Well Groups 1 and 2 exceed the acceptable risk range used by the EPA to manage risks at Superfund sites. Based on these estimated risks, the areas around Well Groups 1 and 2 should be considered for remediation.

The industrial/irrigation exposure to contamination in groundwater from production wells 01901055 and 01902924 was evaluated qualitatively in the preliminary RA. Concentrations of TCE in both wells exceeded the MCL, however, only limited data from these wells are available and neither well is used for drinking water purposes. The maximum concentration of VOCs in Wells 01901055 and 01902924 are well below the concentrations found in Well Groups 1 and 2. Therefore, worker risks from exposure to water from Wells 01901055 and 01902924 are expected to be less than those calculated for domestic use of Well Group 1 and 2 (described above). Further, in general, worker exposure is less than residential exposure.

Based on this risk characterization summary, actual or threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, may present a potential threat to public health, welfare, or the environment. As described in the preceding paragraphs, the groundwater contamination does not represent a current threat to public health or welfare.

7.2 Summary of Ecological Risk Assessment

An evaluation was conducted as part of the El Monte OU Preliminary Baseline RA to determine whether there are any potential ecological exposure pathways in the El Monte OU. The potential for exposure to ecological receptors is related to the extent that groundwater contaminants migrate to or are discharged to surface water habitat. The environmental evaluation indicated that there are two plausible means for ecological receptors to be exposed to groundwater contaminants in the El Monte OU:

* Extraction and discharge of contaminated groundwater into surface water bodies containing ecological receptors.

* Natural discharge of contaminated groundwater into surface water bodies that contain ecological receptors.

The surface water bodies present in the El Monte OU area include the Rio Hondo (running northeast to southwest along the eastern boundary of the OU area) and Eaton Wash (running generally north to south in the western portion of the OU area). Both of these channels are concrete-lined in the OU area, limiting potential ecological habitat.

Outside of periodic, short-duration discharge associated with well testing activities, there is no known surface-water discharge of groundwater extracted in the El Monte OU. Based on the very limited frequency and duration of this RI-related type of discharge, no additional evaluation is warranted for this potential pathway.

The depth-to-water in the El Monte OU generally ranges between approximately 35 and 100 feet below ground surface. Given these groundwater depths, it is extremely unlikely that groundwater discharge to surface water would occur in the El Monte OU. EPA's Interim San Gabriel Basin RI Report (EPA, 1992a), confirms that natural discharge of groundwater to surface water (caused by shallow groundwater levels intersecting stream channel bottoms) is not expected in the Rio Hondo north of the Whittier Narrows area. Based on the depth-to-water in the El Monte OU, potential exposure pathways for aquatic and terrestrial organisms do not appear possible.

Based on this brief environmental evaluation, there do not appear to be any complete ecological exposure pathways in the El Monte OU.

7.3 Conclusion

In addition to the risk assessment, EPA has considered the state and federal drinking water standards (MCLs and MCLGs) that have been established for contaminants found in the El Monte OU. MCLs and MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects are expected to occur. Even if the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure is less than 10^{-4} and the non-carcinogenic hazard quotient is less than 1, remedial action will generally be warranted if MCLs or non-zero MCLGs are exceeded. "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," OSWER Directive 9355.0-30, April 22, 1991.

Contaminant concentrations exceed MCLs throughout a significant portion of the El Monte OU, including groundwater regions that are currently used as sources of drinking water. In some areas, contamination levels exceed 100 times MCLs. Based on the risk characterization, the presence of widespread contamination in excess of MCLs, the use of groundwater in the El Monte OU as a source of drinking water, and evidence that the contamination is migrating, EPA has determined that actual or

threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

8 Remediation Objectives

EPA's Remedial Action Objectives (RAOs) for the El Monte OU are to:

- Prevent exposure of the public to contaminated groundwater above MCLs;
- Inhibit contaminant migration from more highly contaminated portions of the aquifer to less contaminated areas or depths;
- Reduce the impact of continued contaminant migration on downgradient water supply wells, and;
- Protect future uses of less contaminated and uncontaminated areas.

These objectives reflect EPA's regulatory goal of restoring usable groundwater to its beneficial uses wherever practicable, within a time frame that is reasonable, or, if restoration is deemed impracticable, to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction (40 C.F.R. Section 300.430[a][1][iii][F]). The RAOs address the risks associated with exposure to contaminated groundwater in the El Monte OU (described above in Section 7) by significantly limiting the potential for future exposure.

To meet the RAOs, migration control will be required in the El Monte OU as long as VOC concentrations in migrating groundwater exceed state or federal drinking water standards. The RAOs for the El Monte OU do not include numeric, chemical-specific objectives in the aquifer or a time frame for restoration because this is an interim action to contain contamination. Although this interim remedial action is not focused on mass removal, the proposed remedy will remove significant contaminant mass from the aquifer, in effect beginning the restoration process.

9 Description of Alternatives

EPA evaluated five alternatives in the FS for the El Monte OU:

- Alternative 1- No-Action
- Alternative 2- Groundwater Monitoring
- Alternative 3- Shallow Groundwater Control in Western El Monte OU
- Alternative 4- Shallow Groundwater Control in Western and Eastern El Monte OU
- Alternative 5- Shallow Groundwater Control in Western and Eastern El Monte OU Plus Deep Groundwater Control

A brief description of the five remedial alternatives is presented below.

9.1 Alternative 1 – No Action

The NCP requires EPA to consider a no action alternative and to evaluate the risk to the public if no action were taken. The No-Action Alternative provides a baseline for comparison with other remedial alternatives under consideration. In this alternative, no remedial actions are taken to control contaminant migration from or within the El Monte OU. This alternative does not include any groundwater monitoring, extraction, or treatment, so there is no cost associated with this alternative

The No-Action Alternative allows continued, uncontrolled migration of contamination. This alternative does not meet EPA's RAOs and does not comply with state and federal requirements.

9.2 Alternative 2 - Groundwater Monitoring

The only remedial action incorporated into Alternative 2 is groundwater monitoring to monitor VOC plume migration in the shallow and deep zones in the El Monte OU. Alternative 2 does not have any extraction, treatment, conveyance, or discharge components. This alternative would rely solely on passive mechanisms such as dilution or dispersion to address contaminant migration. This alternative also assumes that the groundwater management activities described in Section 5.5 continue to limit human exposure to groundwater contamination. This alternative includes implementing a monitoring program using new and existing wells to monitor contaminant migration and compliance with the El Monte OU remedial action objectives in the shallow and deep zones.

9.2.1 Monitoring

For cost estimation and evaluation of the alternative, installation of 9 new monitoring wells and semi-annual sampling of new and existing wells are assumed. These new wells would include 7 shallow wells and 2 multi-port wells.

9.3 Alternative 3 – Shallow Groundwater Control in Western El Monte OU

Alternative 3 includes the monitoring program from Alternative 2, plus shallow zone groundwater extraction and treatment components in the western portion of the El Monte OU to inhibit migration of contaminated groundwater. Alternative 3 does not include any active measures to address deep zone contamination. The system would be designed to contain shallow groundwater in the western portion of the OU that has VOC concentrations exceeding 10 times the primary drinking water standards (i.e., MCLs). The key components of the alternative are described below.

9.3.1 Extraction

The groundwater extraction in Alternative 3 would generally occur west of Temple City Boulevard (Figure 2). The shallow extraction would control migration of high-level contamination towards the west. This alternative would inhibit migration of contamination into downgradient shallow zones that are currently less contaminated or uncontaminated. Although the primary objective of the extraction wells is containment, to the extent possible, they would also be sited to maximize mass removal. The total extraction rate assumed for cost estimation purposes is 150 gallons per minute (gpm). The actual extraction well locations and rates would be determined during remedial design based on additional evaluation of the extent of contamination during the remedial design investigation.

9.3.2 Treatment

Either air stripping with off-gas treatment or liquid-phase carbon adsorption would be used to remove VOCs from the extracted groundwater prior to discharge. For cost estimation purposes, this alternative assumes a treatment system consisting of air stripping with carbon adsorption of VOCs in the off-gas. Other treatment processes could be evaluated during remedial design.

Treatment for nitrate and total dissolved solids (TDS) present in the shallow groundwater is not included in the cost estimates presented in Table 4. However, treatment for elevated nitrate and TDS may be necessary to meet requirements for discharge of the treated groundwater to surface water. For cost estimation purposes, a reverse osmosis process was assumed to treat elevated nitrate and TDS. If required, the addition of reverse osmosis treatment would increase total costs for Alternative 3 by about 25 percent.

9.3.3 Conveyance and Discharge

The assumed end use of the treated groundwater is discharge to Eaton Wash, although other options, such as reuse of the treated water in industrial processes or landscaping, may be evaluated. In the assumed scenario, the treated water would be conveyed from the treatment plant to Eaton Wash for discharge.

9.3.4 Monitoring

Alternative 3 includes a monitoring system to ensure compliance with RAOs and the performance criteria (discussed in Section 11) in the shallow zone in the Western El Monte OU. In addition, selected monitoring wells maybe used to provide an early warning system that would provide sufficient time to prevent noncompliance. Less contaminated groundwater not contained by the remedial action would be subject to natural attenuation processes as it migrates downgradient. The effectiveness of natural

attenuation processes would be verified by groundwater sampling. For cost estimation and evaluation of the alternative, installation of 9 new monitoring wells and semi-annual sampling of new and existing wells are assumed. These new wells would include 7 shallow wells and 2 multi-port wells.

9.4 Alternative 4 – Shallow Groundwater Control in Western and Eastern El Monte OU

Alternative 4 includes all of the components of Alternative 3 described above, plus groundwater extraction and treatment in the shallow zone in the eastern portion of the El Monte OU to inhibit migration of contaminated groundwater. As in Alternative 3, Alternative 4 does not include any active measures to address deep zone contamination. This system would be designed to contain shallow groundwater in both the western and eastern portions of the OU that have VOC concentrations exceeding 10 times the primary drinking water standards (i.e., MCLs). The key components of the alternative are described below.

9.4.1 Extraction

The additional groundwater extraction in Alternative 4 would generally occur west of Arden Drive and north of Valley Boulevard (Figure 2). The additional extraction would be intended to control westerly and southerly migration of high-level shallow zone contamination that is located well to the east of the Alternative 3 extraction. This alternative would inhibit migration of contamination into downgradient shallow zones that are currently less contaminated or uncontaminated. Although the primary objective of the extraction wells is containment, they would also be sited to maximize the removal of contaminants from the groundwater. The additional extraction rate assumed for cost estimation purposes is 180 gpm. This would bring the total extraction rate to 330 gpm. The actual extraction well locations and rates would be determined during remedial design based on additional evaluation of the extent of contamination during the remedial design investigation.

9.4.2 Treatment

The treatment assumed for Alternative 4 is the same as that described above for Alternative 3. Separate treatment facilities would be located in the eastern portion of the OU under Alternative 4.

Treatment for nitrate and total dissolved solids (TDS) present in the shallow groundwater is not included in the cost estimates presented in Table 4. However, treatment for elevated nitrate and TDS may be necessary to meet requirements for discharge of the treated groundwater to surface water. For cost estimation purposes, a reverse osmosis process was assumed to treat elevated nitrate and TDS. If required, the addition of reverse osmosis treatment would increase total costs for Alternative 4 by about 35 percent.

9.4.3 Conveyance, Discharge and Monitoring

Assumptions for each of these components are the same as described above for Alternative 3.

9.5 Alternative 5 – Shallow Groundwater Control in Western and Eastern El Monte OU Plus Deep Groundwater Control

Alternative 5 includes all of the components described above for Alternative 4, plus groundwater control in two areas of deep zone contamination. One area of deep zone control is in the northwestern portion of the OU in the vicinity of the active Encinitas wellfield (Figure 3). The second area is in the southern portion of the OU. Drinking water wells completed in the deep zone in both of these areas have been impacted by VOC contamination. The deep extraction would be designed to control migration of groundwater containing VOC contamination in excess of primary drinking water standards (MCLs). The key components of the alternative are described below.

9.5.1 Extraction

The additional groundwater extraction in Alternative 5 would generally occur in two separate locations. In the northern portion of the OU, the extraction would occur at, or in the vicinity of, the Encinitas wellfield (Figure 3). In the southern portion of the OU, extraction would be near the downgradient extent of contamination. The additional extraction would be intended to control deep zone contamination exceeding drinking water standards that is migrating northwest and west-southwest towards existing production wells beyond the OU boundaries. The total deep zone extraction rate assumed for cost estimation purposes is 1,325 gpm. This would bring the total extraction rate assumed for Alternative 5 (deep zone plus shallow zone) to 1,655 gpm. The actual extraction well locations and rates would be determined during remedial design based on additional evaluation of the extent of contamination during the remedial design investigation.

9.5.2 Treatment

Extracted water would be treated for VOC removal by either air stripping with off-gas treatment or liquid-phase carbon adsorption. For cost estimation purposes, this alternative assumes a treatment system consisting of air stripping with carbon adsorption of VOCs in the off-gas. Other treatment processes could be evaluated during remedial design.

Treatment for nitrate and total dissolved solids (TDS) would not likely be required for the deep groundwater because the deep water contains lower concentrations of these constituents

9.5.3 Conveyance and Discharge

The assumed end use option for the treated deep groundwater is delivery to a municipal water supply system. As in Alternatives 3 and 4, it is assumed that the treated shallow water would be discharged to Eaton Wash, although other options, such reuse of the treated water in industrial processes or landscaping, may be evaluated.

9.5.4 Monitoring

Alternative 5 includes a monitoring system to ensure compliance with RAOs and performance criteria in the shallow and deep zones in the El Monte OU. In addition, selected monitoring wells maybe used to provide an early warning system that would provide sufficient time to prevent noncompliance. Less contaminated groundwater not contained by the remedial action would be subject to natural attenuation processes as it migrates downgradient. The effectiveness of natural attenuation processes would be verified by groundwater sampling. For cost estimation and evaluation of the alternative, installation of 9 new monitoring wells and semi-annual sampling of new and existing wells are assumed. These new wells would include 7 shallow wells and 2 multi-port wells.

10 Comparative Analysis of Alternatives

The five remedial alternatives described in Section 9 are evaluated using the nine Superfund evaluation criteria listed in 40 C.F.R. Section 300.430. The comparative analysis provides the basis for determining which alternative presents the best balance of the criteria. The first two evaluation criteria are considered *threshold criteria* that the selected remedial action must meet. The five *primary balancing criteria* are balanced to achieve the best overall solution. The two *modifying criteria*, state and community acceptance, are also considered in remedy selection.

Threshold Criteria

- **Overall Protection of Human Health and the Environment** 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.
- **Compliance with ARARs** addresses the requirement of Section 121(d) of CERCLA that remedial actions 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 under CERCLA Section 121(d)(4).

Primary Balancing Criteria

- **Long-term Effectiveness and Permanence** refers to the ability of a remedy to maintain reliable protection of human health and the environment over time.
- **Reduction of Toxicity, Mobility, or Volume Through Treatment** refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.
- **Short-term Effectiveness** addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers and the community during construction and operation of the remedy until cleanup goals are achieved.
- **Implementability** addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.
- **Cost** evaluates the estimated capital, operation and maintenance (O&M), and indirect costs of each alternative in comparison to other equally protective alternatives.

Modifying Criteria

- **State Acceptance** indicates whether the state agrees with, opposes, or has concerns about the preferred alternative.
- **Community Acceptance** includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose.

This section describes each threshold and primary balancing criterion, evaluates each alternative in relation to each criterion, and identifies advantages and disadvantages among the alternatives in relation to each criterion. Figure 4 presents a comparative matrix in which the five alternatives are ranked for each of the evaluation criterion. The details of how the rankings have been assigned for each criterion are provided below.

10.1 Overall Protection of Human Health and the Environment

The NCP requires that all alternatives be assessed to determine whether they can adequately protect human health and the environment from unacceptable risks from site contamination. These risks can be mitigated by eliminating, reducing, or controlling exposure to hazardous substances, pollutants, or contaminants.

10.1.1 Overall Protection of Human Health and the Environment: Evaluation of Alternatives

Alternatives 1 and 2 provide the least overall protection of human health and the environment. Neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Only the existing groundwater management activities discussed in Section 5.5 would be available to control public exposure to the contaminated groundwater. Limitations of Alternative 1 include increased long-term potential for human exposure; leaving the burden of constructing treatment facilities to water purveyors; and increased cost, difficulty, and time required for containment. As long as existing government controls remain in effect, there should be no increase in long-term potential for human exposure with Alternative 2. The burden and cost of constructing treatment facilities, if required, would be borne by the water purveyors. Alternative 2 includes groundwater monitoring that would provide early warning of increases in contaminant concentrations at downgradient drinking water sources. An advantage of Alternatives 1 and 2 is that there are no risks associated with treatment residuals because none are created.

Alternatives 3 through 5 would reduce long-term risks to human health and the environment by containing contaminated groundwater and preventing migration from more highly contaminated areas to less contaminated areas. However, Alternatives 3 and 4 are not considered fully protective because they do not address deep zone contamination. Portions of the deep zone are currently in use as a drinking water supply. The treatment technologies employed by these alternatives are effective at meeting federal and state MCLs. Alternative 4 is ranked higher than Alternative 3 because it includes additional shallow extraction and discrete containment in the eastern portion of the El Monte OU. Alternative 4 extraction also provides additional mass removal in the eastern portion of the OU. Alternative 5 is ranked higher than Alternatives 3 and 4 because it addresses both shallow and deep groundwater contamination in the El Monte OU.

10.2 Compliance with ARARs

This evaluation criterion is also a threshold requirement and is used to determine if each alternative would attain federal and state ARARs, or whether there is adequate justification for invoking waivers for specific ARARs.

10.2.1 Compliance with ARARs: Evaluation of Alternatives

Alternatives 1 and 2 do not meet ARARs. Both alternatives allow for continued migration of contaminants above MCLs into less contaminated and uncontaminated portions of the groundwater.

Alternatives 3 through 5 were designed to meet the ARARs described in Section 12 of this ROD. These alternatives provide containment as well as protection of existing production wells and significant portions of the aquifer that are currently less contaminated or uncontaminated. The recent discovery of deep groundwater contamination at the Encinitas Well Field, however, indicates that Alternatives 3 and 4 may not meet drinking water ARARs for the deep groundwater zone. Alternative 5 is ranked higher than Alternatives 3 and 4 because it addresses both shallow and deep groundwater contamination.

10.3 Long-Term Effectiveness

This evaluation criterion assesses the extent to which each remedial alternative reduces risk after the remedial action objectives are met. Residual risk can result from exposure to untreated waste or treatment residuals. The magnitude of the risk depends on the magnitude 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 action, untreated waste refers to any contaminated groundwater not removed from the aquifer.

The performance of the alternatives in relation to this criterion is evaluated primarily by estimating the extent to which each alternative prevents the migration of contamination into less contaminated and uncontaminated areas. Preventing or reducing contaminant migration reduces contaminant concentrations in downgradient areas, reducing risk by reducing the likelihood of exposure. Because this is an interim remedy to contain contaminant migration, untreated wastes will remain in the groundwater.

10.3.1 Long-Term Effectiveness and Permanence: Evaluation of Alternatives

Alternatives 1 and 2 are ranked low for this criterion because neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Contaminated groundwater would continue to migrate downgradient. Although natural attenuation processes (adsorption, dilution, dispersion) would likely decrease the concentration of contaminants in the plumes, downgradient water supply wells would be vulnerable to VOC contamination. Alternatives 1 and 2 would not generate any treatment residuals.

Alternatives 3 through 5 provide containment and treatment of contaminated groundwater as indicated by groundwater modeling. Alternatives 3 and 4 are assigned a lower ranking than Alternative 5 because they only address the shallow groundwater contamination and provide containment at 10 times drinking water standards. Alternative 5 addresses both the shallow and deep contamination and provides containment of water above drinking water standards in the deep zone. Less contaminated groundwater not contained by the remedial actions in Alternatives 3 through 5 would be subject to natural attenuation processes as it migrates downgradient. The effectiveness of natural attenuation processes would be verified by groundwater sampling.

In Alternatives 3 through 5 the residual generated from treatment of contaminated groundwater would be spent granular activated carbon. This spent granular activated carbon would be reactivated offsite. The transportation and reactivation of this residual would be conducted in accordance with applicable regulations and would present minimal long-term risks because contaminants adsorbed to the granular activated carbon would be destroyed during the reactivation process.

10.4 Reduction of Toxicity, Mobility, and 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 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.

This evaluation focuses on the following factors for each remedial alternative:

- Whether the alternative satisfies the statutory preference for treatment as a principal element
- The treatment process employed, including the amount of hazardous materials that will be destroyed or treated and the degree of expected reduction in toxicity, mobility, or volume
- The degree to which treatment is irreversible
- The type and quantity of treatment residuals that will remain following treatment

10.4.1 Reduction of Toxicity, Mobility, or Volume Through Treatment: Evaluation of Alternatives

Alternatives 1 and 2 do not provide any increased reduction in toxicity, mobility, or volume over existing conditions and do not satisfy the statutory preference for treatment. Alternatives 3 through 5 satisfy the statutory preference for treatment. These alternatives would significantly reduce the volume and mobility of contamination by inhibiting further contaminant migration. The treatment technologies considered for Alternatives 3 through 4, air stripping with off-gas controls and liquid-phase carbon adsorption, would irreversibly reduce the toxicity and volume of contaminants in the extracted groundwater and result in an effluent stream that meets drinking water standards for VOCs. Both treatment technologies would result in the destruction of VOCs when the granular activated carbon is regenerated.

Alternative 3 would provide removal of an estimated 21,400 pounds of VOCs over a 30-year period of operation, while Alternative 4 would provide removal of an estimated 40,000 pounds. Alternative 5 provides the highest amount of mass removal with an estimated 45,900 pounds of VOCs removed. Although the VOC mass removed by Alternative 5 is larger than the VOC mass removed by Alternatives 3 and 4, a substantially greater amount of water must be pumped for a relatively small increase in VOC mass removed. The extraction rate for Alternative 5 is approximately 5 times that of Alternative 4, while the VOC mass removed is only about 15 percent greater. It should be noted that these VOC mass removal estimates are very approximate and actual operation of the extraction and treatment systems in Alternatives 3 through 5 could yield lower or higher values.

10.5 Short-Term Effectiveness

This criterion evaluates the effects of each remedial alternative on human health and the environment during the construction and implementation phase until remedial action objectives are met. The following factors are addressed for each alternative:

- **Protection of workers and the community during construction and implementation phases.**

This factor qualitatively examines risk that results from implementation of the proposed remedial action and the effectiveness and reliability of protective measures.

- **Environmental impacts.** This factor addresses the potential adverse environmental impacts that may result from the construction and implementation of an alternative. This factor also evaluates the reliability of the available mitigation measures to prevent or reduce potential impacts.
- **Time until RAOs are achieved.**

10.5.1 Short-Term Effectiveness: Evaluation of Alternatives

Alternative 1 is not evaluated for this criterion because there is no construction or implementation phase and RAOs would not be met. None of the alternatives pose unmitigable risks to the community during construction and implementation. Nor do any of the alternatives pose unmitigable risks to workers beyond general construction hazards associated with large construction projects. No unmitigable negative environmental impacts are anticipated in the areas in which facilities would be constructed.

For Alternative 2, the RAOs would not be met as long as contaminant migration continues, which would likely be a considerable length of time. For Alternatives 3 through 5, containment of contaminated groundwater would be achieved within a few days of system startup. However, Alternatives 3 and 4 do not provide containment in all contaminated areas. Alternative 3 would meet the RAOs in the shallow zone in the western portion of the El Monte OU. Alternative 4 would meet the RAOs in both the western and eastern portions of the shallow zone, but would not achieve RAOs in the deep zone. Alternative 5 is the only alternative that would meet the RAOs in both the shallow and deep zones. Alternative 5 may take slightly longer to meet RAOs because of the additional construction required.

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 following factors are considered:

- Technical Feasibility
  - Ability to construct and operate: addresses any technical difficulties and unknowns associated with construction or operation of the technology
  - Reliability of technology: focuses on the likelihood that technical problems associated with implementation will lead to schedule delays
  - Ease of undertaking additional remedial action: includes a discussion of what, if any, future remedial actions may need to be undertaken and how the remedial action would interfere with, or facilitate, the implementation of future actions
- Administrative Feasibility
  - Coordination with other agencies, including the need for agreements with parties other than EPA required for construction and operation of the remedy.
- Availability of Services and Materials
  - Availability of necessary equipment, specialists, and provisions to assure any necessary resources
  - Availability of services and materials, plus the potential for obtaining competitive bids

10.6.1 Implementability: Evaluation of Alternatives

Alternative 1 is not evaluated for this criterion because no action is implemented. As described above, the implementability evaluation incorporates several factors. Each of these is discussed separately in the following text.

Technical Feasibility: Ability to Construct and Operate. The extraction, treatment, and conveyance technologies included in Alternatives 3 through 5 and the monitoring technologies included in Alternatives 2 through 5 are widely used. No significant difficulties are expected in construction and operation of these technologies.

Technical Feasibility: Reliability of Technology. The extraction, treatment, conveyance, and monitoring technologies in Alternatives 2 through 5 are generally known to be proven and reliable.

Technical Feasibility: Ease of Undertaking Additional Remedial Actions. The alternatives would not interfere with the implementation of future response actions to further contain contamination or restore groundwater in the El Monte OU area.

Administrative Feasibility. There are not likely to be any significant administrative feasibility issues associated with implementation of Alternative 2, other than obtaining access agreements for monitoring well installation. Implementation of Alternatives 3 through 5 would require acquisition of property and/or easements for the construction of extraction wells, treatment facilities, and conveyance facilities. In addition, implementing Alternatives 3 through 5 would require resolution of the following administrative issues associated with groundwater extraction and discharge of treated water to local water purveyors or to Eaton Wash:

- Agreements may need to be made with the Watermaster or with a water purveyor to account for extraction from the basin by the parties implementing the selected remedy because these parties may not have water rights.
- An agreement with the Watermaster may be required regarding the potential need to pay replenishment fees for treated water discharged to Eaton Wash.
- Agreements would need to be reached with water purveyors that would receive treated water from the groundwater treatment facilities specifying the amount of water each purveyor would accept; the treated water delivery location; responsibility for any necessary capital improvements to purveyor systems; and to determine operational, liability, financial, and other arrangements.
- Water purveyors would need to obtain approval for modifications to their water supply permits.
- If treated water is discharged to Eaton Wash, RWQCB Basin Plan water quality objectives for Eaton Wash would need to be met. If the discharge exceeds Basin Plan inorganic water quality objectives, it may be necessary to conduct an evaluation of the impact of the discharge on downgradient surface water and groundwater, as well as an evaluation of reuse alternatives for the VOC-treated groundwater. If water quality impacts are minimal and reuse alternatives infeasible, the discharge may be allowed. If the water quality impacts are unacceptable and no other method of disposal is identified, a treatment system for the inorganics would need to be included as part of the remedial action. Reverse osmosis treatment is one such system that is generally known to be proven and reliable.

Availability of Services and Materials. Implementation of Alternatives 3 through 5 would require fabrication of treatment plant equipment. Required services and materials are believed to be available, including qualified contractors for construction and operation of the necessary facilities.

Alternative 2 is assigned a higher ranking in Figure 4 because there are no significant issues that could impact implementability of this monitoring-only alternative. Alternatives 3, 4 and 5 are ranked lower

because of the administrative issues associated with groundwater extraction and treated water discharge. Alternatives 4 and 5 require construction of additional facilities that could lead to more construction/schedule delays.

10.7 Cost

This criterion addresses the total cost of each alternative. This includes short- and long-term costs, and capital and O&M costs. The following cost elements are considered for each alternative:

- **Capital Cost.** Direct capital cost includes the cost of construction, labor, equipment, land, site development, and service. Indirect capital cost includes engineering fees, license and permit cost, startup and shakedown costs, and contingencies.
- **O&M Cost.** Annual O&M cost includes operating labor cost, maintenance materials and labor, pumping and treatment energy costs, monitoring costs, and all other post-construction costs necessary to ensure continuous effective operation of the alternative.
- **Total Present Worth.** The total present worth of each alternative is calculated at a discount rate of 5 percent and a time period of 30 years. Total present worth for each alternative includes capital cost plus the present worth of the annual O&M costs.

The cost estimates are considered order-of-magnitude level estimates (i.e., the cost estimates have an expected accuracy of +50 to -30 percent). The assumption of a 30-year operating period is based on EPA guidance and does not reflect any specific finding regarding the duration of the selected remedy.

10.7.1 Cost: Evaluation of Alternatives

Although there is no cost presented for the no-action alternative (Alternative 1), there have been and would continue to be substantial financial impacts on local water purveyors or their rate payers because of the continued migration of contamination to their production wells. Table 4 summarizes the estimated costs for Alternatives 2 through 5, respectively.

10.7.2 Cost: Comparison of Alternatives

Table 4 compares the cost of each alternative for capital costs, long-term O&M costs, and present worth. The short-term capital costs range from $1,250,000 for Alternative 2 to $7,930,000 for Alternative 5. The annual O&M costs range from $200,000 for Alternative 2 to $960,000 for Alternative 5.

10.8 State Acceptance

The State of California has provided comments and feedback to EPA throughout the RI/FS process for the El Monte OU. In a letter dated April 12, 1999, the California Department of Toxic Substance Control (DTSC), as lead agency for the state, concurred with EPA's selected remedy. In addition, the RWQCB concurred with EPA's selected remedy in a letter dated March 10, 1999.

10.9 Community Acceptance

EPA received written comments from one individual and two organizations on the Proposed Plan for this interim action in the El Monte OU. In addition, EPA received limited oral comments and questions at the public meeting held in November 1998 to discuss EPA's plans. EPA responded directly to the oral questions at the public meeting. All of the written comments received during the 60-day public comment period , along with EPA's responses to them, are presented in the Responsiveness Summary in Part III of

this ROD. The transcript for the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

One commenter did not believe that the information collected and evaluations performed to date provided sufficient justification to demonstrate that the remedy selected (Alternative 5) was necessary. This commenter requested that EPA perform additional evaluations and incorporate these into the remedy selection process. EPA has determined that sufficient data have been collected and evaluated to conclude that the preferred alternative presented in the Proposed Plan represents the most appropriate interim remedy for the El Monte OU. None of the comments received warranted a change to the overall remedy that EPA selected.

11 Selected Remedy

After considering CERCLA's statutory requirements, the detailed comparison of the alternatives using the nine evaluation criteria, and public comments, EPA, in consultation with the State of California, has determined that the most appropriate remedy for this site is **Alternative 5: shallow groundwater control in western and eastern El Monte OU plus deep groundwater control.** Alternatives 1 and 2 provide the least overall protection of human health and the environment and do not comply with ARARs. Alternative 3 addresses only a portion of the shallow zone in the El Monte OU. Although Alternative 4 adequately addresses all of the shallow contamination in the OU, it does not include remedial actions that provide containment of the deep zone contamination. Deep zone contamination has impacted several production wells in the El Monte OU and EPA believes that controlling further contaminant migration in the deep zone is critical. Because it addresses contaminant migration in both the shallow and the deep zone, Alternative 5 is the only alternative that meets EPA's remedial action objectives in both the shallow and deep zones and satisfactorily meets the threshold criteria of overall protection of human health and the environment and compliance with ARARs. Although Alternative 5 costs more than the other alternatives, the additional benefits provided from the deep zone containment far outweigh the additional cost. Overall, Alternative 5 provides the best balance in tradeoffs between the evaluation criteria. EPA expects that this interim remedy will provide the basis for the final remedy for the El Monte OU.

11.1 Description of the Selected Remedy

The selected remedy will be implemented using a performance-based approach. The performance-based approach specifies criteria ("performance criteria") that must be met while allowing flexibility in implementation. The performance criteria are designed to attain the RAOs for the El Monte OU and are described below. These performance criteria have been refined since they were first presented in the proposed plan for the El Monte OU.

11.1.1 Performance Criteria

Performance Criterion for the Shallow Zone:

The remedial action shall prevent groundwater in the shallow zone with VOC contamination above 10 times the ARARs listed in Table 5 from migrating beyond its current lateral and vertical extent.

Compliance with this criterion will be monitored at wells described as follows:

- Located laterally and vertically downgradient of shallow groundwater contamination exceeding 10 times the relevant ARAR, but generally within areas where VOC concentrations exceed the ARARs listed in Table 5.
- Completed with screen lengths generally of 20 feet or less between the water table and 130 feet bgs. Longer screened intervals may be appropriate in limited situations and will be evaluated on a case-

. by-case basis

Extracted groundwater will be treated by air stripping (with off-gas controls) or liquid-phase carbon adsorption. If alternative treatment technologies are identified, EPA will evaluate the alternative

technologies in accordance with the criteria specified in 40 C.F.R. Section 300.430 during remedial design.

Performance Criterion for the Deep Zone, Northwestern Area

The remedial action shall provide sufficient hydraulic control to prevent deep zone groundwater with VOC contamination above the ARARs listed in Table 5 from migrating into or beyond the Encinitas Well Field Area (described in Section 11.1.3.2) in the northwestern portion of the OU.

Compliance with this criterion will be monitored at compliance wells described as follows:

- Located within 2,000 feet of a production well in the Encinitas Well Field.
- Located generally west to northwest of the current extent of deep zone groundwater contamination, within the area with detectable VOC concentrations in the deep zone.
- Completed with screen lengths of 20 feet or less within the deep zone. Larger screened intervals may be appropriate in limited situations and will be evaluated on a case-by-case basis.

Performance Criterion for the Deep Zone, Southern Area

The remedial action shall apply measures necessary to prevent deep zone groundwater with VOC contamination above the ARARs listed in Table 5 from migrating beyond its current lateral and vertical extent, as described in the RI/FS for the El Monte OU, in the southern portion of the OU.

Compliance with this criterion will be monitored at compliance wells described as follows:

- Located within 2,000 feet of the current extent of groundwater contaminated with any VOC exceeding its ARAR. Because the downgradient extent of deep zone contamination in the southern area is not well defined, additional data collection during remedial design may be necessary in this area.
- Located generally west to southwest of the current extent of deep zone groundwater contamination, within the area with detectable VOC concentrations in the deep zone
- Completed with screen lengths of 20 feet or less within the deep zone. Larger screened intervals may be appropriate in limited situations and will be evaluated on a case-by-case basis

Extracted deep zone groundwater will be treated by air stripping (with off-gas controls) or liquid-phase carbon adsorption. If alternative treatment technologies are identified, EPA will evaluate the alternative in accordance with the criteria specified in 40 C.F.R. Section 300.430 during remedial design.

Implementation of the remedial action cannot result in any adverse effects (i.e., increases in migration of contamination) to production wells that are not part of the remedial action. In addition, the remedial action must provide adequate capture of contamination above ARARs without relying on the effects of wells that are not part of the remedial action.

11.1.2 Compliance with Performance Criteria

Compliance with the performance criteria will be confirmed by quarterly sampling at compliance wells. Over time, if it can be demonstrated, based on historical monitoring data, that concentrations are unlikely to exceed the performance criteria in the short term, monitoring intervals may be lengthened. If it appears, based on trends in monitoring data, that concentrations may exceed the performance criteria, monitoring intervals may be shortened.

Concentrations at compliance wells will be used as an absolute criterion to demonstrate compliance. EPA expects that groundwater containment actions will be implemented sufficiently upgradient of these wells to provide enough of a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance. EPA also anticipates that additional monitoring wells will be installed, or existing wells within this buffer zone will be used to provide an early warning system, and therefore provide sufficient time to address and prevent noncompliance.

Imminent exceedance of the performance criteria at compliance wells indicates that groundwater contamination is migrating, and hydraulic containment is required. Any actual or imminent exceedance of the performance criteria at the compliance wells will require groundwater extraction and treatment to achieve hydraulic containment. Actual exceedance of performance criteria at compliance wells will result in the initiation of enforcement actions.

11.1.3 Supplemental Explanation of Performance Criteria

The following paragraphs provide additional explanation of the performance criteria, their meaning and objectives to help clarify the intent of the criteria.

11.1.3.1 The "Shallow" and "Deep" Zones

The shallow zone generally encompasses the upper 100 feet of the saturated aquifer, including the interval between the water table and approximately 150 feet below ground surface. The deep zone generally includes the somewhat coarser-grained interval beneath the shallow zone that is used for groundwater production. Both terms are used in a manner consistent with their usage in the El Monte OU Final Remedial Investigation and Feasibility Study Reports (CDM, 1998a and 1998b, respectively).

The "shallow" and "deep" zones are terms intended to describe general horizons within the aquifer(s) underlying the El Monte OU. During the course of the RI and development of the FS, the complex stratigraphy was simplified with generalizing assumptions about vertical intervals that appear to have similar characteristics throughout the area. However, actual subsurface conditions are not accurately described by terms that imply a well-layered system. The alluvial materials that underlie the El Monte OU are very heterogeneous, and are made up of interfingering lenses of variable hydraulic properties.

The shallow zone represents the upper portion of the saturated sediments at and under the water table. Contaminant concentrations, transport rates and groundwater flow directions in the shallow zone vary considerably across the El Monte OU. Remediation of migrating contamination in the shallow zone requires careful analysis of this variability and an adequate understanding of the extent, nature, and sources of contamination.

The deep zone incorporates the entire portion of the aquifer beneath the shallow zone. In the context of this remedy, the deep zone extends to the deepest depths where groundwater exceeds ARARs standards. In general, this is the upper 400 feet below ground surface. However, depth-specific sampling indicates that isolated occurrences of deeper ARARs exceedances are possible. Contamination appears to travel faster within the deep zone because of the coarser sediments and associated higher hydraulic conductivity values. Numerous drinking water production wells extract water from the deep zone in the El Monte OU vicinity. Containing contaminant migration within the deep zone is considered essential to avoiding

further adverse impacts to downgradient drinking water wells in the future.

11.1.3.2 Encinitas Well Field Area

The Encinitas Well Field contains production wells owned by Southern California Water Company. The current extent of deep zone groundwater contamination extends into the Encinitas Well Field. EPA's objective in this portion of the deep zone is to ensure that contamination does not migrate beyond the Encinitas Well Field Area. For the purposes of this remedial action, the Encinitas Well Field Area is defined as: (1) the three Southern California Water Company Encinitas wells (wells 01902024, 10902035, and 08000073) and (2) the downgradient extent of contamination above ARARs in the vicinity of these wells. The intent of defining the zone in this manner is to provide an adequate basis for designing a remedial action that does not allow contamination to spread away from its current extent.

The Encinitas Well Field Area is considered to be a generally elliptical or circular area that encompasses both the Encinitas wells and any downgradient extent of contamination.

There are two approaches that should be able to accomplish the deep zone objectives in the Encinitas Well Field Area. The first relies exclusively on installation of new extraction wells upgradient of the production wells. These new wells must provide sufficient hydraulic control to capture contamination migrating into the production field. The second approach incorporates the production wells into the remedial action. If this approach is used, it must be demonstrated that pumping from the production wells alone, or in combination with new wells, provides sufficient hydraulic control. For the production wells to be considered part of the remedial action, the responsible parties will have to provide acceptable assurances to EPA that the wells will operate in a manner that ensures compliance with the performance criteria. If other approaches for achieving containment are identified, EPA will evaluate those methods in accordance with the criteria specified in 40 C.F.R. Section 300.430.

For any remedial approach, compliance will be monitored at wells located downgradient of the Encinitas Well Field Area. If a new extraction system is used, monitoring wells must also be placed to measure the effectiveness of the system at preventing migration of contaminants into the Encinitas Well Field Area. The remedial action must, by itself, provide sufficient capture and be monitored to ensure that the performance criteria are not exceeded.

11.1.3.3 Compliance Wells

Compliance wells in the shallow zone will be located to ensure adequate monitoring of contaminant migration both laterally and vertically. Wells must provide sufficient information to assess whether the remedial action is preventing further migration of contaminants. The number, location, and monitoring of these wells must ensure that contamination is not spreading laterally away from areas that are already contaminated, or vertically into deeper zones.

The NEMCTF is currently conducting an "Early Response Action Program" (ERAP) that includes the installation of 7 shallow monitoring wells along the edges of the shallow groundwater plumes. Data collected from this program will be used together with data collected during the RI to determine the current lateral and vertical extent of shallow groundwater contamination.

Compliance wells in the deep zone, southern portion of the OU, must be located within 2,000 feet of the area with groundwater contamination exceeding ARARs or, in the northwestern portion of the OU, within 2000 feet of the Encinitas Well Field Area, yet within areas of detectable contamination, as described in the performance criteria, and further described below. The intent of locating these wells in this manner is to provide compliance points that are sufficiently distant from existing

contamination above ARARs to provide enough time to ensure that additional actions can be taken before threshold concentrations are exceeded. The wells must also be sufficient in number and adequately located to ensure that contamination above ARARs does not migrate away from the Encinitas Well Field Area or the current extent of contamination in the southern area. As described above, the downgradient extent of contamination in the southern deep zone has not been fully characterized. The downgradient extent of contamination will be more fully characterized using data from up to two ERAP multi- port wells in the southern area of the El Monte OU.

Locations of all compliance wells are subject to EPA approval. Well screens will generally be of 20 feet or less. Concentrations in wells vary as a function of screen length because of blending. Therefore, wells with screens longer than 20 feet are not generally considered appropriate for monitoring compliance. However, based on conditions encountered during installation of these wells, it may be appropriate to consider longer screens to ensure monitoring of several high-permeability zones. Installation of wells with screens exceeding 20 feet will be considered on a case-by-case basis subject to EPA approval.

11.1.3.4 Adverse Effects

The term "adverse effects" is included in the performance criteria to prevent the design and installation of a hydraulic control system that maintains concentrations at compliance wells below specified thresholds at the expense of production wells that are not part of the remedy. The principal adverse effect of concern is implementation of the remedial action in a manner that results in increased contaminant concentrations in wells that are not part of the remedial action. This requirement prevents, for example, the installation of new extraction wells immediately upgradient of the compliance wells and downgradient of production wells that are not part of the remedial action. The remedial action must be protective of the environment and not result in adverse effects, either on production wells, or on the overall extent of contamination.

11.2 Summary of the Estimated Remedy Costs

A detailed breakdown of the estimated capital, operating and maintenance (O&M), and present worth costs associated with the selected remedy is included in Table 6. The present worth costs assume a 5% discount rate and a 30 year project duration. These cost estimates are expected to be accurate within +50 to –30%. The total estimated capital costs are $7.93 million. The estimated annual O&M costs are $0.96 million and the total present worth cost estimate is $22.67 million.

11.3 Expected Outcomes of the Selected Remedy

Once implemented, this interim remedy will protect the existing beneficial uses of the currently uncontaminated aquifer downgradient of the compliance wells. The remedy will allow for continued use of these areas, particularly the deep zone, as a source of drinking water supply.

Because the interim remedial action selected in this ROD is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of the shallow and deep zones upgradient of the compliance wells and any associated extraction systems will likely remain contaminated and unusable for a considerable length of time.

12 Applicable or Relevant and Appropriate Requirements (ARARs)

Section 121(d) of CERCLA, 42 U.S.C. § 9621(d) requires that remedial actions at CERCLA sites attain (or justify the waiver of) any federal or state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate. These applicable or relevant and appropriate requirements are referred to as "ARARs." Federal ARARs may include requirements promulgated under any federal environmental laws. State ARARs may only include promulgated, enforceable environmental or facility-siting laws of general application that are more stringent or broader in scope than federal requirements and that are identified by the state in a timely manner.

An ARAR may be either "applicable," or "relevant and appropriate," but not both. If there is no specific federal or state ARAR for a particular chemical or remedial action, or if the existing ARARs are not considered sufficiently protective, then other guidance or criteria to be considered (TBCs) may be identified and used to ensure the protection of public health and the environment. The NCP, 40 C.F.R. Part 300, defines "applicable," "relevant and appropriate," and "to be considered" as follows:

- **Applicable requirements** are those cleanup standards, standards of control, or 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 circumstances 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 that are more stringent than federal requirements may be relevant and appropriate.

- **TBCs** consist of advisories, criteria, or guidance that EPA, other federal agencies, or states developed that may be useful in developing CERCLA remedies. The TBC values and guidelines may be used as EPA deems appropriate.

ARARs are identified on a site-specific basis from information about the chemicals at the site, the remedial actions contemplated, the physical characteristics of the site, and other appropriate factors. ARARs include only substantive, not administrative, requirements, and pertain only to onsite activities. Offsite activities must comply with all applicable federal, state, and local laws, including both substantive and administrative requirements, that are in effect when the activity takes place. There are three general categories of ARARs:

- **Chemical-specific** ARARs are health- or risk-based concentration limits, numerical values, or methodologies for various environmental media (i.e., groundwater, surface water, air, and soil) that are established for a specific chemical that may be present in a specific media at the site, or that may be discharged to the site during remedial activities. These ARARs set limits on concentrations of specific hazardous substances, pollutants, and contaminants in the environment. Examples of this type of ARAR include state and federal drinking water standards.
- **Location-specific** ARARs set restrictions on certain types of activities based on site characteristics. Federal and state location-specific ARARs are restrictions placed on the concentration of a contaminant or the activities to be conducted because they are in a specific location. Examples of special locations possibly requiring ARARs may include floodplains, wetlands, historic places, and sensitive ecosystems or habitats.
- **Action-specific** ARARs are technology- or activity-based requirements that are triggered by the type of remedial activities under consideration. Examples of this type of ARAR are RCRA regulations for waste treatment, storage, or disposal.

EPA has evaluated and identified the ARARs for the selected remedy in accordance with CERCLA, the NCP, and EPA guidance, including the *CERCLA Compliance with Other Laws Manual, Part I (Interim Final),* OSWER Directive 9234.1-01 (EPA, 1988a) and *CERCLA Compliance with Other Laws Manual, Part II,* OSWER Directive 9234.1-02 (EPA, 1989).

12.1 Chemical-specific ARARs

The chemicals of potential concern for the El Monte OU are VOCs that have been detected in groundwater in the El Monte OU. Table 5 lists these VOCs and their chemical-specific ARARs.

12.1.1 Federal Drinking Water Standards

EPA has established MCLs, 40 C.F.R. Part 141, under the Safe Drinking Water Act (SDWA), 42 U.S.C. §§ 300f-j, to protect public health from contaminants that may be found in drinking water sources. MCLs are applicable at the tap for water that is delivered directly to 25 or more people or to 15 or more service connections.

Under the SDWA, EPA has also designated Maximum Contaminant Level Goals (MCLGs), 40 C.F.R. Part 141, which are health-based goals that may be more stringent than MCLs. MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects would occur. MCLGs greater than zero are relevant and appropriate where multiple contaminants in groundwater or multiple pathways of exposure present unacceptable health risks (EPA, 1988b). One chemical detected in the El Monte OU groundwater, 1,1,2-trichloroethane, has an MCLG that is more stringent than its MCL.

Under Section 300.430(f)(5) of the NCP, remedial actions must generally attain MCLs and nonzero MCLGs if the contaminated water is a current or potential source of drinking water. The 1995 Water Quality Control Plan for the Los Angeles Region (Basin Plan) designates all of the contaminated groundwater in the El Monte OU as current and potential sources of drinking water. However, since this ROD selects an interim remedial action to contain contaminant migration, no final cleanup standards are established for the restoration of groundwater. Final cleanup standards will be established in a Final ROD. For this Interim ROD, EPA has determined that the federal MCLs and nonzero MCLGs listed in Table 5 are ARARs for any groundwater that is extracted and used for domestic, municipal, industrial, or agricultural purposes, and for any groundwater that is discharged to the environment. In addition, these MCLs and MCLGs are ARARs for currently uncontaminated groundwater in the deep zone

downgradient of the existing compliance wells established by the remedial action (EPA, 1988a).

If treated groundwater is to be delivered into a public water supply, all legal requirements for drinking water in existence at the time that the water is served will have to be met because EPA considers the service of water to the public to be an offsite activity.

12.1.2 California Drinking Water Standards

California has established state MCLs for sources of public drinking water, under the California Safe Drinking Water Act of 1976, Health and Safety Code (H&SC) §§ 4010.1 and 4026(c), California Code of Regulations (CCR) Title 22, §§ 64431 and 64444. Some state MCLs are more stringent than the corresponding federal MCLs. EPA has determined that the more stringent state MCLs are relevant and appropriate for the El Monte OU. There are also some chemicals that lack federal MCLs. Where state MCLs exist for chemicals that lack federal MCLs, EPA has determined that the state MCLs are relevant and appropriate for the El Monte OU. State MCLs apply to remedial actions in the El Monte OU in the same manner as federal MCLs. Table 5 identifies the state MCLs that are ARARs for this remedial action.

12.2 Location-specific ARARs

This ROD specifies performance criteria for the remedy. As such, the locations of remediation facilities (e.g., wells, treatment plant, and pipelines) are not specifically identified herein. Locations of remediation facilities will be determined during the remedial design, and will conform to the location-specific ARARs identified below.

12.2.1 Location Standards for TSD Facilities

California Code of Regulations, Title 22, Section 66264.18 establishes location standards for Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs). Subsection 66264.18(a) prohibits the placement of TSDFs within 200 feet of a fault displaced during the Holocene epoch. Subsection 66264.18(b) requires that TSDFs located within a 100-year floodplain be capable of withstanding a 100-year flood. These standards are applicable to the construction of any new groundwater extraction and treatment facilities used as part of this remedial action.

12.2.2 Endangered Species Act

The Endangered Species Act, 15 U.S.C. §§ 1531-1544, and implementing regulations, 40 C.F.R. § 6.302(h), 50 C.F.R. Parts 17, 222 and 402, are applicable to any remedial actions that impact a proposed or listed threatened or endangered species or destroy or adversely modify the critical habitat of a listed species. No endangered species are known or suspected to occur in the locations where remedial action facilities might be constructed. If, however, it appears during the implementation of the remedial action that construction activities or the discharge of treated groundwater might adversely affect a proposed or listed species, EPA will consult with the U.S. Fish and Wildlife Service (FWS) in accordance with 50 C.F.R. Part 402 and ensure that regulatory requirements are followed so that adverse impacts are avoided or mitigated.

12.2.3 California Fish and Game Code

California Fish and Game Code sections 2080, 5650(a), (b), and (f), 12015, and 12016 prohibit the discharge of harmful quantities of hazardous materials into places that may deleteriously affect fish, wildlife, or plant life. These provisions are applicable if the remedial action will result in the discharge of treated groundwater to surface waters.

12.2.4 National Historic Preservation Act

The National Historic Preservation Act and implementing regulations (16 U.S.C. § 470, 40 C.F.R. Part 6.301(b), 36 C.F.R. Part 800) require federal agencies or federal projects to take into account the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object that is included in, or eligible for, the Register of Historic Places. If remedial action is likely to have an adverse effect on any cultural resources that are on or near the El Monte OU, EPA will examine whether feasible alternatives exist that would avoid such effects. If effects cannot reasonably be avoided, measures will be implemented to minimize or mitigate the potential effect.

No cultural resources are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review of all impacted areas will be made.

12.2.5 Archaeological and Historic Preservation Act

This statute and implementing regulations, 16 U.S.C. § 469, 40 C.F.R. Part 6.301(c), establish requirements for the evaluation and preservation of historical and archaeological data that may be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity or program. No sites of historical interest are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review will be made of impacted areas.

12.2.6 Historic Sites, Buildings, and Antiquities Act

The Historic Sites, Buildings, and Antiquities Act, 16 U.S.C. §§ 461-467, 40 C.F.R. Part 6.301(a), requires federal agencies to consider the existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on such landmarks. The remedial action is not anticipated to affect any of the facilities regulated under the act. However, during preliminary design, a complete review will be made of impacted areas.

12.3 Action-specific ARARs

12.3.1 Local Air Quality Management

One VOC treatment technology that may be used is air stripping. Air emissions from air strippers are regulated by the California Air Resources Board, which implements the federal Clean Air Act (CAA), as well as the air pollution control requirements of the California H&SC, through local air quality management districts. Local districts may impose additional regulations to address local air emission concerns. The local air district for the El Monte OU is the South Coast Air Quality Management District (SCAQMD). The SCAQMD has adopted several rules that are ARARs for air stripper emissions and construction activities.

SCAQMD Regulation XIII, comprising Rules 1301 through 1313, establishes new source review

requirements. Rule 1303 requires that all new sources of air pollution in the district use best available control technology (BACT) and meet appropriate offset requirements. Emissions offsets are required for all new sources that emit in excess of one pound per day.

SCAQMD Rule 1401 requires that best available control technology for toxics (T-BACT) be employed for new stationary operating equipment, so that the cumulative carcinogenic impact from air toxics does not exceed the maximum individual cancer risk limit of 10 in 1 million (1×10^{-5}). Many of the contaminants found in the El Monte OU groundwater are air toxics subject to Rule 1401.

SCAQMD Rules 401 through 403 are also ARARs for construction and operation of remedial action facilities. SCAQMD Rule 401 limits visible emissions from a point source. Rule 402 prohibits discharge of material that is odorous or causes injury, nuisance, or annoyance to the public. Rule 403 limits downwind particulate concentrations.

12.3.2 Federal Clean Water Act and California Porter-Cologne Water Quality Act

California's Porter-Cologne Water Quality Act incorporates the requirements of the federal Clean Water Act (CWA) and implements additional standards and requirements for surface and groundwaters of the state.

12.3.2.1 Water Quality Control Plan for the Los Angeles Region (Basin Plan)

The RWQCB formulates and enforces water quality standards through a Basin Plan. The Basin Plan identifies the beneficial uses of surface and groundwaters in the San Gabriel River watershed and establishes water quality objectives necessary to protect these beneficial uses. Water quality objectives impose limitations on receiving waters, rather than discharges, and are applicable to any water body that receives discharge from remedial activities in the El Monte OU.

The selected remedial action may result in the discharge of treated groundwater to Eaton Wash upstream from the Rio Hondo. Table 2-1 of the Basin Plan identifies the following beneficial uses for Eaton Wash and the Rio Hondo above the Rio Hondo Spreading Grounds:

- Municipal and domestic supply (potential beneficial use)
- Groundwater recharge (intermittent beneficial use)
- Water contact recreation (intermittent beneficial use)
- Noncontact water recreation (existing beneficial use)
- Warm freshwater habitat (potential/intermittent beneficial use)
- Wildlife habitat (existing beneficial use)

Since municipal and domestic water supply is a potential beneficial use of these surface waters, the MCLs listed in Table 1 are applicable as water quality objectives for Eaton Wash. In addition, the following water quality objectives from Table 3-8 of the Basin Plan are ARARs for Eaton Wash and the relevant segment of the Rio Hondo:

- Total Dissolved Solids: 750 mg/L
- Sulfate: 300 mg/L
- Chloride: 150 mg/L
- Boron: 1.0 mg/L
- Nitrogen (NO3-N + NO2-N): 8 mg/L

The Basin Plan also establishes water quality objectives for groundwater in the Main San Gabriel Basin (Table 3-10). These water quality objectives are applicable to any discharge that impacts groundwater.

12.3.2.2 State Water Resources Control Board Resolution 68-16

The Basin Plan also incorporates the State Water Resources Control Board (SWRCB) policy "Statement of Policy with Respect to Maintaining High Water Quality in California" (Resolution 68-16). Resolution 68-16 requires that existing water quality be maintained unless it is demonstrated that a change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than prescribed by other state policies. Any activity that may increase the volume or

concentration of a waste discharged to surface or groundwater is required to use the "best practicable treatment or control."

Resolution 68-16 is applicable to discharges of treated groundwater. If treated water is to be discharged to Eaton Wash, the RWQCB may require an evaluation of the potential impact of nitrate and TDS contained in treated groundwater on receiving waters and investigate alternative discharge options. If water quality impacts are minimal and alternative discharge options infeasible, the RWQCB may allow the discharge to Eaton Wash.

12.3.2.3 State Water Resources Control Board Resolution 92-49

Subsection III.G of the SWRCB's "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304" (Resolution 92-49) requires attainment of background water quality or, if background levels cannot be restored, the best quality of water that is reasonable. Resolution 92-49 is not an ARAR because this is an interim remedial action to contain the spread of contamination, rather than a final action to restore groundwater in the El Monte OU.

12.3.2.4 Standards Applicable to CERCLA Section 104(b) Discharges to Surface Waters

Site investigation activities undertaken pursuant to CERCLA § 104(b) are considered to be removal actions. It is EPA policy that removal actions "comply with ARARs to the extent practicable, considering the exigencies of the circumstances." (55 Fed. Reg. 8756).

It is possible that certain site investigation activities will take place during remedial design, which will result in temporary high-flow, high-volume discharges of contaminated groundwater (e.g., discharges from aquifer testing of extraction wells). EPA has considered the best available technology economically achievable (BAT) for treatment and disposal of these discharges. The three disposal options that EPA considered are: (1) onsite storage and disposal at a Resource Conservation and Recovery Act (RCRA)-approved hazardous waste facility, (2) discharge to a sanitary sewer for treatment at a wastewater treatment plant, and (3) onsite treatment and discharge to surface water channels. EPA has concluded that compliance with chemical-specific ARARs is not practicable, considering the exigencies of the circumstances, for many temporary high-flow, high-volume discharges.

EPA has determined that compliance with chemical-specific ARARs is practicable and necessary for CERCLA § 104(b) activities that do not result in temporary high-flow, high-volume discharges. EPA will determine the application of chemical-specific ARARs to CERCLA § 104(b) activities on a case-by-case basis. Where practicable, these discharges must comply with ARARs.

12.3.3 California Hazardous Waste Management Program

The federal RCRA establishes requirements for the management and disposal of hazardous wastes. In lieu of the federal RCRA program, the State of California is authorized to enforce its Hazardous Waste Control Act, and implement regulations (CCR Title 22, Division 4.5), subject to the authority retained by EPA in accordance with the Hazardous and Solid Waste Amendments of 1984 (HSWA). California is responsible for permitting treatment, storage, and disposal facilities within its borders and carrying out other aspects of the RCRA program. Some of the Title 22 regulations are applicable to the generation and disposal of hazardous wastes in the El Monte OU.

12.3.3.1 Hazardous Waste Generator Requirements

CCR Title 22 establishes requirements applicable to generators of hazardous waste. Implementation of the remedial action may generate hazardous waste as a result of ground-water monitoring and well installation (e.g., contaminated soil and groundwater and used personal protective equipment).

Hazardous waste may also be generated as a result of ground-water treatment to remove VOCs (e.g., spent carbon). These requirements are applicable to remedial actions in the El Monte OU.

The preamble to the NCP clarifies that when noncontiguous facilities are treated as one site, the movement of hazardous waste from one facility to another is subject to RCRA manifest requirements (55 Fed. Reg. 8691). Manifest requirements are ARARs in the event that the remedial action involve multiple water treatment units at different locations and require the movement of hazardous wastes (e.g., spent carbon) between these locations.

12.3.3.2 Land Disposal Restrictions

CCR Title 22 defines hazardous wastes that cannot be disposed of to land without treatment. Land disposal requirements are applicable to the disposal of spent carbon generated during the treatment of groundwater for removal of VOCs, if carbon adsorption is used, and the disposal of residuals associated with groundwater monitoring and well installation (e.g., contaminated soil and groundwater, used personal protective equipment).

12.3.3.3 Hazardous Waste TSD Facility Requirements

CCR Title 22, Division 4.5, Chapter 14, specifies Hazardous Waste TSDF requirements that regulate the design, construction, operation, and closure of RCRA-permitted TSDFs. Since the contaminated groundwater is sufficiently similar to RCRA hazardous wastes, Title 22 TSDF requirements are relevant and appropriate for the design, construction, operation, and closure of any ground-water treatment systems. The Title 22 ARARs include the substantive requirements of the following provisions:

- Section 66264.14: Security Requirements
- Section 66264.25: Seismic and Precipitation Standards
- Section 66264.94: Groundwater Protection Standards
- Sections 66264.111-115: Closure of Treatment Units
- Sections 66264.170-178: Use and Management of Containers
- Sections 66264.600-603: Standards for Miscellaneous Treatment Units

12.4 ARARs Waivers

This interim remedial action 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 for restoration of groundwater remaining onsite. These ARARs will be addressed in the Final ROD for the El Monte OU.

13 Statutory Determinations

Under CERCLA Section 121, EPA must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), are cost-effective, and utilize 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 volume, toxicity, or mobility of hazardous wastes. The following sections discuss how the selected remedy meets these statutory requirements.

13.1 Protection of Human Health and the Environment

The selected remedy will protect human health and the environment by limiting further downgradient migration of contaminated groundwater and preventing the existing groundwater contamination from impacting current groundwater users. The remedy will also remove contaminant mass from the aquifer. The selected remedy will reduce potential risks by decreasing the likelihood and magnitude of future exposure to contaminated groundwater. Contaminant concentrations in the groundwater in the areas to be addressed by the remedy are currently well above acceptable levels. Available treatment technologies are technically feasible and proven effective in meeting ARARs for VOCs in the treated groundwater and air. Implementation of the remedy will not pose unacceptable short-term risks. In addition, no adverse cross-media impacts are expected.

13.2 Compliance with ARARs

The selected remedy shall comply with all ARARs described in Section 12 of this interim ROD. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

13.3 Cost-Effectiveness

EPA believes the selected remedy is cost-effective for addressing migration of contaminated groundwater in the El Monte OU. Section 300.430(f)(ii)(D) of the NCP requires EPA to determine cost-effectiveness by evaluating the cost of an alternative relative to its overall effectiveness. Effectiveness is defined by three of the five balancing criteria: long-term effectiveness, short-term effectiveness, and reduction of toxicity, mobility and volume through treatment. The overall effectiveness is then compared to cost to ensure that the selected remedy is cost-effective.

The estimated present worth cost of the selected remedy is $22,670,000. Although the other four alternatives are less expensive, migration of groundwater contamination in the deep aquifer is not addressed in any of the other alternatives. EPA believes that the additional cost to contain contaminant migration in the deep aquifer provides a significant increase in protection of human health and the environment and is cost-effective.

13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

As an interim remedial action, EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner in the El Monte OU. 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 considering state and community acceptance.

The selected remedy satisfies the long-term effectiveness criterion by removing VOC contamination from the groundwater and destroying the VOCs during carbon regeneration. Groundwater containment through extraction effectively reduces the mobility and volume of and potential for exposure to site-related contamination. The selected remedy does not present any short-term risks that can not be readily mitigated and EPA expects that the implementability issues associated with the selected remedy can be resolved in a timely manner.

13.5 Preference for Treatment as a Principal Element

By treating the contaminated groundwater through air stripping or liquid-phase carbon adsorption, the selected remedy addresses the site contamination through the use of treatment technologies. By using treatment as a significant portion of the remedy, the statutory preference for remedies that employ treatment as a principal element is satisfied.

13.6 Five-Year Reviews

Because the remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use and unrestricted exposure, EPA shall conduct a review of the remedy at least once every 5 years after initiation of remedial action. The review will assess whether the remedy continues to provide adequate protection of human health and the environment. If it is determined that the remedy is no longer protective of human health and the environment, then modifications to the remedy will be evaluated and implemented as necessary.

14 Documentation of Significant Changes

The Proposed Plan for the El Monte OU was released for public comment in October 1998. The Proposed Plan identified Alternative 5, Shallow Groundwater Control in Western and Eastern El Monte OU Plus Deep Groundwater Control, as the Preferred Alternative for addressing groundwater contamination in the El Monte OU. EPA reviewed written and verbal comments submitted during the public comment period. It was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary.

Part III
Responsiveness Summary

Part III - Responsiveness Summary

This Responsiveness Summary portion of the interim Record of Decision (ROD) presents the U.S. Environmental Protection Agency's (EPA) responses to the written and significant oral comments received at the public meeting and during the public comment period. Comments were received from one individual, one water purveyor, and the Northwest El Monte Community Task Force (NEMCTF), a group of potentially responsible parties in the El Monte OU who conducted the Interim RI/FS for the El Monte OU. The section is divided into responses to written comments and responses to oral comments. Comments are expressed in *italics*, EPA's responses in plain text.

1 Responses to Written Comments

This section provides responses to written comments received by EPA during the public comment period. Written comments were received from Mr. Glen E. Powell, CPM; the San Gabriel Valley Water Company (SGVWC); and the NEMCTF.

1.1 Responses to Comments from Mr. Glen E. Powell

Powell Comment. *EPA Fact Sheet which is seeking WRITTEN AND VERBAL COMMENTS from the Public on its plan of remediation of the El Monte Operable Unit ground water. EPA prefers the most expensive alternative without consideration of Nature's Natural Process of cleansing itself.*

I believe that it is not in the best interest of our Government and out Nation to press for a harsh punishment on OWNERSHIP of PROPERTY which Congress has discouraged on Real Estate Investments of properties located in the San Gabriel Valley. They have pronounced without ANY consideration of PUBLIC LAND FILLS commonly known as PUBLIC DUMPS, which are ALL a matter of PUBLIC RECORDS located in this El Monte Area. should be taken into consideration for minor pollution found on ALL properties located in the line of flow of our natural underground surface water flow (maps attached).

Since ALL PROPERTIES IN THE SAN GABRIEL VALLEY are guilty of using these PUBLIC DUMPS in the past, our present PROBLEM should be treated on the same basis as our aging sewer problem, with a reasonable tax on ALL PROPERTIES using this ground water based upon the amount used. There is an increase use of this ground water today (with the increase in our San Gabriel Valley population), which is being drawn from this underground water supply. This increase volume of water used, will free up capital, which is now being demanded (by the EPA) from those, who may not have owned the property being named as a major polluter, which they now hold and have capital investment interest in the property, but did not have at the time of the supposed claim of pollution. This will help to free up capital

which builds factories, multifamily and office buildings and shopping centers that in turn produce jobs, increased income and wealth.

A bill has been introduced to facilitate larger quantities of run-off water to flow into the valley, to help clean existing water supplies and allow for more water storage for use during drought years has been introduced by MARTIN GALLEGOS, D.C. Assembly member for our fifty-seventh District Chair, Assembly Health Committee for The State of California.

EPA's Response. The comment references EPA's preference for "the most expensive alternative without consideration of Nature's Natural Process of cleansing itself." EPA did consider the benefits of natural attenuation processes to help address the contamination. A portion of the shallow contamination found in both the western and eastern portions of the El Monte OU is being allowed to naturally attenuate. However, natural attenuation processes alone are not sufficient to inhibit contaminant migration in the El Monte OU. Without active containment in the shallow and deep zones, contaminants will continue to migrate at unacceptable concentrations impacting downgradient areas that are currently either clean or only slightly contaminated.

In the El Monte OU, EPA only plans to identify potentially responsible parties (PRPs) for contributing to the cleanup where there is strong evidence that contamination originating onsite at a specific facility or property has directly impacted the groundwater. Properties will not be named simply because they have "minor pollution" and are "in the line of flow." EPA is not aware of any public dumps in the El Monte OU area that could be potential sources of the types of contaminants (VOCs) that are driving the need for the remedy presented in this ROD.

1.2 Responses to Comments from San Gabriel Valley Water Company

San Gabriel Valley Water Company (SGVWC) Comment. *San Gabriel Valley Water Company ("San Gabriel") is a public utility providing water service to all or portions of 18 cities in Los Angeles County, including areas within and immediately adjacent to the El Monte Operable Unit ("El Monte OU"). San Gabriel's Plant No. 8 is a key water production facility located near the intersection of Rosemead Boulevard and Garvey Avenue in South El Monte, which is just southwest of the El Monte OU. Unfortunately, VOC contamination has been detected in four of the five wells at Plant No. 8, with three wells now exceeding the MCL for PCE.*

On page 2 of the 12 page summary of the El Monte OU Proposed Plan, in the "Site Background" commentary, it states that "groundwater flow in the El Monte OU is principally from east to west. However, there is also a southerly component of groundwater flow in the eastern portion of the Operable Unit." Additionally, Figure 3: 1997 Deep VOC Contamination shows a large swath of detectable VOC contamination covering a substantial area north and south of the I-10 freeway and extending south and west beyond the area shown by the map.

Given these findings, San Gabriel is concerned that VOCs from the El Monte OU could be a source of the VOC contamination at our Plant No. 8 and might cause the contamination to worsen. Therefore, before any alternative cleanup plans can be selected, EPA must first determine whether and to what extent the El Monte OU contamination plume is affecting the company's wells at Plant No. 8. Of course, to the extent that the El Monte OU contamination is affecting the Plant No. 8 wells, the preferred alternative needs to be revised to provide wellhead treatment at Plant No. 8.

EPA's Response. The SGVWC comment references text in the El Monte OU Proposed Plan that describes a southerly component of groundwater flow in the eastern portion of the of El Monte OU. This

southerly component of groundwater flow was found only in the shallow zone. The water level data collected during RI activities in both the El Monte and South El Monte OUs indicate that groundwater

flow directions in the deeper zone in this area are from east to west. Available data indicate that the contamination impacting SGVWC's Plant No. 8 originates east or southeast of SGVWC's well field, not from the El Monte OU to the north and northeast.

Water quality monitoring has not detected exceedances of drinking water standards (MCLs) along the southern boundary of the El Monte OU. This also supports the conclusion that the contamination impacting SGVWC's Plant No. 8 wellfield is more likely coming from sources in the South El Monte OU.

The selected remedy for the El Monte OU is intended to contain deep contamination in the southern portion of the OU. This should prevent El Monte OU contamination from impacting downgradient areas (either in the South El Monte OU or further west/southwest) in the future.

1.3 Responses to Comments from the Northwest El Monte Community Task Force (NEMCTF)

NEMCTF Comment No. 1. *USEPA's Proposed Plan states that the shallow aquifer within the EMOU is considered a drinking water source by the State of California. We point out that USEPA fails to acknowledge the fact that the shallow aquifer is not usable for drinking water purposes due to high concentrations of Total Dissolved Solids and Nitrate. These two compounds may be naturally occurring. It is clear that these two compounds are not related to the operations of the businesses that comprise the NEMCTF. We recognize that the State's designation of potential drinking water sources includes aquifers which may have limitations on their use as a result of pre-existing water quality constraints. It is essential, however, that such significant water quality limitations evidenced within the EMOU shallow aquifer be taken into consideration in determining the remedy.*

EPA's Response. EPA acknowledges that portions of the shallow aquifer in the El Monte OU area currently have elevated concentrations of nitrate and total dissolved solids (TDS) that make it unlikely they would be used as a drinking water supply in the near term. EPA has taken this information into account in selecting the remedy. First, there are substantial long-term benefits associated with inhibiting migration within the shallow zone. These benefits include: limiting the potential for vertical migration from the shallow zone to deeper zones that are currently used for drinking water supply, and limiting the potential impacts on downgradient shallow zones that may be more amenable to future use as water supply. There is considerable contamination in the deep zone in the El Monte OU and vicinity, indicating the existence of vertical migration pathways from the shallow zone to the deeper zone. The larger the extent of contamination in the shallow zone, the greater the potential for vertical migration into the deeper zone.

Second, EPA's performance criterion for the shallow groundwater zone reflects the current absence of domestic production in that zone. (See Part II, Section 11.1). The performance criteria for the deep groundwater zone require containment of contamination above MCLs because the deep zone is an existing source of drinking water. In contrast, the criterion for the shallow zone establishes the containment threshold at 10 times MCLs because the shallow zone is not likely to be used as a source of drinking water in the near future and the lower threshold is expected to protect the deep zone and uncontaminated portions of the shallow zone from further contaminant migration.

NEMCTF Comment No. 2. *USEPA's Proposed Plan describes USEPA's summary of site risks. USEPA concludes that it is "reasonable" to expect that the public will be exposed to contaminated groundwater*

at unacceptable levels unless a very costly remedy is implemented. We point out that USEPA's contemplated scenario is highly unlikely to occur; and, would in fact necessitate the occurrence of a series of unlawful acts. USEPA's Proposed Plan assumes that someone would install a potable water supply well, without obtaining a permit, into the shallow aquifer in an area containing the highest levels of contamination and located directly beneath an industrial facility. This USEPA scenario assumes the violation of existing legislation enacted and promulgated to preclude such an outcome.

USEPA's Proposed EMOU Remedial Plan further assumes that the party who installed the water supply well would deliver this highly contaminated water to the public for drinking, without treatment, over a time horizon of 30 years. USEPA has characterized a scenario that combines a series of ongoing unlawful acts over an extensive period of time to create the exposure pathway that USEPA relies on as "reasonably expected to occur". We take issue with these contentions.

We further believe that USEPA's construct of a practically impossible scenario as a basis for evaluating site risks is wholly inconsistent with USEPA's own Risk Assessment Guidance for Superfund (RAGS; EPA, 1989). The NEMCTF therefore requests that USEPA base any remedial design within the EMOU on a more credible analysis of actual or potential risks than those asserted in the Proposed Plan.

EPA's Response. The Proposed Plan does not conclude that, "it is reasonable to expect that the public will be exposed to contaminated groundwater at unacceptable levels" without the remedy. The Proposed Plan presents risks that are the maximum risks that could reasonably be expected if the future exposure occurs. The likelihood that these potential future exposures will occur is not discussed. The first paragraph of the Summary of Site Risks section of the Proposed Plan does note that the exposure scenarios evaluated assume the absence of regulatory controls (existing regulatory controls limit the potential for exposure).

We strongly disagree that the exposure assumptions used in the Preliminary Baseline Risk Assessment are inconsistent with EPA's 1989 RAGS. The El Monte OU Baseline Risk Assessment was performed in accordance with RAGS and, specifically, the assumptions regarding exposure to contaminated groundwater in a potential drinking water aquifer are consistent with EPA guidance.

The selected interim remedy is not a "risk-based" interim remedy. The primary goal of this interim remedy is to provide containment of contaminated groundwater to protect the groundwater resource from further degradation and to minimize further impacts to water purveyors. Risk was only one factor considered in deciding whether to take action at the El Monte OU. The remedial design will not be based on the results of the risk assessment, rather it will be based on compliance with the performance requirements presented in this ROD.

During the RI/FS process, the NEMCTF commented on EPA's Preliminary Baseline Risk Assessment in a May 6, 1998 letter. EPA is providing a letter response to those comments which will be included in the Administrative Record for the El Monte OU.

NEMCTF Comment No. 3. *USEPA's Proposed Plan states that the shallow aquifer with the EMOU is considered .... On Page 3 of the Proposed Plan, USEPA presents two maps which are intended to profile the extent of VOC contamination. The maps are highly generalized and simplified depictions of VOC concentrations averaged over a five year, or greater, period of time. We request that USEPA acknowledge the considerable uncertainties and potential inaccuracies reflected in these two maps.*

EPA's Response. EPA generally concurs with the comment regarding the VOC contamination maps. The maps are simplified and fairly general. The following text is typically included on these maps, but was not included in the El Monte OU Proposed Plan to simplify the figures.

"The areas of contamination shown represent simplified approximations based on the last available concentration (through November 20, 1997) of any VOC. Data points more than five years old were

not considered.

Because contaminant concentrations vary with time, a well may at times produce water with different contaminant levels than those indicated. Differences could also be caused by vertical variations in concentration (the figure is a two-dimensional depiction of contamination that actually varies with depth).

The figure shows only regional variability in contamination. In much of the basin, distances between data points are in the 1,000s of feet. Thus, there is significant uncertainty in the true locations of the concentration contours."

NEMCTF Comment No. 4. *In its analysis of the various remedial Alternatives, USEPA notes that Alternatives 1 and 2 do not meet several of their criteria. Given that these two Alternatives were crafted by USEPA to include the previously described unlawful acts associated with supplying untreated, highly contaminated groundwater as a potable water supply over time, it is presupposed by USEPA that Remedial Alternatives 1 and 2 would not comply with state or federal requirements*

EPA's Response. The comment incorrectly interprets the analysis of Alternatives 1 and 2 in relation to the evaluation criteria. The reasons that these alternatives do not meet several of the criteria are not related to the potential long-term use of the shallow, highly contaminated groundwater as a potable water supply. The following text, summarized from the El Monte OU Final FS, describes why these alternatives do not meet or are ranked low for the various criteria:

Overall Protection of Human Health and the Environment- Alternatives 1 and 2 provide the least overall protection of human health and the environment. Neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater other than groundwater management actions which regulate groundwater pumping in the San Gabriel Basin.

ARARs- These alternatives do not meet the ARARs criteria because both alternatives allow continued migration of contaminants and also may not ensure compliance with MCLs established by the federal or state Safe Drinking Water Acts.

Long-Term Effectiveness- Alternatives 1 and 2 are ranked low for this criterion because neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Contaminated groundwater would continue to migrate downgradient.

Reduction in Toxicity, Mobility and Volume- Alternatives 1 and 2 do not provide any increased reduction in toxicity, mobility, or volume over existing conditions and do not satisfy the statutory preference for treatment.

NEMCTF Comment No. 5. *In describing Remedial Alternatives 3 and 4, USEPA notes the purported value of these alternatives in "inhibiting" the migration of contaminants from the shallow to the deep aquifer. However, USEPA fails to point out that this assumed potential migration is already significantly inhibited by the natural subsurface materials. The San Gabriel Basin Watermaster has stated that existing shallow and deep data "appear to confirm the effectiveness of clay layers in controlling the vertical migration of contaminants in the study area." Prior to making a final selection of a remedy in the Record of Decision, the NEMCTF group of companies requests that USEPA quantitatively analyze whether the remedy actually provides any further substantive benefit in inhibiting vertical migration into the deep aquifer when compared to naturally occurring impediments to such migration, as well as facility-specific source control actions.*

EPA's Response. The comment fails to acknowledge the considerable extent of deep contamination that currently exists in the El Monte OU, indicating that vertical migration from shallow to deep zones does occur in the El Monte OU. Although EPA agrees that the presence of fine-grained materials does act to

reduce the magnitude of vertical migration, we do not concur with the Watermaster's conclusion that clay layers are effective in "controlling the vertical migration of contaminants."

There are insufficient data available to "quantitatively analyze" the difference between vertical migration under the remedy compared to vertical migration without the remedy. However, given the current occurrence of deep contamination extending over a large area and the potential presence of numerous man-made conduits (i.e., old production wells), it is reasonable to expect that inhibiting further migration of shallow contamination will reduce the potential for additional vertical migration into the deep zone.

NEMCTF Comment No. 6. *USEPA states a preference for Remedial Alternative 5. This is far and away the most costly remedial alternative. USEPA notes that their approach "provides for flexibility in implementation." Yet, elsewhere in the Proposed Plan there are several references to USEPA intending to "extract and treat" groundwater. USEPA appears to be ignoring its own policy and guidance. USEPA policy and guidance documents state that USEPA should evaluate the effectiveness of focused source control actions coupled to Monitored Natural Attenuation. Aggressive source control actions are already underway at several of the NEMCTF facilities located within the EMOU. USEPA has failed to factor the effectiveness of such actions into their Proposed Plan. We request that USEPA (a) clearly and fully evaluate the beneficial effects of on-going facility-specific actions before selecting the remedy, and (b) coordinate closely with the LARWQCB to identify any additional facilities where remedial actions are appropriate. Where such additional actions would increase the effectiveness or reduce the costs of the CERCLA remedy, USEPA should both ensure that the LARWQCB mandates the implementation of such actions, and incorporate the resulting benefits into the selection of the remedy.*

EPA's Response. EPA disagrees with the assertion that it is "ignoring its own policy and guidance." In accordance with the performance-based remedy described in this ROD, if source control actions and natural attenuation are sufficient to inhibit further contaminant migration, then active pumping will not be necessary in the shallow groundwater zone and pumping may be limited in the deep zone. However, EPA believes that it is very likely that extraction and treatment will be needed at least in portions of both the shallow and deep zones to meet the remedial objectives and performance requirements developed for this remedy.

Aggressive source control actions undertaken at individual facilities certainly have the potential to reduce the magnitude of shallow zone extraction and treatment that may be required to meet the performance-based requirements of this remedy. There is no need to evaluate the beneficial effects of on-going facility-specific actions before selecting a remedy. If they are adequate to inhibit contaminant migration, this will be apparent in the monitoring to be performed at the "early-warning" and compliance monitoring wells that will be used to monitor this remedy.

EPA is continuing to work with the Los Angeles Regional Water Quality Control Board regarding appropriate site-specific actions at facilities in the El Monte OU.

NEMCTF Comment No. 7. *As USEPA is aware, the NEMCTF, in cooperation with the San Gabriel Basin Water Quality Authority (WQA), is voluntarily implementing an aggressive field program to collect additional data that will be helpful in selecting and designing the remedy. We believe that it is presently premature and inappropriate for USEPA to select the remedy for the EMOU without considering the additional data in progress and incorporating these essential data and related analyses into the final remedy selection process. We look forward to continuing the cooperative working relationships between the NEMCTF and USEPA to ensure that all necessary information has been collected and evaluated prior to remedy decisions.*

EPA's Response. EPA has reviewed the initial results generated from the shallow monitoring wells installed as part of the Early Response Action Program (ERAP) referred to in this comment. Those results were taken into consideration in developing this ROD. EPA agrees that the additional data to be collected

as part of the ERAP will be very helpful in designing the El Monte OU interim remedy and in ultimately monitoring performance of the remedy. However, this ROD describes a performance-based remedy and does not specify specific remedy components. EPA does not believe that any additional data to be generated through the ERAP after the ROD is signed will affect the performance-based requirements of the remedy described in this ROD.

2 Responses to Oral Comments

In this section, EPA provides responses to oral comments received at the public meeting held on November 18, 1998. EPA responded to a number of questions directly at the public meeting. This section provides responses only to formal oral comments that were not fully addressed at the meeting. Formal oral comments were received from three parties: Mr. Ken Russo, representing the Northwest El Monte Community Task Force (NEMCTF); Mr. David Chamberlin of Camp, Dresser, & McKee (CDM), consultants for the NEMCTF; and Mr. Tom Schmidt, representing Hermetic Seal Corporation, a member of the NEMCTF. The full transcript of the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

2.1 Response to Comments from Ken Russo of the NEMCTF

This section presents excerpts from Mr. Russo's oral comments and provides EPA's responses to those specific portions of Mr. Russo's comments. The entire text of Mr. Russo's statement can be found beginning on Page 33 of the attached meeting transcript.

Mr. Russo's Comments, Transcript Page 35, Line 15 through Page 36, Line 22. *Let's talk about the VOC contamination as that is the main issue we are here to talk about tonight. It did not come from deliberate dumping of solvents into the soil, and this is an important issue to understand. Originally, concrete walled clarifiers were installed below ground at businesses in order to comply with government regulations regarding the clarity of industrial waste water flowing into the sanitary sewer system.*

EPA's Response. Clarifiers were not the only source of VOC releases that contributed to the groundwater contamination. In addition to leaking or damaged clarifiers, VOC contamination in the groundwater has come from vapor degreasers, waste storage areas, chemical handling and storage areas, stripping tank/leach pit areas, paint booth areas, processing areas, drain pipes, and drainage sumps.

Mr. Russo's Comments, Transcript Page 38, Lines 2 through 4. *Fourteen years later and still no groundwater cleanup in El Monte.*

EPA's Response. Although broad, sub-regional remedial actions have not been initiated in the El Monte OU, limited groundwater cleanup has occurred in the OU area. RWQCB investigations, funded by and coordinated with EPA, have led to a groundwater remediation system being installed at the Hermetic Seal facility. Also, water purveyors have installed wellhead treatment to remove contaminants from groundwater extracted from contaminated portions of the deeper aquifer.

Mr. Russo's Comments, Transcript Page 38, Line 23 through Page 39, Line 2. *Yet today, under the Superfund process, we are still not viewed as having sufficient information to proceed with actual cleanup. We will be expected to spend hundreds of thousands more dollars to continue studying the situation.*

EPA's Response. This statement is not correct. Sufficient information has been collected in the El Monte OU to proceed with the cleanup. Field activities that the NEMCTF has recently initiated are intended as a component of the remedial design to help refine design parameters and provide data points for monitoring remedy compliance with performance standards.

If the NEMCTF would like to accelerate implementation of the remedy in the El Monte OU, EPA would be happy to review their plans for getting started. EPA has selected a performance-based approach, in part, because of NEMCTF concerns about the need for active extraction and treatment actions in some areas. If the NEMCTF is prepared to proceed with active cleanup actions, the performance standards in this ROD allow for a flexible approach such that this is possible. EPA looks forward to continuing to work with the NEMCTF as this cleanup work is implemented.

Mr. Russo's Comments, Transcript Page 39, Lines 10 through 20. *The first thing that we learned from the RI/FS study is that, fortunately, the level of groundwater contamination in the El Monte Operable Unit is limited both in concentration and extent, and a lot of the maps that you saw here tonight are not current maps based upon all the money we spent together gathering additional data. The contamination in El Monte is particularly small when compared with the levels found in the Baldwin Park Operable Unit. This is an entirely different site.*

EPA's Response. EPA agrees that data collected during the RI/FS indicate that groundwater contamination in the El Monte OU does not appear to extend far beyond the boundaries of the OU. However, more recent sampling by the NEMCTF suggests that in some regions, contamination extends beyond the parameters described in the RI/FS.

This comment is incorrect in stating that EPA used outdated maps at the public meeting. The maps of contamination presented by EPA are current through the end of the El Monte OU RI and incorporate the RI data generated by the NEMCTF. The maps were prepared using data from the RI supplemented with extensive additional information from site assessment wells that EPA did not specifically require the NEMCTF to sample during their RI activities. Although the wells were sampled outside of the RI process, the data from them is still considered valid and representative.

Mr. Russo's Comments, Transcript Page 41, Lines 3 through 12. *I believe that approach should be as follows. First, the original sources of contamination are underground clarifiers. We need to remove any old-style, single-wall, underground clarifiers still in the ground, and we need to do it now. Then each site that had such clarifiers needs to clean its soil to remove the VOCs through use of a soil vapor extraction system. Until this is accomplished, VOCs will continue to migrate from the soil into the groundwater.*

EPA's Response. EPA agrees that facilities with high on-site soil gas concentrations should clean up their vadose zone contamination. In addition to clarifiers, VOC contamination in the San Gabriel Valley has come from degreasers, cracked piping, chemical storage and work areas, and disposal locations. EPA continues to work with the RWQCB to determine appropriate site-specific remedial actions at facilities in the El Monte OU area. A number of facility owners and operators have been required to clean their soils using soil vapor extraction. For some facilities, the concentrations of VOCs remaining in the soil are not high enough to warrant soil vapor extraction. Facilities with damaged or leaking clarifiers and where chlorinated compounds were routinely used and/or stored, were requested by the RWQCB to perform soil matrix and soil gas sampling at their clarifier(s) or abandoned clarifier location(s), and required to replace or repair their clarifier(s).

Mr. Russo's Comments, Transcript Page 41, Lines 17 through 23. *[T]he task force wants to work with EPA and other agencies, including the San Gabriel Basin Water Quality Authority, the Regional Water Quality Control Board, and the City of El Monte to lay out a responsible, reasonable, and effective well network so as to remove VOCs from the shallow aquifer. Such a process needs to be cost effective.*

EPA's Response. EPA concurs with this statement and encourages the NEMCTF to continue to work with all local stakeholders to develop an appropriate, cost-effective extraction system for the shallow aquifer.

Mr. Russo's Comments, Transcript Page 41, Line 24 through Page 42, Line 5. *The shallow aquifer water has not been drinkable for many years because of the contamination from TDS and the nitrates as a*

result of farming in this area. It is not and should not be the responsibility of this task force to remove those contaminants that it did not generate in the first place.

EPA's Response. The ROD does not require the treatment of total dissolved solids ("TDS") and nitrates in the groundwater, unless such treatment is necessary to properly use or dispose of groundwater that is treated for VOC contamination. If the parties implementing the remedial action intend to discharge treated groundwater to any surface waterbody, it will first be necessary to analyze the impact of the proposed discharge on surface water quality and evaluate the feasibility of other more beneficial uses for the treated water.

Mr. Russo's Comments, Transcript Page 42, Lines 5 through 10. *The significant reduction of VOCs in the shallow aquifer water along with natural attenuation over time should eliminate any future migration of any VOCs from the shallow aquifer into the deep aquifer, which is the source of our current drinking water.*

EPA's Response. EPA agrees that significant VOC removal from the shallow zone and natural attenuation will eventually eliminate migration from the shallow zone to the deep zone. However, this process will take a considerable length of time, during which continued vertical migration will occur. In addition, there is already a considerable extent of contamination in the deep aquifer that needs to be addressed, regardless of the effectiveness of remedial actions in the shallow zone.

Mr. Russo's Comments, Transcript Page 42, Lines 11 through 18. *[T]he water suppliers in the El Monte Operable Unit currently are using wellhead treatment to remove the limited VOCs now present in some of their water supply wells. These agencies need to continue that process until such time as Step No. 1 and No. 2, which I have just discussed, result in the elimination of VOCs in the deep aquifer.*

EPA's Response. EPA agrees that existing production wells, if properly situated and screened over appropriate intervals, can help meet the performance standards for the selected remedy and inhibit further contaminant migration. In these instances, it may be advantageous to incorporate the existing wells as a component of the remedial action.

Mr. Russo's Comments, Transcript Page 42, Lines 19 through 24. *Let's all reach consensus and move forward together as a unified group to put in place an effective and an affordable plan for clean water. We owe it to the residents, to the employees, and to the businesses in the El Monte area to get moving and to do it now.*

EPA's Response. EPA concurs with this statement and looks forward to working closely with the NEMCTF to implement the selected interim remedy in the El Monte OU.

2.2 Response to Comments from David Chamberlin of CDM, representing the NEMCTF

This section presents excerpts from Mr. Chamberlin's oral comments and provides EPA's responses to those specific portions of Mr. Chamberlin's comments. The entire text of Mr. Chamberlin's statement can be found beginning on Page 43 of the attached meeting transcript.

Mr. Chamberlin's Comments, Transcript Page 43, Lines 10 through 12. *....from a technical aspect, we're concerned with the characterization of the shallow aquifer as a drinking water source when it is not.*

EPA's Response. See response to NEMCTF written Comment No. 1

Mr. Chamberlin's Comments, Transcript Page 43, Lines 13 through 15. *We are concerned that the description of site risk as being reasonably expected to occur when they are not.*

EPA's Response. The Proposed Plan does not describe the site risk as being reasonably expected to occur. The Proposed Plan presents risks that are the maximum risks that could reasonably be expected if the future exposure occurs. The likelihood that these potential future exposures will occur is not discussed. The first paragraph of the Summary of Site Risks section of the Proposed Plan does note that the exposure scenarios evaluated assume the absence of regulatory controls (existing regulatory controls limit the potential for exposure).

Mr. Chamberlin's Comments, Transcript Page 43, Lines 16 through 20. *We're concerned that the depiction of the plume on page 3 of the proposed plan and on the wall behind me this evening that oversimplified and overstated the actual true conditions in the subsurface.*

EPA's Response. Although EPA agrees that the depictions of contamination in the El Monte OU presented in the Proposed Plan are simplified, we do not believe the maps significantly overstate the extent of contamination in the OU. These interpreted maps are based on data generated during the RI along with additional site assessment and production well data collected during a similar time frame.

Mr. Chamberlin's Comments, Transcript Page 43, Lines 21 through 25. *We're concerned about the overstatement of the potential risk for the contaminants to migrate from the shallow aquifer into the deeper aquifer. The data suggests that they have not to any degree of significance.*

EPA's Response. EPA disagrees with the conclusion that contaminants have not migrated from the shallow zone to the deep zone "to any degree of significance." This statement fails to acknowledge the considerable extent of deep contamination that currently exists in the El Monte OU, indicating that vertical migration from shallow to deep zones has and does occur in the El Monte OU. Although EPA agrees that the presence of fine-grained materials does act to reduce the magnitude of vertical migration, the large areas of deep zone contamination confirm that the physical conditions are not sufficient to stop vertical migration.

Mr. Chamberlin's Comments, Transcript Page 44, Lines 1 through 4. A*nd lastly we're concerned about the need for flexibility in meeting EPA's performance criteria by means other than the installation of new and costly extraction wells.*

EPA's Response. As described in this ROD, the performance standards for the selected remedy provide considerable flexibility for implementation of this remedy. New groundwater extraction wells will be needed only in areas where data indicate potential contaminant migration towards compliance monitoring wells.

2.3 Response to Comments from Tom Schmidt representing Hermetic Seal and the NEMCTF

This section presents excerpts from Mr. Schmidt's oral comments and provides EPA's responses to those specific portions of Mr. Schmidt's comments. The entire text of Mr. Schmidt's statement can be found beginning on Page 44 of the attached meeting transcript.

Mr. Schmidt's Comments, Transcript Page 45, Lines 1 through 11. *I must also say that I feel that [the members of the Northwest El Monte Community Task Force have] been unfairly picked out of all of the potentially responsible parties in the Valley and in the El Monte Operable Unit because they have voluntarily stepped to the plate.*

There are parties who are out there who have basically laid in the grass and have been allowed to do so by the regulatory agencies because they have garnered what they call -- what we call, I should say, the critical mass for getting the job done that the agencies want.

EPA's Response. In 1995 EPA sent Special Notice Letters to all of the PRPs that had been identified at that time. All but one of these PRPs joined together as the Northwest El Monte Community Task Force to undertake the Remedial Investigation and Feasibility Study for the El Monte OU. EPA issued a Unilateral Administrative Order to the one remaining PRP, Crown City Plating, which complied with the requirements of the Order. EPA identified four additional PRPs in 1997. EPA and the NEMCTF met with these PRPs and two of the four subsequently joined the NEMCTF. EPA is now making PRP determinations for the final group of facilities to be investigated in the El Monte OU. EPA will require that all PRPs share responsibility for implementation of the El Monte remedy.

Mr. Schmidt's Comments, Transcript Page 46, Lines 3 through 12. *I believe that there is an essential component that is missing. You cannot clean up the groundwater until all sources of soil contamination have been eliminated. And, I would urge all of the jurisdictions involved, especially the Regional Board, to move ahead and address a fashion to deal with those sources and to deal with parties who have either not come to the table or refused to come to the table in terms of taking on responsibility for their site conditions.*

EPA's Response. EPA concurs with the comment regarding the need to eliminate sources of soil contamination. The remedy selected in this ROD is an interim action intended to provide containment of the existing groundwater contamination. As this remedy is being implemented to ensure that future contaminant migration is limited, EPA will continue to work with the LA RWQCB to require appropriate facility-specific remedial actions that reduce future contaminant loading.

References

Camp Dresser & McKee, Inc. *El Monte Operable Unit Interim Remedial Investigation/Feasibility Study, Final Remedial Investigation Report, San Gabriel Valley, Los Angeles County, California.* Prepared for the Northwest El Monte Community Task Force. April 1998a.

————. *El Monte Operable Unit Interim Remedial Investigation/Feasibility Study, Final Feasibility Study Report, San Gabriel Valley, Los Angeles County, California.* Prepared for the Northwest El Monte Community Task Force. July 31, 1998b.

CDM. See Camp Dresser & McKee, Inc.

EPA. See U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency. *Supplemental Sampling Program Report, San Gabriel Basin, Los Angeles, California.* Prepared by CH2M HILL. 1986.

————. *CERCLA Compliance with Other Laws Manual, Part I (Interim Final).* OSWER Directive 9234.1-01. 1988a.

————. *Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites.* OSWER Directive 9283.1-2. 1988b.

————. *CERCLA Compliance with Other Laws Manual, Part II.* OSWER Directive 9234.1-02. 1989.

————. *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions.* OSWER Directive 9355.0-30. April 22, 1991a.

————. *Interim San Gabriel Basin Remedial Investigation Report, Los Angeles County, California.* Prepared by CH2M HILL. July 1992a.

————. Integrated Risk Information System. Chemical Files. U.S. EPA Integrated Risk Information System Database. Office of Research and Development. Cincinnati, Ohio. 1995a.

————. *El Monte Operable Unit, Preliminary Baseline Risk, San Gabriel Basin, Los Angeles County, California.* Prepared by CH2M HILL. October 1997a.

150

Tables

Table 1
Summary of Chemicals of Concern and Exposure Point Concentrations in Groundwater
El Monte Operable Unit

Groundwater Area	Chemical of Concern	Frequency of Detection	Minimum Concentration (ppb)	Maximum Concentration (ppb)	Exposure Point Concentration (ppb)	Statistical Measure
Well Group 1 (Western El Monte OU)	PCE	33/53	ND	24,000	2,659	95% UCL
	TCE	49/53	ND	1,500	352	95% UCL
Well Group 2 (Eastern El Monte OU)	Carbon Tetrachloride	30/66	ND	59	6.6	95% UCL
	PCE	61/66	ND	1,510	344	95% UCL
	TCE	62/66	ND	4,600	841	95% UCL
Production Well 01900918	PCE	2/5	ND	1	0.8	95% UCL
	TCE	2/5	ND	2.5	2.0	95% UCL
Production Well 01902948	TCE	2/9	ND	12	0.6	95% UCL
Production Well 08000101	TCE	4/8	ND	1.2	0.8	95% UCL

Notes:
ND = non-detect
ppb = parts per billion or µg/L (micrograms per liter)
95% UCL = 95 per cent upper confidence limit on the arithmetic mean groundwater concentration.

Table 2
Estimated Total Excess Lifetime Cancer Risk from Domestic Use of Groundwater
El Monte Operable Unit

Wells	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
Production Well 01900918 [1]	7.8×10^{-8}	1.3×10^{-8}	6.5×10^{-9}	9×10^{-8}	7.5×10^{-7}	1.6×10^{-7}	7.9×10^{-8}	1×10^{-6}	None
Production Well 01902948 [1]	8.3×10^{-9}	4.5×10^{-9}	3.2×10^{-10}	1×10^{-8}	7.7×10^{-8}	4.2×10^{-8}	3.6×10^{-9}	1×10^{-7}	None
Production Well 08000101 [1]	1.2×10^{-8}	6.8×10^{-9}	4.8×10^{-10}	2×10^{-8}	1.0×10^{-7}	5.6×10^{-9}	4.8×10^{-9}	2×10^{-7}	None
Well Group 1 [2]	**1.6×10^{-4}**	**1.5×10^{-5}**	**1.8×10^{-5}**	**2×10^{-4}**	**1.7×10^{-3}**	**1.4×10^{-4}**	**2.3×10^{-4}**	**2×10^{-3}**	PCE
Well Group 2 [2]	**4.2×10^{-5}**	**9.7×10^{-6}**	**3.8×10^{-6}**	**6×10^{-5}**	**3.3×10^{-4}**	**7.8×10^{-5}**	**3.5×10^{-5}**	**4×10^{-4}**	PCE, TCE

[1] Data from these three active production wells were used to evaluate potential current risks in the El Monte OU area.

[2] Data from Well Group 1 (representing the highly contaminated portions of western El Monte OU) and Well Group 2 (representing the highly contaminated portions of eastern El Monte OU) were used to evaluate potential future risks in the El Monte OU area.

Table 3
Estimated Total Noncancer Hazard Index from Domestic Use of Groundwater
El Monte Operable Unit

Wells	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
Production Well 01900918 [1]	0.003	NA	0.0002	0.003	0.01	NA	0.0007	0.01	None
Production Well 01902948 [1]	0.001	NA	0.00004	0.001	0.003	NA	0.0001	0.003	None
Production Well 08000101 [1]	0.001	NA	0.00006	0.002	0.004	NA	0.0002	0.004	None
Well Group 1 [2]	3	0.04	0.3	3	9	0.09	1	10	PCE, TCE
Well Group 2 [2]	2	0.1	0.1	2	5	0.3	0.3	6	Carbon tetrachloride, PCE, TCE

[1] Data from these three active production wells were used to evaluate potential current risks in the El Monte OU area.

[2] Data from Well Group 1 (representing the highly contaminated portions of western El Monte OU) and Well Group 2 (representing the highly contaminated portions of eastern El Monte OU) were used to evaluate potential future risks in the El Monte OU area.

Table 4
Cost Comparison of Alternatives[1]
($1,000s)

Alternative	Capital Costs	Annual O&M Costs	Net Present Worth (30-years @ 5%)
2	$1,250	$200	$4,340
3	$2,990	$430	$9,620
4	$4,830	$570	$13,560
5	$7,930	$960	$22,670

[1] Net Present Worth is based on treatment for VOCs only.

Table 5
Chemicals of Potential Concern

Compound	ARAR (µg/L)	Source
1,1-Dichloroethane	5	California MCL
1,1-Dichloroethene	6	California MCL
1,1,1-Trichloroethane	200	Federal MCL
1,1,2-Trichloro-1,2,2-trifluoroethane	1,200	California MCL
1,1,2-Trichloroethane	3	Federal MCLG
1,2-Dichloroethane	0.5	California MCL
1,2,3-Trichlorobenzene	-	-
1,2,4-Trimethylbenzene	-	-
1,3-Dichlorobenzene	-	-
2-Propanone	-	-
2-Hexanone (methyl n-butyl ketone)	-	-
Benzene	1	California MCL
Bromoform[1]	100	Federal MCL
Carbon Disulfide	-	-
Carbon Tetrachloride	0.5	California MCL
Chloroethane	-	-
Chloroform[1]	100	Federal MCL
cis-1,2-Dichloroethene	6	California MCL
Dibromochloromethane[1]	100	Federal MCL
Methylene Chloride	5	Federal MCL
Tetrachloroethene	5	Federal MCL
Trichloroethene	5	Federal MCL
Trichlorofluoromethane	150	California MCL
Toluene	150	California MCL
Xylenes, total	1,750	California MCL

[1]These chemicals are trihalomethanes (THMs); the MCL listed is for all four THMs: chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

Note: "-" indicates "no MCL has been established or proposed."

Table 6
Detailed Costs Estimates for the Selected Remedy
El Monte OU - Interim ROD

Component	Quantity	Unit	Unit Cost	Cost
Capital Costs (Including Engineering and Contingencies)				**Capital Costs**
Extraction Wells (Includes well pumps)				
100 ft. @ 30 gpm	11	ea.	$202,000	**$ 2,222,000**
300 ft. @ 100 gpm	1	ea.	$318,000	**$ 318,000**
300 ft. @ 125 gpm	1	ea.	$384,000	**$ 384,000**
300 ft. @ 150 gpm	2	ea.	$388,000	**$ 776,000**
Treatment Units (Air Stripping w/VGAC Off-Gas Treatment, includes discharge pumps)				
100 gpm System	1	ls.	$256,000	**$ 256,000**
150 gpm System	1	ls.	$557,000	**$ 557,000**
180 gpm System	1	ls.	$359,000	**$ 359,000**
425 gpm System	1	ls.	$468,000	**$ 468,000**
800 gpm System	1	ls.	$469,000	**$ 469,000**
Conveyance Systems (Pipelines)				
1.5-inch Diameter Pipelines	5,000	lf.	$15	**$ 75,000**
2-inch Diameter Pipelines	3,950	lf.	$20	**$ 79,000**
2.5-inch Diameter Pipelines	1,800	lf.	$25	**$ 45,000**
3-inch Diameter Pipelines	3,000	lf.	$30	**$ 90,000**
4-inch Diameter Pipelines	6,980	lf.	$40	**$ 279,000**
6-inch Diameter Pipelines	4,000	lf.	$60	**$ 240,000**
8-inch Diameter Pipelines	800	lf.	$80	**$ 64,000**
Monitoring Program				
Shallow Monitoring Wells	7	ea.	$71,000	**$ 497,000**
Deep Monitoring Wells	2	ea.	$349,000	**$ 698,000**
Well Abandonment	1	ls.	$50,000	**$ 50,000**
Total Capital Costs				**$ 7,926,000**

Annual Operations & Maintenance Costs (Including Engineering and Contingencies)				
		Unit Cost	**Annual Costs**	**Present Worth Costs(1)**
Extraction Wells (including pumping costs)				
100 ft. @ 30 gpm	11	$4,000	$44,000	**$ 676,000**
300 ft. @ 100 gpm	1	$6,000	$6,000	**$ 92,000**
300 ft. @ 125 gpm	1	$6,000	$6,000	**$ 92,000**
300 ft. @ 150 gpm	2	$7,000	$14,000	**$ 215,000**
300 ft. @ 800 gpm	1	$22,000	$22,000	**$ 338,000**
Treatment Units (including pumping, power, labor, and carbon costs)				
100 gpm System	1	$65,000	$65,000	**$ 999,000**
150 gpm System	1	$210,000	$210,000	**$ 3,229,000**
180 gpm System	1	$113,000	$113,000	**$ 1,737,000**
425 gpm System	1	$115,000	$115,000	**$ 1,768,000**
800 gpm System	1	$163,000	$163,000	**$ 2,506,000**
Monitoring Program				
Shallow Monitoring Wells	7	$5,000	$35,000	**$ 538,000**
Deep Monitoring Wells	2	$12,000	$24,000	**$ 369,000**
Monitoring Program - Existing Wells	1	$142,000	$142,000	**$ 2,183,000**
Total Annual O&M Costs			**$ 959,000**	
Total Discounted O&M Costs				**$ 14,742,000**
Total Capital Costs				**$ 7,926,000**
Total Present Worth Costs				**$ 22,668,000**

Notes
(1) Based on 30-year project and 5% discount rate.
cost
estimates
are not
discounte
ls. = lump sum
lf. = linear foot
ea. = each

Figures

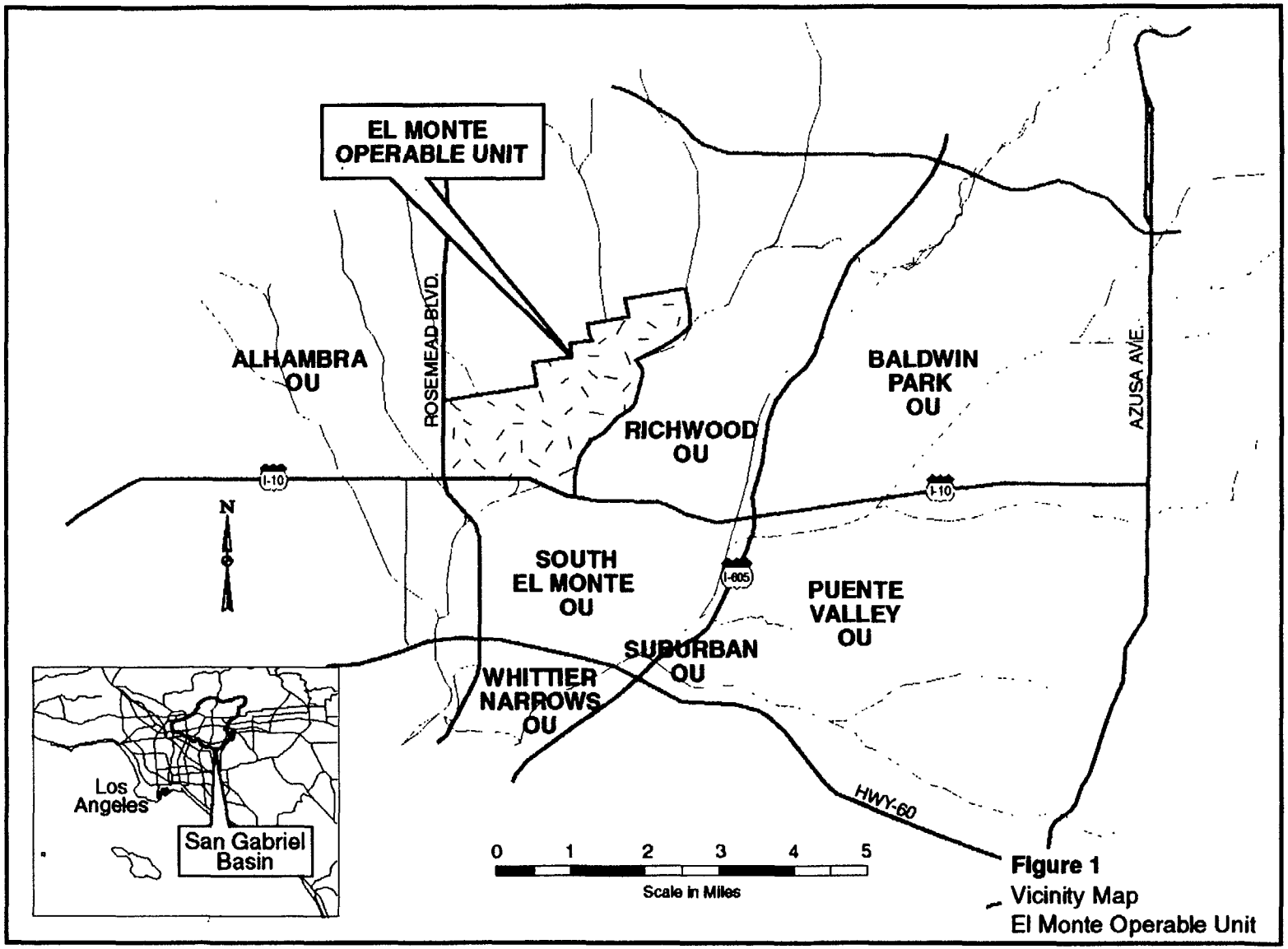
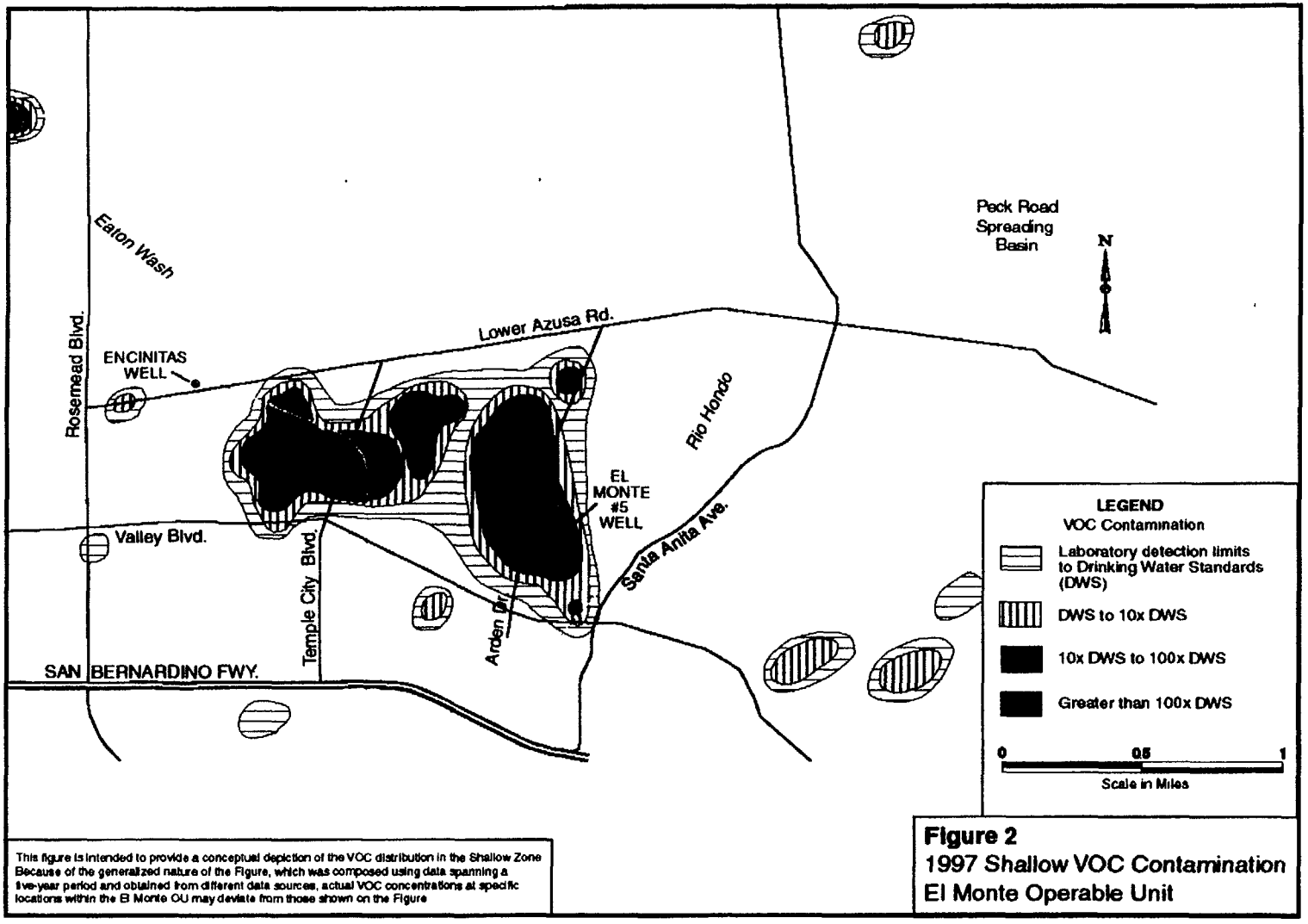
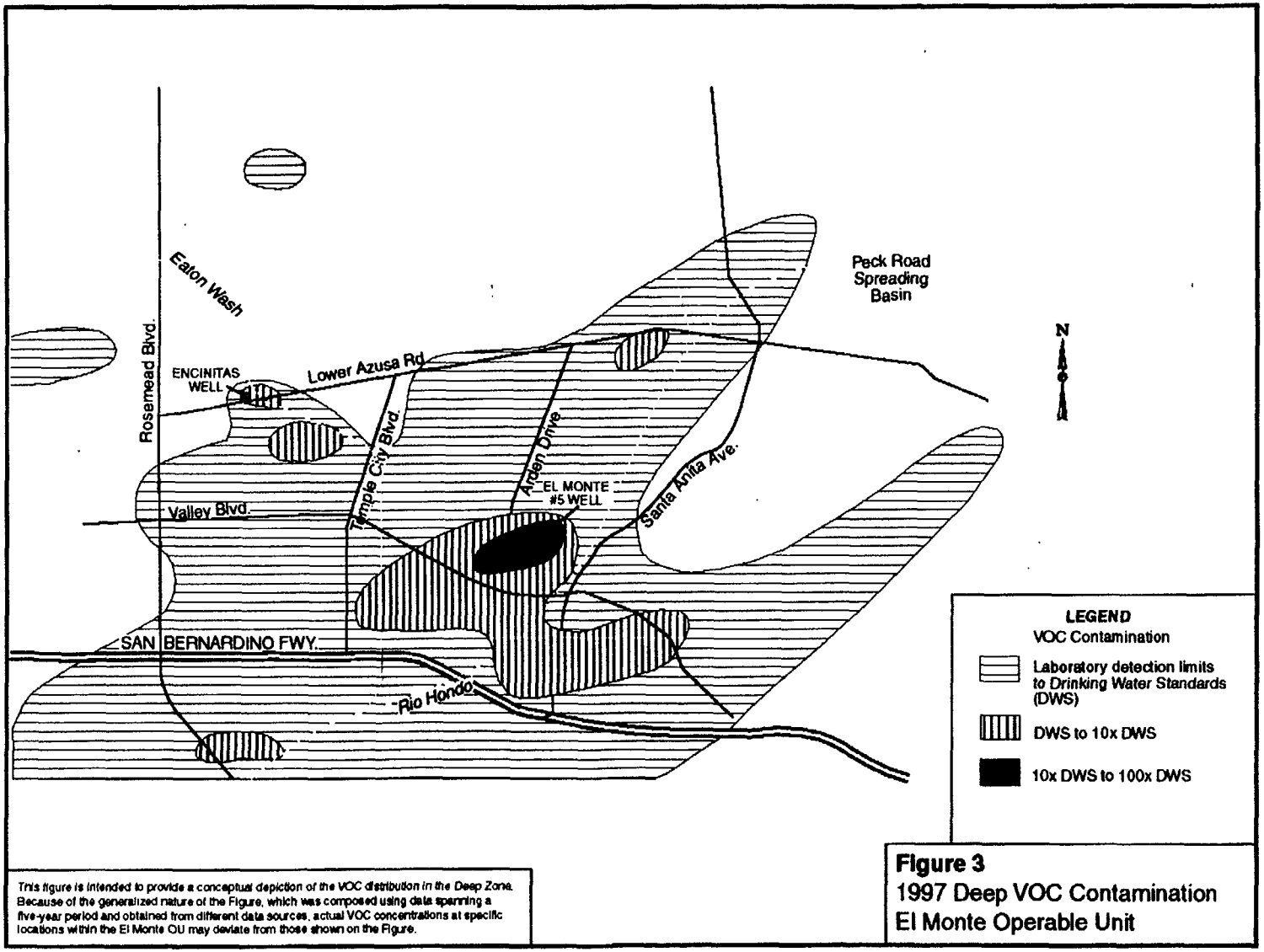


Figure 1
Vicinity Map
El Monte Operable Unit



This figure is intended to provide a conceptual depiction of the VOC distribution in the Shallow Zone. Because of the generalized nature of the Figure, which was composed using data spanning a five-year period and obtained from different data sources, actual VOC concentrations at specific locations within the El Monte OU may deviate from those shown on the Figure

Figure 2
1997 Shallow VOC Contamination
El Monte Operable Unit



This figure is intended to provide a conceptual depiction of the VOC distribution in the Deep Zone. Because of the generalized nature of the Figure, which was composed using data spanning a five-year period and obtained from different data sources, actual VOC concentrations at specific locations within the El Monte OU may deviate from those shown on the Figure.

Figure 3
1997 Deep VOC Contamination
El Monte Operable Unit

Evaluation Criteria	Alternative 1 No Action	Alternative 2 Groundwater Monitoring	Alternative 3 Shallow Groundwa-ter Control in Western EMOU	Alternative 4 Shallow Groundwater Control in Western and Eastern EMOU	Alternative 5 Shallow Groundwater Control in Western and Eastern EMOU plus Deep Groundwater Control
Overall Protectiveness	○	○	◓	◓	●
Compliance with ARARs	○	○	◓	◓	●
Long-term Effectiveness & Permanence	○	○	◓	◓	●
Implement-ability	not applicable	●	◓	◓	◓
Short-term Effectiveness	not applicable	◓	◓	◓	●
Reduction of Toxicity, Mobility or Volume by Treatment	○	○	◓	◓	●
Capital Cost	$0	$1.25 million	$2.99 million	$4.83 million	$7.93 million
O&M	$0	$0.20 million	$0.43 million	$0.57 million	$0.96 million
PWC	$0	$4.34 million	$9.62 million	$13.56 million	$22.67 million
State Agency Acceptance	○	○	○	○	●
Community Acceptance	○	○	◓	◓	◓

● = High ◓ = Medium ○ = Low

O&M = Annual Operations and Maintenance Cost
PWC = Present Worth Cost: 5% Discount Rate, 30 Years

Figure 4
Alternative Evaluation Matrix
El Monte Operable Unit

Appendix B

Explanation of Significant Differences

Appendix B to the Consent Decree

EXPLANATION OF SIGNIFICANT DIFFERENCES
TO THE 1999 RECORD OF DECISION
EL MONTE OPERABLE UNIT
SAN GABRIEL VALLEY SUPERFUND SITES, AREA 1

Introduction and Purpose

The United States Environmental Protection Agency (EPA) is updating the Superfund cleanup plan for the El Monte Operable Unit ("El Monte OU") of the San Gabriel Valley (Figure 1) in Los Angeles County, California in response to the detection, in 2000 and 2001, of several new pollutants in the groundwater underlying the area. The EPA adopted the original El Monte OU cleanup plan in 1999 after extensive public comment. The newly detected chemicals include:

- perchlorate, used in solid rocket fuel;
- hexavalent chromium, used in metal plating;
- N-nitrosodimethylamine (NDMA), found in liquid rocket fuel; and
- 1,4-dioxane, a stabilizer in chlorinated solvents.

In addition to the recently detected contaminants, groundwater in the El Monte OU is contaminated with perchloroethylene (PCE), trichloroethylene (TCE), and other chlorinated solvents. Chlorinated solvents are members of a group of chemicals called "volatile organic compounds" or VOCs.

The detection of perchlorate, hexavalent chromium, NDMA, and 1,4-dioxane will change the cleanup project in the El Monte OU in one significant way. The technologies typically used to remove chlorinated solvents from water (air stripping and carbon adsorption) do not effectively remove perchlorate, hexavalent chromium, NDMA, or 1,4-dioxane. If installation of additional treatment facilities is required to treat the newly detected contaminants in the groundwater, it will significantly increase the cost of the cleanup, as described below. Final decisions on treatment processes will be made during remedial design.

When significant changes are needed in a Superfund cleanup plan, the EPA informs the community through an Explanation of Significant Differences (ESD) or a Record of Decision (ROD) amendment. In this instance, EPA has determined that an ESD is appropriate. The remainder of the document provides a brief history of the El Monte OU cleanup, summarizes the 1999 cleanup plan, and describes the change to the 1999 plan in more detail.

EPA is issuing this Explanation of Significant Differences to satisfy its public participation responsibilities under CERCLA Section 117(c) and NCP Section 300.435(c)(2)(i).

This ESD will become part of the Administrative Record file for the El Monte OU pursuant to NCP Section 300.825(a)(2) and will be available to the public at the following locations:

193

EPA Region 9 Superfund Records Center
75 Hawthorne Street
San Francisco, CA 94105 • (415) 536-2000
The Record Center's hours are 8:00 am to 5:00 p.m., Monday through Friday.

West Covina Public Library
1601 West Covina Parkway
West Covina, CA 91790
(626) 962-3541

Rosemead Library
8800 Valley Boulevard
Rosemead, CA 91770
(626) 573-5220

For hours of operation, interested parties may call the libraries at the numbers listed above.

The ESD is also available on the EPA's web site at http://yosemite.epa.gov/r9/sfund/rodex.nsf under the San Gabriel Valley (Area 1) heading.

The El Monte Cleanup: A Brief History

The Context: San Gabriel Valley Groundwater Contamination

Groundwater contamination in the San Gabriel Valley was discovered in 1979. In 1984, the EPA added four portions of the San Gabriel Valley to the national Superfund list. The El Monte OU is officially part of the *San Gabriel Valley Area 1* Superfund site. Investigations by the EPA and others revealed the large extent of groundwater contamination in the El Monte OU and the San Gabriel Valley. During the past 20 years, numerous water supply wells throughout the San Gabriel Valley have been found to be contaminated with chlorinated solvents and other VOCs. In response to the contamination, water companies have shut down contaminated wells, installed new treatment facilities, and taken other steps to ensure that they can continue to supply water meeting State and Federal drinking water standards for VOCs.

Contamination of El Monte Groundwater

In 1998, the Northwest El Monte Community Task Force ("NEMCTF"), a group of fifteen parties considered potentially responsible for contamination of groundwater (Potentially Responsible Parties or "PRPs") in the El Monte area, completed the remedial investigation/feasibility study ("RI/FS") for the El Monte OU of the San Gabriel Valley Superfund sites. The remedial investigation determined that PCE, TCE, and other volatile organic compounds were contaminating the shallow and deep groundwater aquifers in a ten-square-mile area of the San Gabriel Valley around El Monte. Businesses in El Monte and surrounding areas had used these chemicals for degreasing, metal cleaning, and other purposes, and had probably released them to the ground through a combination of on-site disposal, careless handling, leaking pipes, and other means.

The study found that the uppermost, or shallow, aquifer includes most of the known sources of the

groundwater contamination. VOC contaminant concentrations in portions of the shallow aquifer are hundreds of times drinking water standards (see Figure 2). In the deep aquifer, VOC contaminant concentrations are lower but still exceed drinking water standards (see Figure 3).

The NEMCTF has since continued to install and sample monitoring, extraction, and compliance wells, model the groundwater aquifers, and evaluate options for discharging treated groundwater, all in order to prepare for the implementation of cleanup work.

EPA Adopts Cleanup Plan

On June 23, 1999, the EPA adopted a cleanup plan for the El Monte OU known as the *El Monte Operable Unit Record of Decision*. The plan addresses the contamination described in the RI/FS. The goals of the 1999 cleanup plan are to prevent exposure of the public to VOC-contaminated groundwater, limit the movement of VOC-contaminated groundwater into clean or less contaminated areas and depths, reduce the impact of continued contaminant migration on downgradient water supply wells, and protect future uses of uncontaminated areas.

The 1999 cleanup plan calls for pumping the VOC-contaminated groundwater from two aquifers beneath the El Monte OU and treating it to remove the contaminants. More specifically, the plan calls for the construction and operation of groundwater extraction wells, treatment facilities, and conveyance facilities capable of pumping and treating approximately 1,325 and 330 gallons per minute of VOC-contaminated groundwater from the deep and shallow aquifers, respectively. The plan will require construction of new wells and treatment facilities for the shallow aquifer. For the deep aquifer, the plan allows for the use of existing water supply wells, treatment systems, and pipelines if possible, and the construction of new facilities where needed. Final decisions on extraction rates and locations will be made during the remedial design phase of the project.

Reason for this Action: Detection of Perchlorate, Hexavalent Chromium, NDMA, and 1,4-Dioxane in the El Monte OU

After the discovery in 1997 and 1998 of perchlorate, NDMA, and 1,4-dioxane in the Baldwin Park area, and hexavalent chromium in the San Fernando Valley approximately 10 miles northeast of the San Gabriel Valley, the Los Angeles Regional Water Quality Control Board requested that facilities in several areas of the San Gabriel Valley, including the El Monte OU, sample their groundwater monitoring wells for these "emergent chemicals." In 2000 - 2001, the NEMCTF and its members sampled selected shallow groundwater monitoring wells within areas of VOC contamination as part of the pre-design activities in the El Monte OU and tested for emergent chemicals. Perchlorate, hexavalent chromium, NDMA, and 1,4-dioxane were detected in shallow groundwater in the El Monte OU.

Maximum concentrations of perchlorate and NDMA exceed the State drinking water action levels of 4 ppb and 0.010 ppb, respectively. The maximum concentration of 1,4-dioxane is more than 20 times the State drinking water action level of 3 ppb. The maximum concentration of hexavalent chromium does not pose a risk to human health but exceeds the Federal standard for protection of

freshwater aquatic life in inland surface waters and is of concern if treated water is discharged to surface water. Figures 4, 5, 6 and 7 depict the approximate extent of perchlorate, hexavalent chromium, NDMA and 1,4-dioxane contamination in shallow groundwater in the El Monte OU.

Sampling of groundwater in the deep aquifer of the El Monte OU shows that perchlorate is the only one of the four constituents that has exceeded the State drinking water action level. Perchlorate was detected at a concentration of 5.9 ppb in a well that was subsequently destroyed. Perchlorate was not detected in wells downgradient of the destroyed well and thus additional treatment processes for groundwater extracted from the deep aquifer in the El Monte OU are not anticipated to be necessary at this time, but may be required in the future.

In July 2001, EPA sent *Special Notice* letters to 27 PRPs to begin formal EPA-PRP negotiations to obtain a binding commitment from the PRPs to carry out the El Monte cleanup plan for the design, construction, and operation of the groundwater extraction, treatment, and discharge facilities specified in the El Monte OU ROD. EPA is currently negotiating this commitment, called a Consent Decree, including provisions for treatment of emergent chemicals, if warranted, with a group of El Monte OU PRPs.

Because the emergent chemicals were discovered after EPA issued the El Monte OU ROD, EPA is now modifying the cleanup decision to address the emergent chemicals. The emergent chemicals may require treatment, and if so, one or more of the treatment technologies described below will be required. To the extent treatment is required for the emergent chemicals, the groundwater has to be treated to achieve the treatment levels described below.

Table 1 shows the significant differences between the remedy as presented in the 1999 ROD and the action now proposed.

Description of Treatment Options

Perchlorate

Since 1997, when perchlorate was discovered in the San Gabriel Valley groundwater basin, technology for removing perchlorate from groundwater has made great strides. The California Department of Health Services (DHS) has determined that two perchlorate removal technologies are acceptable: biological treatment and ion exchange.

In the biological treatment process, nutrients are added to the contaminated water to sustain microbes that destroy perchlorate. The microbes convert the perchlorate ion to oxygen and chloride, which are present at low levels in all drinking water. The biological treatment process is being used in a full-scale treatment system at the Aerojet Superfund site in northern California. Biological treatment methods are new to many water utilities, but *biologically active* filters have been used in drinking water treatment for decades to help remove particles and biodegradable organic matter.

The second perchlorate-removal technology is ion exchange, in which the perchlorate ion is replaced by chloride, a chemically similar but non-toxic ion. Ion exchange processes have been used in homes and businesses for *softening* hard water for decades. In the Spring of 2001, a 2,500-gallon-per-minute groundwater treatment system using ion exchange to remove perchlorate went online in the Baldwin Park Operable Unit, producing potable water for use in the San Gabriel Valley. The principal disadvantage of ion exchange systems is that they only remove the perchlorate, they don't destroy it, and the perchlorate still needs to be appropriately managed after it is removed.

Both biological treatment and ion exchange processes have an added benefit. The groundwater in some parts of the San Gabriel Valley, including portions of the shallow aquifer in the El Monte OU, is unusable because of high levels of nitrate believed to be the result of past agricultural practices in the Valley. Both treatment process would also remove much of the nitrate from the water.

Other technologies have been proven capable of removing perchlorate from water, but probably at a higher cost. Liquid-phase granular-activated-carbon (LGAC) filtration can potentially remove perchlorate, but only for a limited period of time before regeneration or replacement of the carbon is required. Frequent carbon replacement would make relying solely on LGAC for perchlorate removal very expensive. Conventional filtration, sedimentation, or air-stripping technologies cannot remove perchlorate from water.

Hexavalent Chromium

Ion exchange treatment can remove hexavalent chromium from groundwater just as it does perchlorate. A benefit of using ion exchange treatment is that it would remove both perchlorate and hexavalent chromium from the water. Reverse osmosis will also remove hexavalent chromium from groundwater, but is much more expensive to operate than the ion exchange process. Chemical reduction technologies can also remove hexavalent chromium from water. Chemical reduction involves adding a chemical to provide a source of electrons to reduce hexavalent chromium (Cr^{+6}) to trivalent chromium (Cr^{+3}), which precipitates from the water. Though chemical reduction is comparable in cost to ion exchange treatment for removing hexavalent chromium, it does not also remove perchlorate from the water as ion exchange treatment does.

NDMA and 1,4-Dioxane

Ultraviolet (UV) light can remove NDMA from groundwater. In a UV treatment system, the water passes though a tank containing numerous ultraviolet lamps. The NDMA molecules absorb the light energy, which cause them to break down into smaller nontoxic molecules. UV light treatment, in combination with injection of an oxidant such as hydrogen peroxide, also removes 1,4-dioxane. UV treatment systems have successfully removed both chemicals from water in locations throughout the United States. A 2,500-gpm treatment system using UV with oxidation for NDMA and 1,4-dioxane removal is in operation in the Baldwin Park Operable Unit of the San Gabriel Valley sites.

Treatment Levels

Drinking Water Standards

The treatment technologies used in the El Monte OU will have to be capable of effectively and reliably removing VOCs, and, if necessary, perchlorate, hexavalent chromium, NDMA, and 1,4-dioxane, from the groundwater. If any of the treated groundwater, shallow or deep, is to be used as drinking water, treatment technologies must reduce the concentrations of all contaminants to below Federal and State drinking water standards in existence at the time that the water is treated, as measured at the consumers' taps. Generally, the applicable drinking water standard is the Maximum Contaminant Levels (MCL) established by State and Federal regulation. However, while MCLs have been established for some of the chemicals in the groundwater in the El Monte OU, none of the recently detected "emergent chemicals" has a MCL. *Total* chromium (e.g., Cr^{+3} and Cr^{+6} concentrations combined) has a MCL of 50 ppb, which is considered to protect the public's health from hexavalent chromium.

Safe levels for some chemicals that lack MCLs are specified by *action levels* developed by the California Department of Health Services (DHS). DHS has established action levels for perchlorate (4 ppb); NDMA (0.010 ppb); and 1,4-dioxane (3 ppb). Although not an enforceable standard, an action level is the concentration of a contaminant in drinking water that DHS has determined, based on available scientific information, provides an adequate margin of safety to prevent potential risks to human health. California Health & Safety Code Section 116455 requires that the operator of a public water system notify local government authorities when a drinking water well exceeds an action level. In addition, DHS recommends that drinking water purveyors notify the public if action levels are exceeded, unless the wells in question are taken out of service.

Applicable or Relevant and Appropriate Requirements: Water Quality Standards

EPA's cleanup plan also allows for recharging some or all of the treated water, that is, pumping it back into the groundwater basin instead of delivering it for use as drinking water. As discussed in greater detail in the Record of Decision, any recharged water must comply with the pertinent water quality objectives in the Los Angeles Regional Water Quality Control Board Basin Plan. In addition, State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to any recharge of treated groundwater into the aquifer. Resolution No. 68-16 requires maintenance of existing State water quality unless it is demonstrated that a 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 by other State policies. In addition, in accordance with the Clean Water Act, EPA has established water quality goals for organic and inorganic constituents in water discharged to inland surface waters. These goals, referred to as the California Toxics Rule (CTR), were established to be protective of human health and freshwater aquatic life. The goal for hexavalent chromium is a 4-day average concentration of 11 ppb. In light of these requirements, any groundwater recharged into the aquifer, including water discharged to surface water channels, must be below action levels of 4 ppb for perchlorate, 0.010 ppb for NDMA, and 3 ppb for 1,4-dioxane, and below the CTR goal of 4-day average concentration of 11 ppb for hexavalent chromium.

The treatment levels discussed above apply to the groundwater after it is pumped above ground. Though the 1999 cleanup plan for the El Monte OU established contaminant levels to meet the objective of limiting the movement of contaminated groundwater into clean or less contaminated areas and depths, neither the 1999 cleanup plan nor this update establish cleanup levels for water in situ (i.e., in the aquifer). EPA plans to evaluate in-situ cleanup levels in a future action, as part of the final Record of Decision for the El Monte OU.

In 1999, the EPA estimated the cost of the cleanup at $8 million in capital costs and $960,000 per year for operation and maintenance costs. EPA's revised cost estimate, which includes additional treatment for removing the newly detected chemicals in shallow groundwater, is a potential $13 million in capital costs and $1.5 million per year in operation and maintenance costs. The revised cost estimate is based on evaluation of the latest treatment options for the newly detected chemicals and on extraction and treatment rates from the 1999 cleanup plan.

The additional treatment technologies that may be needed to remove the new contaminants are responsible for the increase in the estimated cost of the cleanup in the El Monte OU.

Final Selection of Treatment Technologies

EPA will select the final treatment technologies for the El Monte OU over the next year during completion of pre-design activities and the design of the El Monte cleanup facilities. During this time, additional cost and performance data from operation of full-scale treatment systems in the San Gabriel Valley and the results of treatment studies elsewhere will become available. EPA will incorporate this information into the selection of treatment technologies for the El Monte OU.

State Concurrence

The State of California, through the Department of Toxic Substances Control and the Los Angeles Regional Water Quality Control Board, supports the changes described in this document.

Statutory Determination

The modified cleanup plan for the El Monte OU remains protective of human health and the environment and will continue to meet all applicable or relevant and appropriate requirements identified in the 1999 Record of Decision, as required by CERCLA Section 121(d).

Public Participation Compliance

Several EPA community involvement opportunities have occurred in response to EPA and PRP actions in the El Monte OU. EPA issued an update on the San Gabriel Valley Superfund Sites in April 1998, which mentioned development of an "early action" project for the El Monte OU. EPA's Proposed Plan to address groundwater contamination in the El Monte OU was mailed in October 1998 with a 60 day public comment period. This was followed by a community meeting

on the Proposed Plan where the public was again given the opportunity to comment. EPA addressed all comments on the Proposed Plan in a Responsiveness Summary attached to the 1999 ROD. The community meeting was followed by a fact sheet issued in July 1999, in which EPA updated the status of the El Monte OU interim remedy design activities. And, EPA issued an update on the San Gabriel Valley Superfund Sites in May 2002, which mentioned the detection of perchlorate, hexavalent chromium, NDMA, and 1,4- dioxane in the shallow groundwater of the El Monte OU.

An ESD notice was published in July 2002 in a local newspaper as required by the NCP, section 300.435(c)(2)(i)(B). The public participation requirements set out in the NCP, sections 300.435(c)(2)(i) and 300.825(a)(2) will continue to be met.

/Signed/ August 22, 2002

John Kemmerer, Chief Date
Superfund Site Cleanup Branch
U.S. Environmental Protection Agency, Region 9

200

Table 1. Comparison of Cleanup Plans – Most Aspects of the 1999 Plan Have Not Changed

	ORIGINAL CLEANUP PLAN	UPDATED CLEANUP PLAN
Remedial Objectives	Prevent exposure, limit further migration of contaminated groundwater, reduce impacts on down-gradient water supply wells, protect future uses of clean areas.	Same
Groundwater Extraction Areas	Extract groundwater from the deep aquifer and two areas of contamination in the shallow aquifer	Same
Groundwater Extraction Rates	Extract contaminated groundwater at rates needed to meet remedial objectives. Determine final rates during remedial design. Initial estimate was 1,325 gpm deep and 330 gpm shallow	Same
Groundwater Treatment Technologies light	Use air stripping and carbon treatment to remove VOCs from the groundwater . Finalize technologies during remedial design	Use same technologies to remove VOCs. Potentially use ion exchange to reduce perchlorate and hexavalent chromium, UV to remove NDMA and with oxidation, 1,4-dioxane. Select technologies during remedial design.
Groundwater Treatment Standards	Design treatment systems to reduce VOC concentrations to below MCLs	Reduce VOC concentrations to below MCLs, reduce perchlorate, NDMA, and 1,4-dioxane concentrations to below State action levels, and hexavalent chromium to Federal surface water goals
Use of Treated Groundwater	Supply deep water to water companies for distribution, return shallow water to the groundwater basin or supply to industries. Make final decision during remedial design	Same
Project Costs	Estimated capital costs of $8 million; estimated operation and maintenance costs of $960,000/ year	Estimated capital costs potentially increase to $13 million; estimated operation and maintenance costs potentially increase to $1.5 million/year

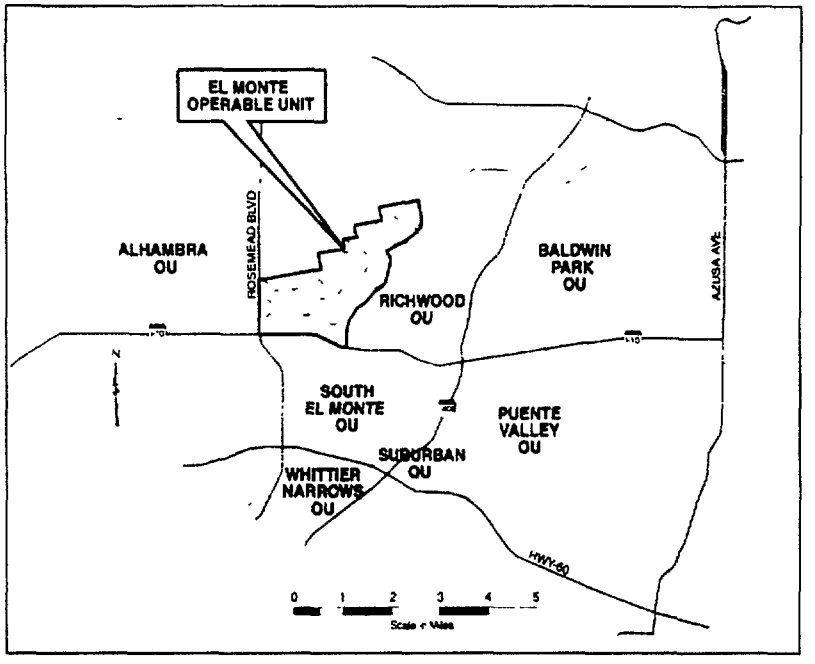


Figure 1: Location of the El Monte Operable Unit and other San Gabriel Valley Superfund Site Projects

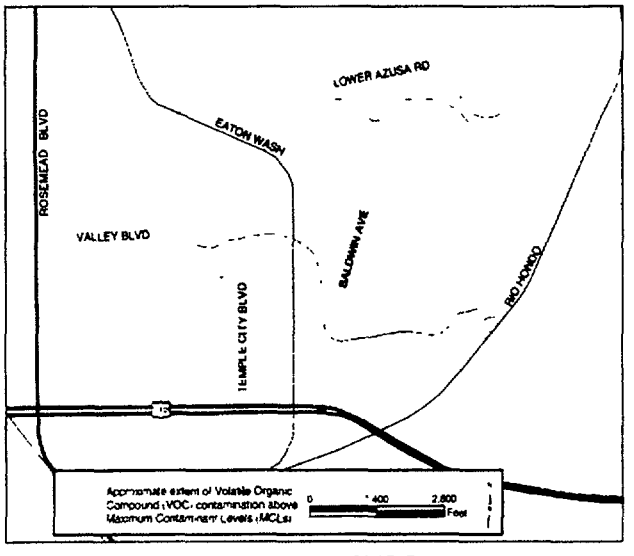


Figure 2: Approximate extent of VOC contamination in shallow groundwater

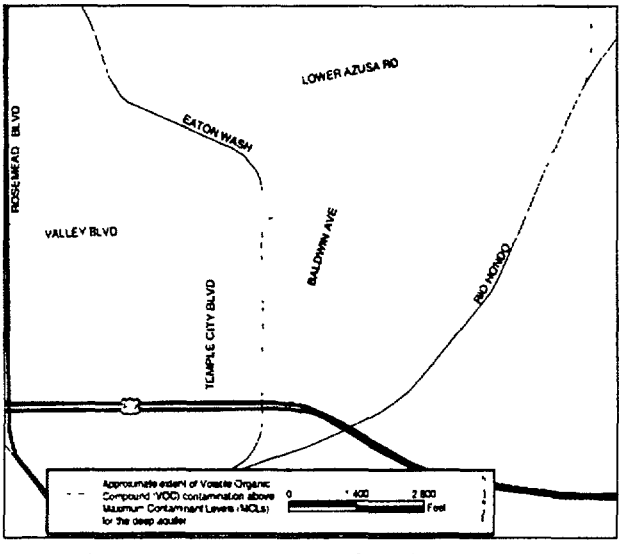


Figure 3: Approximate extent of VOC contamination in deep groundwater

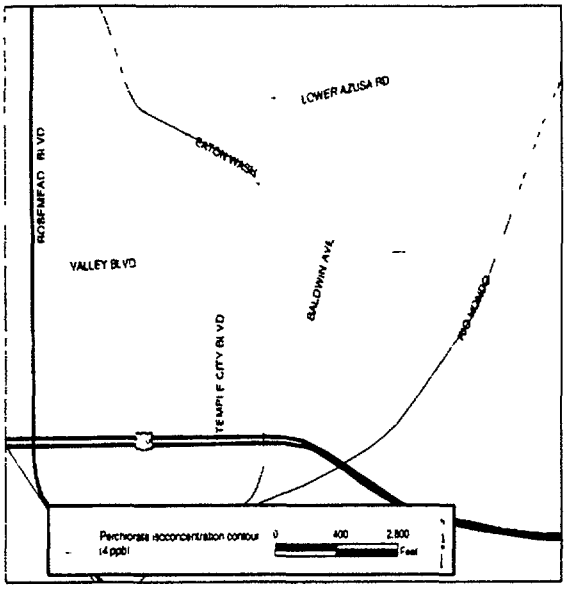


Figure 4: Approximate extent of Perchlorate contamination in shallow groundwater

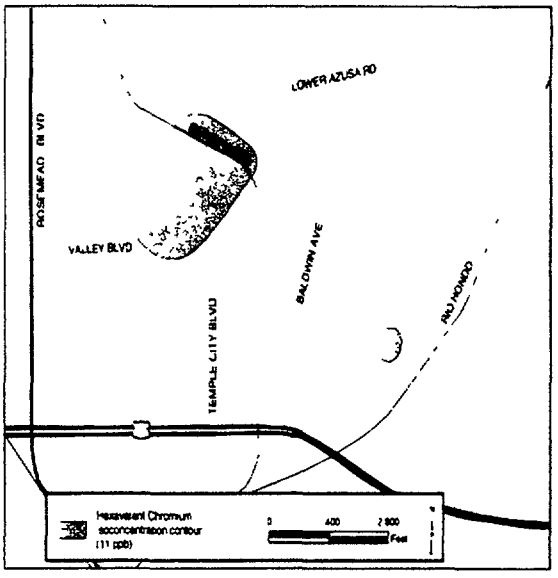


Figure 5: Approximate extent of Hexavalent Chromium contamination in shallow groundwater

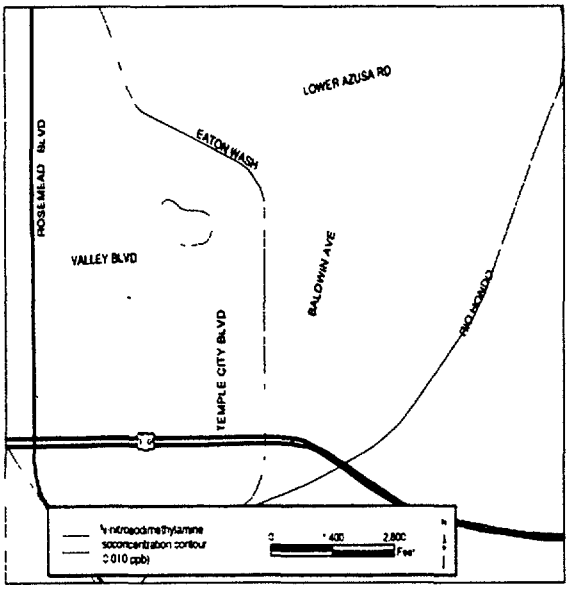


Figure 6: Approximate extent of NDMA contamination in shallow groundwater

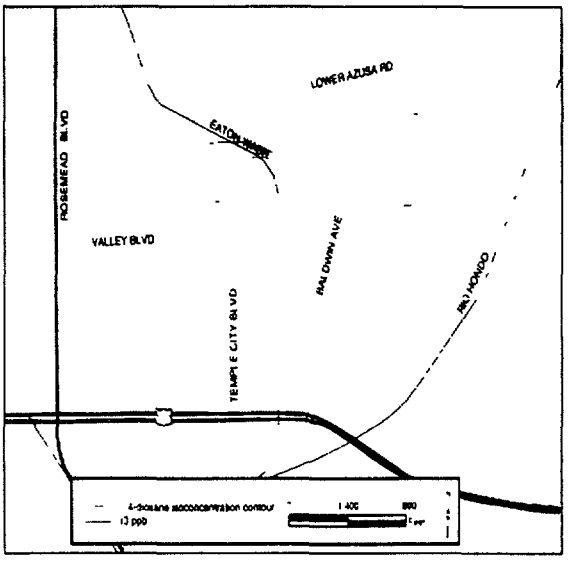


Figure 7: Approximate extent of 1,4-Dioxane contamination in shallow groundwater

204

Appendix C

Statement of Work-East Side

Appendix C to the Consent Decree

RD/RA STATEMENT OF WORK

Eastern Shallow and Southern Deep Portions of the Interim Remedial Action

El Monte Operable Unit

SAN GABRIEL VALLEY SUPERFUND SITE AREA 1

LOS ANGELES COUNTY, CALIFORNIA

October 2003

207

TABLE OF CONTENTS

2CE

STATEMENT OF WORK FOR REMEDIAL DESIGN AND REMEDIAL ACTION (East Side) El Monte Operable Unit San Gabriel Valley Superfund Site Area 1

I. Introduction

This Statement of Work (SOW) describes the activities the East Side Performing Settling Defendants must perform to design, construct, operate, maintain, monitor, and evaluate a portion of the interim remedial action described in the El Monte Operable Unit (EMOU) Interim Record of Decision (IROD), as supplemented by the Explanation of Significant Differences (ESD), and as set forth in this SOW. The IROD, which specifies the remedy for the site, was signed June 23, 1999. The ESD was issued in August 2002. This SOW is Appendix C to the EMOU Consent Decree.

The interim remedial action described in the IROD includes performance criteria that require control of contaminant migration in the shallow zone, the deep zone northwestern area, and the deep zone southern area. The East Side Performing Settling Defendants to this Consent Decree are required to implement the deep zone southern area remedial action and a portion of the shallow zone remedial action (the eastern portion). The eastern portion of the shallow zone generally refers to the contamination present east of Baldwin Avenue (Figure 1).

The EMOU addresses a several-square-mile area of groundwater contamination extending beneath portions of El Monte, Rosemead, and Temple City, in Los Angeles County, California. Chemicals of potential concern in the groundwater in the EMOU include volatile organic compounds (VOCs) listed in Table 5 of the IROD (Attachment 1) and emerging chemicals (ECs) perchlorate, n-Nitrosodimethlyamine (NDMA), hexavalent chromium, and 1,4-dioxane listed in the ESD (Attachment 2).

EPA intends to review deliverables to assess whether or not the remedial action will achieve the remedial objectives defined in the IROD, as supplemented by the ESD, and Performance Criteria set forth in the IROD, ESD, and this SOW. EPA review or approval of a task or deliverable shall not, however, be construed as a guarantee of the adequacy of such task or deliverable.

A description of the pre-Remedial Design work that has been completed by the Potentially Responsible Parties (PRPs) can be found in Attachment 3 of the SOW.

The definitions set forth in Section IV of the Consent Decree shall apply to this SOW unless expressly provided otherwise herein.

II. Summary of the El Monte OU Interim Remedial Action Components to be Addressed by this SOW

Shallow Zone - Eastern Portion:

The IROD, as supplemented by the ESD, requires the remedial action to prevent shallow zone groundwater contamination that exceeds 10 times the ARARs (Table 5 of the IROD) from migrating beyond its current lateral and vertical extent. Figure 2 of the IROD showed that, as of 1997, the higher concentration shallow zone contamination was distributed in two areas of the EMOU. A more recent 2002 depiction of the shallow VOC contamination in the EMOU is shown on Figure 1 of this SOW. Groundwater must be monitored for compliance to verify that Performance Criteria are met. Compliance with Performance Criteria will be evaluated using data collection and analysis procedures outlined in the Compliance Monitoring Plan, as well as information presented in compliance monitoring and performance evaluation reports. EPA shall approve the locations and specifications of the shallow zone compliance wells.

Deep Zone - Southern Area:

The IROD requires the remedial action to provide sufficient hydraulic control to prevent deep zone groundwater contamination that exceeds the ARARs listed in Table 5 of the IROD from migrating beyond the current lateral and vertical extent, as described in the EMOU RI/FS, in the southern portion of the EMOU. Achieving hydraulic control will likely require new extraction wells near the downgradient end of the contaminated area.

Compliance wells shall be installed in strategic locations to verify that the hydraulic control is sufficient to meet the Performance Criteria. The approximate extent of the southern deep zone plume can be found in Figure 3 of the IROD. EPA shall approve the locations and specifications of the deep zone compliance wells. Sentinel wells located upgradient of the compliance wells are recommended to avoid exceedances of the Performance Criteria.

Compliance monitoring wells should be located such that if ARARs are exceeded or are expected to be exceeded in upgradient sentinel monitoring wells, adequate time is available to take action to maintain concentrations below ARARs at the compliance wells.

Initial Remedial Design Work:

As an initial step, East Side Performing Settling Defendants shall design and install the compliance wells (and sentinel wells, if necessary) in the shallow and deep groundwater zones. East Side Performing Settling Defendants shall demonstrate to EPA's satisfaction that each well is appropriate for measuring compliance, as described in Section III (Performance Criteria) of this SOW. Prior to installation of compliance and sentinel wells, East Side Performing Settling Defendants shall submit to EPA a Compliance and Sentinel Well Network Plan, describing the proposed locations and specifications of the wells, as required in Section IV of this SOW. After installation and sufficient sampling of each proposed compliance and sentinel well, EPA shall

determine whether the location and construction of each well is acceptable for its proposed use. East Side Performing Settling Defendants shall submit a Compliance and Sentinel Well Installation Report, signifying the time at which compliance monitoring will begin, as described in Section IV of this SOW. After EPA approval of the Compliance and Sentinel Well Installation Report, East Side Performing Settling Defendants shall assume quarterly sampling of each well to ensure that the Performance Criteria are met in the shallow and deep zones, and submit Quarterly Compliance Monitoring Reports, as required by the Compliance Monitoring Plan.

Other Remedial Design requirements are set forth in Sections III and IV of this SOW.

III. Performance Criteria

As specified in the Consent Decree, East Side Performing Settling Defendants shall meet all Performance Criteria, Remedial Action Objectives and Applicable or Relevant and Appropriate Requirements (ARARs) set forth in the IROD, ESD, and this SOW. The IROD states that the Remedial Action Objectives (RAOs) for the EMOU are to prevent exposure of the public to contaminated groundwater above MCLs; inhibit contaminant migration from the more highly contaminated portions of the aquifer to the less contaminated areas or depths; reduce the impact of continued contaminant migration on downgradient water supply wells; and protect future uses of less contaminated and uncontaminated areas. All compliance monitoring data shall be reported in the Quarterly Compliance Monitoring Reports. The IROD requires that the remedial action provide sufficient hydraulic control of contaminated groundwater in the shallow and deep zones to meet the Performance Criteria.

The Performance Criteria include the treatment standards, standards of control, quality criteria, and other substantive requirements, criteria or limitations included in the IROD and ESD.

A. Shallow Zone Compliance with Performance Criteria

The remedial action shall prevent groundwater in the shallow zone with VOC contamination above 10 times the ARARs (Table 5 of the IROD) from migrating beyond its current lateral and vertical extent.

East Side Performing Settling Defendants shall monitor compliance with this criterion at a sufficient number of wells that meet the following requirements and have been approved by EPA:

(1) Wells located laterally and vertically downgradient of shallow groundwater contamination exceeding 10 times the relevant VOC ARARs, but generally within areas where VOC concentrations exceed the ARARs listed in Table 5 of the IROD.

(2) Wells completed with screen lengths generally of 20 feet or less located between the water table and 130 feet bgs. Alternative screened intervals and well depths may be appropriate in limited situations and will be subject to EPA evaluation and approval on a case-by-case basis.

East Side Performing Settling Defendants shall conduct quarterly sampling at the shallow zone compliance wells to ensure compliance with the shallow zone Performance Criteria. Results shall be reported in the Quarterly Compliance Monitoring Reports. The frequency of sampling may be decreased in the future if the monitoring data support such a decrease, and East Side Performing Settling Defendants obtain EPA approval. Conversely, if it appears, based on trends in sampling data, that concentrations may exceed the Performance Criteria, the sampling frequency may be increased. Contaminant concentrations at the compliance wells will be the absolute criteria for evaluating compliance. The Compliance Monitoring Plan shall specify how compliance well data will be used to demonstrate compliance with the Performance Criteria. EPA expects that groundwater containment actions will be implemented sufficiently upgradient of the compliance wells to provide enough of a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance. The use of sentinel well data will be permitted to guide containment actions which may affect or alter the measurements at the compliance wells.

To avoid exceedances of the shallow zone performance criteria, EPA recommends that East Side Performing Settling Defendants install additional sentinel wells or use existing wells upgradient of the compliance wells, where appropriate, as an early warning system to provide East Side Performing Settling Defendants sufficient time to address and prevent noncompliance.

B. Deep Zone Compliance with Performance Criteria:

The remedial action shall provide sufficient hydraulic control to prevent groundwater in the deep zone with VOC contamination above ARARs (Table 5 of the IROD) from migrating beyond the current lateral and vertical extent, as described in the EMOU RI/FS, in the southern portion of the EMOU.

In the southern portion of the OU, achieving hydraulic control may require new extraction wells near the downgradient end of the contaminated area. If production wells are used, East Side Performing Settling Defendants shall demonstrate that pumping from the production wells alone, or in combination with new extraction wells, provides sufficient hydraulic control to meet the Performance Criteria. If production wells are used, East Side Performing Settling Defendants shall also provide assurances acceptable to EPA that the wells will operate in a manner that ensures compliance with the Performance Criteria, if possible. The East Side Performing Settling Defendants shall provide copies of

agreements between themselves and the water companies or entities who own the production wells to EPA for approval. The remedial measures must provide sufficient hydraulic control, without the aid of other wells not included in the remedial action, to ensure that the Performance Criteria are not exceeded.

East Side Performing Settling Defendants shall monitor compliance with this criterion at a sufficient number of compliance wells that meet the following requirements and have been approved by EPA:

(1) Located within 2,000 feet of the current extent of groundwater contaminated with any VOC exceeding its ARAR. The intent of locating these wells in this manner is to provide compliance points that are sufficiently distant from existing contamination above ARARs to provide enough time to ensure that additional actions can be taken before threshold concentrations are exceeded. The wells must also be sufficient in number, appropriately screened and adequately located to ensure that contamination above ARARs does not migrate away from the southern area. Because the downgradient extent of deep zone contamination in the southern area is not well defined, additional data collection during the remedial design may be necessary in this area.

(2) Located generally west to southwest of the current extent of deep zone contamination, within the area with detectable VOC concentrations in the deep zone.

(3) Completed with screen lengths of 20 feet or less within the deep zone. Larger, or multiple depth, screened intervals may be appropriate in limited situations subject to EPA evaluation and approval on a case-by-case basis.

East Side Performing Settling Defendants shall conduct quarterly sampling at the deep zone compliance wells to ensure compliance with the deep zone Performance Criteria. Results shall be reported in the Quarterly Compliance Monitoring Reports. The frequency of sampling may be decreased in the future if the monitoring data supports such a decrease and East Side Performing Settling Defendants obtain EPA approval. Conversely, if it appears, based on trends in sampling data, that concentrations may exceed the Performance Criteria, the sampling frequency may be increased. Contaminant concentrations at the compliance wells will be the absolute criterion for evaluating compliance. The Compliance Monitoring Plan shall specify how compliance well data will be used to demonstrate compliance with the Performance Criteria. EPA expects that groundwater containment actions will be implemented sufficiently upgradient of the compliance wells to provide enough of a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance.

C. Additional Requirements

Implementation of the remedial action shall not adversely affect production wells that are not part of the remedial action (i.e., shall not increase the migration of contamination into the wells). In addition, the remedial action must meet the Performance Criteria for both the shallow and deep zones without relying on the wells that are not part of the remedial action.

Indications of an imminent exceedance of the Performance Criteria at a compliance well will be considered as evidence that groundwater contamination is migrating and that additional hydraulic containment or alternative, appropriate measures, as approved by EPA, shall be required. In the event of an actual or imminent exceedance of the Performance Criteria at the compliance wells, East Side Performing Settling Defendants shall take actions (e.g., implement additional groundwater extraction and treatment) to achieve sufficient hydraulic control within a time frame specified in the Compliance Monitoring Plan (Section IV.G). A verified exceedance of the Performance Criteria at a compliance well is a violation of the Consent Decree which may result in enforcement action.

D. Groundwater Treatment and Discharge

East Side Performing Settling Defendants shall treat all groundwater that is extracted pursuant to this SOW. East Side Performing Settling Defendants shall install and operate treatment systems that are designed to reduce the concentrations of the contaminants listed in Table 5 of the IROD to below ARARs. Subject to EPA approval, these requirements may not apply to EPA-approved CERCLA Section 104(b) activities that will result in temporary high flow, high volume discharges (e.g., discharges from sampling of selected water supply wells or aquifer tests).

Extracted groundwater is expected to be treated with air stripping (with off-gas controls) or liquid-phase carbon adsorption to remove the contaminants listed in Table 5 of the IROD. Extracted groundwater may need to be treated for the contaminants listed in the ESD by ion exchange and ultraviolet light with oxidation, or other appropriate technologies, as necessary to achieve compliance with the ARARs. If alternative treatment technologies are proposed, EPA will evaluate the alternative technologies in accordance with the criteria specified in 40 CFR Section 300.430 during remedial design.

Following treatment, extracted groundwater can either be provided to local water purveyors for use in the San Gabriel Basin ("the Basin"), or discharged to Eaton Wash or the Rio Hondo. Alternative discharge options may be used, subject to EPA approval. Unless waived by the appropriate agencies and approved by EPA, disposal of the treated groundwater must comply with the applicable or relevant

and appropriate requirements (ARARs) identified in the IROD and other requirements for the contaminants listed in the ESD that need to be considered. In addition, introduction of treated groundwater into a public water supply is an offsite activity that must comply with all other state and federal requirements in effect at the time of the activity.

The extraction and treatment of groundwater shall comply with the following requirements:

1. Treatment systems shall be designed and operated to reduce the concentrations of contaminants to below the ARARs listed in Table 5 of the IROD under all anticipated operating conditions; treatment systems for the contaminants listed in the ESD shall be designed and operated, as necessary, to achieve compliance with ARARs.

2. Best available control technology for toxics (T-BACT) shall be used on new stationary operating equipment, so the cumulative carcinogenic impact from air toxics does not exceed the maximum individual cancer risk limit of ten in one million (1×10^{-5}), as required by South Coast Air Quality Management District (SCAQMD) Rule 1401;

3. For water to be provided to a public water supply, the installation and operation of treatment systems shall be designed to reduce the concentrations of parameters for which there are Federal or State *Secondary* MCLs to attain secondary MCLs;

4. Extraction and treatment systems shall comply with the substantive portions of SCAQMD Regulation XIII, comprising Rules 1301 through 1313, pertaining to new source review;

5. Extraction and treatment systems shall comply with the water quality objectives for discharge of treated water from the Regional Water Quality Control Board (RWQCB) Los Angeles Basin Plan and State Water Resources Control Board (SWRCB) Resolution 68-16, as outlined in the IROD;

6. Extraction and treatment systems shall comply with limits in visible emissions (SCAQMD Rule 401) and particulate concentrations (SCAQMD Rule 403);

7. Extraction and treatment systems shall not cause the discharge of material that is odorous or causes injury, nuisance or annoyance to the public (SCAQMD Rule 402);

8. Extraction and treatment systems shall comply with the substantive requirements in Title 22, California Code of Regulations (CCR), Sections 66264.601 -.603 for *Miscellaneous units*, and related substantive closure requirements in Sections 66264.111 - .115 for air strippers or granular activated carbon (GAC) contractors;
9. Extraction and treatment systems shall comply with container and storage requirements in Title 22, CCR, Sections 66264.170 - .178 for the storage of contaminated groundwater over 90 days;

10. Extraction and treatment systems shall comply with Title 22, CCR, Sections 66262 and 66268 and other State Hazardous Waste Control Act (HWCA) requirements for storage and disposal if the spent carbon is classified as a hazardous waste; and

11. Extraction and treatment systems shall comply with the substantive portions of the State Water Well Standards for construction of water supply wells.

IV. List of Deliverables and Other Tasks

East Side Performing Settling Defendants shall submit plans, specifications, and other deliverables for EPA review and/or approval, as specified below. EPA may also request periodic updates of selected deliverables (e.g., Work Plan, Sampling Plan, Monitoring Plans, etc.) described in this section of the SOW, as more information is gathered or as conditions change during implementation of the RD/RA. One copy of each final written deliverable shall be provided in an unbound format suitable for reproduction; additional copies shall be provided as stated in the Consent Decree. Information presented in color must be legible and interpretable when reproduced in non-color. If EPA requests, final written deliverables shall also be provided in electronic format. Subject to approval in advance by EPA, large format submittals may also be submitted electronically in a CD deliverable format.

East Side Performing Settling Defendants shall implement quality control procedures to ensure the quality of all reports and submittals to EPA. These procedures shall include but are not limited to: internal technical and editorial review; independent verification of calculations; and documentation of all reviews, problems identified, and corrective actions taken.

As described in Section XI of the Consent Decree, EPA may approve, disapprove, or modify each deliverable. Major deliverables are described below and shall be submitted according to the schedule in Section V of this SOW.

A. Compliance and Sentinel Well Network Plan

Prior to installation of compliance and sentinel wells, East Side Performing Settling Defendants shall submit to EPA a Compliance and Sentinel Well Network Plan, describing the proposed locations and specifications of the compliance or sentinel wells. All existing wells that may be used for compliance or sentinel purposes must be described in this plan. Additionally, all proposed new compliance and sentinel wells must be described and a schedule for their installation provided. East Side Performing Settling Defendants shall demonstrate to EPA's satisfaction that each proposed compliance well is appropriate for measuring compliance, as described in Section III (Performance Criteria) of this SOW. This plan will include sampling procedures for confirming the adequacy of all proposed compliance and sentinel wells. East Side Performing Settling Defendants must sample each proposed compliance and sentinel well at least two times to demonstrate that each well is suitable to be a compliance well as described in the IROD and this SOW. Additional confirmation sampling may be required for proposed compliance wells if initial sampling results are inconsistent. After installation and sufficient sampling, EPA shall determine whether each well is acceptable for use as a compliance and or sentinel well.

B. Compliance and Sentinel Well Installation Report

After installation of the compliance and sentinel wells, East Side Performing Settling Defendants shall submit a Compliance and Sentinel Well Installation Report, signifying the time at which compliance monitoring will begin. This report will include all sampling results for all proposed compliance and sentinel wells, and the data must show concentrations that adhere to the requirements for compliance and sentinel wells as outlined in the IROD and this SOW. After EPA approval of the Compliance and Sentinel Well Installation Report, East Side Performing Settling Defendants shall assume quarterly sampling of each well to ensure that the Performance Criteria are met in the shallow and deep zones, and submit Compliance Monitoring Reports, as required by the Compliance Monitoring Plan, described in Section IV.G of this SOW.

C. Remedial Design/Remedial Action Work Plan

East Side Performing Settling Defendants shall submit a Work Plan that describes the management strategy for design and construction of the remedial action ("RD/RA Work Plan"). The RD/RA Work Plan must be reviewed and approved by EPA in accordance with Section XI of the Consent Decree. The Work Plan shall include:

1. Project Description

The RD/RA Work Plan shall include a description of the work to be implemented by East Side Performing Settling Defendants. The initial work should first and foremost focus on the location, installation, and monitoring of compliance and sentinel wells, including preparation of the Compliance and Sentinel Well Network Plan as required in Section IV of this SOW. The Work Plan shall also include, where applicable, additional data collection efforts (see Section IV.C.7 of this SOW); extraction locations; treatment technologies; details on planned discharge of the treated water; locations of major project components; an approach for evaluating existing equipment and facilities to be used as part of the remedial action; and other key aspects of the project. The Work Plan shall briefly discuss the condition, anticipated longevity, and any limitations in the use of each existing facility.

2. Description of the Responsibility and Authority of All Organizations and Key Personnel Involved With the Remedial Action.

The RD/RA Work Plan shall include a description of the responsibilities and qualifications of key personnel expected to direct or play a significant role in the Remedial Design, Remedial Action, or Operation and Maintenance, including East Side Performing Settling Defendants' Project Coordinator, Designer, Construction Contractor, Construction Quality Assurance personnel, and Resident Engineer. The Work Plan shall define lines of authority and provide brief descriptions of duties.

3. Schedule

The RD/RA Work Plan shall identify the initiation and completion dates for each required design activity, construction activity, inspection, and deliverable required by the Consent Decree and this SOW, consistent with the schedule included as Section V of this SOW.

The Work Plan shall also identify the approximate timing of meetings and other activities that may require EPA participation, but are not identified in Section V of this SOW.

The schedule shall indicate that coordination meetings will initially occur on a monthly basis and may be decreased in frequency as

deemed appropriate by EPA. The coordination meetings shall address project status, problems, project risk management, solutions, contingency planning, and schedule. A representative of the East Side Performing Settling Defendants shall prepare a meeting summary to document all decisions made, issues outstanding, schedule changes, planned follow up, and assignments.

4. Contracting Strategy and Construction Process

The RD/RA Work Plan shall briefly describe the planned contracting strategy, including a brief description of the process for evaluation and approval of construction changes and EPA review and approval of significant changes. If the East Side Performing Settling Defendants propose a design/build approach, whereby the entire comprehensive all-in-one-package design and construction process is broken down into a series of discrete design-build packages, then, subject to EPA approval, the RD/RA Work Plan shall describe the contracting strategy consistent with this alternative project delivery approach.

5. Plans for Satisfying All Permitting Requirements and Acquiring Property, Leases, Easements, or Other Access.

The RD/RA Work Plan shall list all permits, property, leases, and easements required for implementation of the remedial action; permits, property, leases, and easements acquired to date; and a schedule for submittal of permit applications and acquisition of property, leases, or easements not yet obtained.

Where normally required, permits must be obtained for all off-site activities, such as from the California Department of Health Services for domestic use of treated water. East Side Performing Settling Defendants are not required to obtain permits for on-site remedial activities, but must comply with all substantive requirements, including local building codes. If permits will not be obtained for an onsite activity where a permit is normally required, East Side Performing Settling Defendants shall describe all consultative or coordination activities planned to identify and satisfy the substantive requirements. The status of permitting issues will be updated monthly in the monthly progress report to EPA.

6. Third Parties Necessary for Design, Construction, or Operation of the Remedial Action.

   The RD/RA Work Plan shall describe the roles and responsibilities of East Side Performing Settling Defendants, participating water producers and water agencies, and other parties expected to play a significant role in the design, construction, or operation of the remedial action. The Work Plan shall summarize and provide copies of Memorandums of Understanding and draft or final agreements with water producers and other third parties expected to participate in implementation of the remedial action. If legally-binding agreements are not in place, the Work Plan shall describe commitments made to date and planned efforts to secure necessary commitments, including an estimated schedule. If the participation of a third party is uncertain, the Work Plan shall describe alternatives to be implemented in the event that the party does not fulfill its planned role. Possible third party roles include agreeing to the use of existing equipment (e.g., groundwater extraction wells, water treatment facilities, pipelines, groundwater recharge facilities), treatment plant operation, and acceptance of treated groundwater.

7. Identification of Any Concerns about the Quantity, Quality, Completeness, or Usability of Water Quality or Other Data Upon Which the Design Will Be Based

   East Side Performing Settling Defendants shall provide a description of additional data collection efforts, if any, required for completion of the Remedial Design. This work, if any, will be initially described in the RD/RA Work Plan as one of the East Side Performing Settling Defendants' first deliverables. East Side Performing Settling Defendants shall consider whether any data are needed to verify that critical design assumptions remain valid (e.g., the areas of groundwater contamination requiring hydraulic containment). If additional data are required, East Side Performing Settling Defendants shall propose a schedule for preparation of a Sampling and Analysis Plan (or Addendum) and implementation of the Plan. The Plan shall include all appropriate efforts to evaluate additional data collected.

8. A Description of Planned Community Relations Activities to Be Conducted During Remedial Design and/or Remedial Action.

   In accordance with Section XXX of the Consent Decree, East Side Performing Settling Defendants shall cooperate with EPA and the State in providing information regarding the Work to the public. As requested by EPA or the State, East Side Performing Settling Defendants shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA or the State to explain activities at or relating to the Site.

9. Updates to the RD/RA Work Plan and Periodic Reporting to EPA

   The RD/RA Work Plan shall describe provisions for reporting progress to EPA (consistent with the schedule included in Section V of this SOW and the Compliance Monitoring Plan to be prepared in accordance with Section IV.G of this SOW). The RD/RA Work Plan shall also describe how the Work Plan will be updated as needed to document changes or provide information not available at the time the Work Plan is submitted.

If any of the information requested is not known at the time the RD/RA work plan must be submitted, and omitting the information from the work plan will not prevent compliance with any other requirements of this SOW, East Side Performing Settling Defendants may submit the information at a later date. If any information is omitted, East Side Performing Settling Defendants shall note in the work plan that the missing information was not available and specify when it will be submitted.

D. Remedial Design

Remedial Design activities shall include the preparation of clear and comprehensive design documents, construction plans and specifications, and other design activities needed to implement the work and satisfy Performance Criteria set forth in the IROD, ESD, and this SOW. If EPA approves use of a design/build approach, the design and construction deliverables and milestones discussed below will need to be modified, subject to EPA approval. All plans and specifications shall be developed in accordance with relevant portions of the U.S. EPA's Superfund Remedial Design/Remedial Action Handbook (EPA 540/R-95/059), and in accordance with the schedule set forth in Section V of this SOW.

1. Conceptual and Preliminary Design

East Side Performing Settling Defendants shall submit a combined Conceptual and Preliminary Design Report in accordance with the approved schedule, as codified in the Work Plan. EPA approval is required before proceeding with further design work, unless EPA agrees otherwise. Unless modified by EPA, the Conceptual and Preliminary Design submittal shall include or address, at a minimum, the following:

a. A detailed Design Basis Report that presents and justifies the concepts, assumptions, standards, and preliminary interpretations and calculations used in the design. The Design Basis Report shall include:

(1) Volume or flow rate of water, air, and other media requiring treatment or disposal;

(2) A summary of water quality or other data to be used during design but not previously provided to EPA, along with an analysis of whether the data confirm assumptions, recommendations, or conclusions made to date for the EMOU;

(3) Assumed treatment plant influent quality over the design life of the treatment system(s), with a description of the methodology used to develop the estimate (including discussion of the likelihood and magnitude of short-term and long-term changes in influent concentrations);

(4) An explanation of how Performance Criteria for each aquifer zone will be met;

(5) Discussion of any proposed or anticipated State or Federal drinking water or ambient water quality standards that would impact the design; and whether any special circumstances may apply.

(6) Filtration, disinfection, corrosion control, or other treatment requirements in addition to removal of site contaminants;

(7) Assumed treatment technologies and/or treatment trains (for all media and byproducts) and initial treatment process flow diagrams; appropriate equipment vendor information;

(8) Preliminary sizing of treatment system(s) and other remedial action components;

(9) Expected treatment facility removal capacity for all groundwater constituents requiring removal;

(10) Delivery locations, rates, and pressures for the treated groundwater, and other conveyance system assumptions for supplying or discharging treated groundwater;

(11) An assessment of the risk that insufficient recharge capacity may allow groundwater to leave the San Gabriel Basin and payment of make up water may be required. Provisions for alternative use of treated groundwater should be discussed;

(12) Interconnection requirements for delivery of treated groundwater, if any (e.g., connection to existing water distribution systems);

(13) System control strategy, including the level of reliability, redundancy, or specific damage prevention features needed in each major component of the remedial action to respond to seismic events, power outages, equipment failure, system maintenance, operator error, or deviations from design assumptions;

(14) Listing and discussion of the relative importance of siting criteria for new extraction wells, treatment facilities, pipelines, and other facilities, along with preliminary locations and alignments; and

(15) Estimate of the distance from each proposed extraction location to the location assumed in computer model simulations completed in support of the EMOU containment remedial actions and an evaluation of whether additional computer modeling

activities are needed to verify the effectiveness of the actual extraction locations.

b. An Updated Construction Schedule for construction and implementation of the Remedial Action that identifies timing for initiation and completion of all critical path tasks; and

c. An updated list of permits, regulatory agency approvals, MOUs, access or use agreements, easements, and properties developed or acquired to date; copies of permits, approvals, and agreements not previously supplied to EPA; and activities and schedules for obtaining outstanding items required before start of construction (e.g., for use of existing facilities or disposition of the treated water).

d. Preliminary plans, specifications, and drawings, of groundwater extraction, treatment, conveyance, and monitoring systems;

e. Listing of planned specification sections

2. Intermediate Design

Unless directed otherwise by EPA, East Side Performing Settling Defendants shall not be required to provide an Intermediate Design submittal, but may seek EPA review of design concepts or documents if desired.

3. Prefinal/Final Design

East Side Performing Settling Defendants shall submit the Prefinal Design when the design effort is complete in accordance with the approved schedule. The Prefinal Design shall fully address all comments made on the Conceptual and Preliminary Design Report (and during the Intermediate Design review, if it occurs) and, if not previously addressed, be accompanied by a memorandum indicating how the comments were incorporated into the Prefinal Design. The Prefinal Design documents shall be certified by a Professional Engineer currently registered in the State of California.

The Prefinal Design shall serve as the Final Design if EPA has no further comments and provides its approval. The Prefinal Design submittals shall include a capital and operation and maintenance

cost estimate; reproducible drawings and specifications; and a complete set of construction drawings in full and one-half size reduction. The Final Design should also include a schedule for construction completion, and satisfaction of the "Operational and Functional" criteria.

East Side Performing Settling Defendants shall not be required to provide a Final Design submittal if, subject to EPA approval, the RD/RA is implemented using a design/build approach. Instead, East Side Performing Settling Defendants shall (a) provide as-built construction drawings to EPA, (b) meet with EPA for monthly, or less frequent, subject to EPA approval, updates, after completion of the Conceptual and Preliminary Design, (c) provide copies of bid packages for subcontracted components of remedy construction to EPA for review, and (d) provide a milestone schedule for design/build activities in the RD/RA Work Plan. If requested by EPA, the East Side Performing Settling Defendants shall prepare Technical Memoranda documenting key decisions made during the design/build phase.

4. Applicability of RD Requirements to Extraction at Existing Production Wells

If East Side Performing Settling Defendants intend to use any existing purveyor-owned facilities and/or production wells as part of the southern deep zone remedial action, an agreement must be reached with the necessary water purveyors that provides for long-term extraction at the existing productions wells at rates and depths sufficient to ensure compliance with the Performance Criteria in Section III of this SOW. East Side Performing Settling Defendants shall submit as-built drawings and specifications for all existing facilities and wells to be used, operating agreements, and an operation and maintenance manual in lieu of design submittals. If any new facilities or wells will be required in the southern deep zone to adequately contain the contaminated groundwater plume and meet the Performance Criteria, these should be included in the design process described above in Items 1 through 4. EPA will review the documents to evaluate the project's capability to reliably achieve the Performance Criteria described in Section III of this SOW. After completing its evaluation, EPA will indicate: i) the extent to which the project appears to be achieving Performance Criteria; and ii) any needed modifications to the project or its operation to fully satisfy Performance Criteria or ensure the project's future capability to meet Performance Criteria.

E. Remedial Action

East Side Performing Settling Defendants shall implement the Remedial Action. During the design period, in preparation for implementation of the Remedial Action and in accordance with the schedule included in Section V of this SOW, East Side Performing Settling Defendants shall submit a Construction Quality Assurance Plan, a Construction Health and Safety Plan, and any needed updates to the RD/RA Work Plan. The Construction Quality Assurance Plan must be reviewed and approved by EPA prior to the initiation of the Remedial Action.

Upon approval of the Final Design and Construction Quality Assurance Plan, East Side Performing Settling Defendants shall begin construction in accordance with the approved schedule. Significant field changes to the Remedial Action as set forth in the RD/RA Work Plan and Final Design shall not be undertaken without the approval of EPA. All work on the Remedial Action shall be documented in enough detail to produce as-built construction drawings after the Remedial Action is complete. Review and/or approval of submittals does not guarantee that the remedial action, when constructed, will meet the Performance Criteria.

1. Remedial Action Work Plan

East Side Performing Settling Defendants shall not be required to submit a separate Remedial Action Work Plan. Instead, East Side Performing Settling Defendants shall provide supplemental information as necessary to update the Remedial Design/ Remedial Action Work Plan.

2. Preconstruction Meeting

A Preconstruction Meeting shall be held after selection of the construction contractor but before initiation of construction. The meeting shall include East Side Performing Settling Defendants' representatives and interested federal, state and local government agency personnel; shall define the roles, relationships, and responsibilities of all parties; review work area security and safety protocols; review any access issues; review construction schedule; and review construction quality assurance procedures.

East Side Performing Settling Defendants shall ensure that the results of the Preconstruction Meetings are documented and transmitted to all parties in attendance, including the names of

people in attendance, issues discussed, clarifications made, and instructions issued.

3. Remedial Action Construction

East Side Performing Settling Defendants shall implement the Remedial Action as detailed in the approved RD/RA Work Plan (as updated) and approved Final Design.

4. Prefinal Construction Inspection

Within fourteen (14) days after East Side Performing Settling Defendants believe that construction is complete and the remedial action, or a discrete portion of the remedial action, is operational and functional, East Side Performing Settling Defendants shall notify EPA and the State for the purposes of conducting a prefinal inspection to be attended by EPA and East Side Performing Settling Defendants. Other participants shall include the Project Coordinator and other federal, state, and local agencies with a jurisdictional interest. If a Prefinal Construction Inspection is held for a portion of the remedial action, one or more additional inspections shall be conducted so that the entire remedial action is inspected.

The objective of the inspection(s) is to determine whether construction is complete and the remedial action (or the inspected portion) is operating as designed. Any outstanding construction items discovered during the inspection shall be identified and corrected and noted on a bullet list. East Side Performing Settling Defendants shall certify that the equipment is effectively meeting the purpose and intent of the specifications. Retesting shall be completed where deficiencies are revealed. A Prefinal Construction Inspection Report shall be submitted by East Side Performing Settling Defendants that outlines the outstanding construction items, actions required to resolve the items, completion date for the items, and an anticipated date for a Final Inspection. The Prefinal Construction Inspection Report can be in the form of a bullet list or letter or Technical Memorandum.

5. Final Construction Inspection

Within fourteen (14) days after completion of any work identified in the prefinal inspection report, East Side Performing Settling Defendants shall notify EPA and the State for the purposes of

conducting a final inspection. The final inspection shall consist of a walk-through inspection by EPA and East Side Performing Settling Defendants. The prefinal inspection report shall be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

Any outstanding construction items discovered during the inspection still requiring correction shall be identified, photographed if possible, and noted on a punch list. If any items are still unresolved, the inspection shall be considered to be a Prefinal Construction Inspection requiring another Prefinal Construction Inspection Report and subsequent Final Construction Inspection.

6. Remedial Action Construction Report

As specified in the approved schedule included in Section V of this SOW, after construction is completed on the entire remedial action and the systems are operating as designed, East Side Performing Settling Defendants shall submit a Remedial Action Construction Report. In the report, a registered Professional Engineer and East Side Performing Settling Defendants' Project Coordinator shall state that the construction of the Remedial Action has been completed in accordance with the RD/RA Work Plan submitted under this SOW. The written report shall provide a synopsis of the work defined in this SOW, describe deviations from the RD/RA Work Plan, include as-built drawings signed and stamped by a licensed Professional Engineer, provide actual costs of the Remedial Action (and O&M to date), and provide a summary of the results of operational and performance monitoring completed to date. The report shall contain the following statement, signed by a responsible corporate official of the East Side Performing Settling Defendants or the East Side Performing Settling Defendants' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is 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. Interim Remedial Action Report

As specified in the approved schedule included in Section V of this SOW, after East Side Performing Settling Defendants have

determined that the performance criteria of the remedial action are being met, East Side Performing Settling Defendants shall submit an Interim Remedial Action Report pursuant to EPA 540-R-98-016, OSWER Directive 9320.2-09A-P "Close Out Procedures for National Priorities List Sites", January 2000. In the report, a registered Professional Engineer and East Side Performing Settling Defendants' Project Coordinator shall certify that the Interim Remedial Action is "operational and functional" as intended and that performance criteria listed in Section III of this SOW are being met. The written report shall provide a summary of the results of operational and performance monitoring completed to date and shall provide documentation to substantiate the East Side Performing Settling Defendants' certification in full satisfaction with the Consent Decree, including, but not limited to, relevant data presented in accordance with Sections IV.J (Performance Evaluation Reports) and IV.L (Compliance Monitoring Reports) of this SOW. The report shall also summarize deviations from the RD/RA Work Plan and shall contain the following statement, signed by a responsible corporate official of the East Side Performing Settling Defendants or the East Side Performing Settling Defendants' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is 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."

F. Operation and Maintenance

Operation and Maintenance (O&M) shall be performed in accordance with the approved Operation and Maintenance Manual.

1. Operation and Maintenance Plan

East Side Performing Settling Defendants shall not be required to submit an Operation and Maintenance (O&M) Plan. O&M-related information shall be provided in the O&M Manual (see Section IV.F.2 of this SOW) and/or the Compliance Monitoring Plan (see Section IV.G of this SOW).

2. Operation and Maintenance Manual

East Side Performing Settling Defendants shall submit a draft Operation and Maintenance Manual during the design period in accordance with the approved schedule, and a revised draft after the final construction inspection to incorporate manufacturer/vendor information and any design modifications implemented during the Remedial Action. The Operation and Maintenance Manual must be reviewed and approved by EPA. The manual shall include all necessary Operation and Maintenance information for the operating personnel, and provide or address the following:

a. System description;

b. Startup and shutdown procedures;

c. Criteria for determining when the remedial action is "operational and functional"

d. Description and schedule of normal operation and maintenance tasks, including equipment and material requirements, anticipated equipment replacement for significant components, availability of spare parts, provisions for remote monitoring and control, operator training and certification requirements, staffing needs, and related requirements;

e. Indicators of system performance and/or maintenance (e.g., parameters to be monitored to determine timing for activated carbon or ion exchange resin replacement or to assess biological reactor performance);

f. Criteria to be used to determine whether the treated groundwater will be supplied to one or the other of the available alternative discharge options approved by EPA;

g. Any planned variation in groundwater extraction rate, including whether each extraction well is to be operated at constant or variable flow rate, and a description of the magnitude and timing of any expected variation;

h. Record keeping and reporting requirements, including operating and inspection logs, maintenance records, and periodic reports; and

i. Description and analysis of potential operating problems (e.g., equipment failure, higher than expected contaminant concentrations), including emergency operating and response activities and relevant health and safety information.

3. Applicability of O&M Requirements to Extraction at Production Wells in the southern deep zone of the EMOU

See Section IV.D.4 of this SOW.

G. Compliance Monitoring Plan

Compliance monitoring activities shall be performed in accordance with the approved Compliance Monitoring Plan, to evaluate whether the Performance Criteria, as described in Section III of this SOW, in the ESD, and in the IROD, are met. The Compliance Monitoring Plan shall specify the locations of compliance wells and any sentinel wells, sampling methods, and, at a minimum, a quarterly sampling frequency. East Side Performing Settling Defendants shall submit the Compliance Monitoring Plan no later than the specified date in the approved schedule. Compliance with the Performance Criteria will be confirmed by results from sampling at EPA-approved compliance wells on a quarterly basis, and shall be documented in Compliance Monitoring Reports. EPA shall be notified of noncompliance with any Performance Criteria withing 5 days of receipt of data verifying noncompliance. In addition East Side Performing Settling Defendants shall collect appropriate confirmation samples within 10 days of receipt of data indicating potential noncompliance (for example, after the first exceedance of Performance Criteria at a compliance well). The Compliance Monitoring Plan shall address the following requirements:

1. Data Collection Parameters

East Side Performing Settling Defendants shall specify the locations of compliance and sentinel wells in the shallow and deep groundwater zones. Such wells shall comply with

and be adequate to meet the Performance Criteria. The Compliance Monitoring Plan shall contain sufficient information for EPA to assess whether the compliance and sentinel wells meet Performance Criteria. East Side Performing Settling Defendants shall specify sampling methods, data analysis procedures, and, at a minimum, a quarterly sampling frequency.

2. Computer Modeling

East Side Performing Settling Defendants may be required by EPA to perform computer model simulations of groundwater flow and contaminant migration as part of compliance monitoring or to evaluate modifications to the extraction plan, if needed. The Compliance Monitoring Plan shall describe proposed changes to the calibration of an existing model, or propose a schedule for providing such information. All models must be calibrated by East Side Performing Settling Defendants and approved by EPA prior to use. If modeling work is performed, wells that are not considered part of the remedial action, but which do cause hydraulic influence, will be accounted for in the modeling simulations.

Subject to approval by EPA, East Side Performing Settling Defendants may propose alternative methods of evaluating whether the remedy is achieving the compliance performance objectives, and, if needed, the nature and scope of modifications to the extraction plan.

3. Split Sampling

The Compliance Monitoring Plan shall specify procedures for coordination of EPA or State collection of split or replicate samples.

4. Contingency Action

The Compliance Monitoring Plan shall propose contingency plans to be used in the event that additional compliance monitoring activities are required to evaluate compliance with Performance Criteria. Contingency actions could include increases in monitoring frequency and installation of additional groundwater monitoring wells, as approved by

EPA. If compliance monitoring data indicate noncompliance, East Side Performing Settling Defendants shall submit a Compliance Action Plan to EPA within 14 days of receipt of data verifying noncompliance. Actions may include, but not necessarily be limited to, additional compliance monitoring to confirm the finding, operational modifications followed by additional compliance monitoring, or design and construction efforts for additional extraction activities.

5. Data Reporting

The Compliance Monitoring Plan shall propose electronic reporting formats to support submittal of all groundwater data to EPA.

H. Monitoring Plan(s) for Other Potential Remedial Actions

If East Side Performing Settling Defendants propose to use passive remedial actions at certain locations, and these actions are shown to be capable of compliance with applicable Performance Criteria, then East Side Performing Settling Defendants must monitor these locations in accordance with an EPA-approved monitoring plan.

I. General Monitoring Plan

Monitoring activities for wells other than the compliance and sentinel wells shall be performed in accordance with the approved General Monitoring Plan. The plan shall specify type, locations, frequencies, methods, and duration of monitoring activities. East Side Performing Settling Defendants shall submit the General Monitoring Plan no later than the date specified in the approved schedule. The General Monitoring Plan shall address the following requirements:

1. Data Collection Parameters

A description of the types of data to be collected, sampling and data gathering methods, monitoring locations, sampling frequencies, and if appropriate, minimum monitoring duration.

2. Well Discharge

East Side Performing Settling Defendants shall measure flow rates at each extraction well (and calculate volumes of water extracted) as a function of time, using a meter/totalizer installed on the discharge pipe for each extraction well. The reading on the meter/totalizer shall be recorded at least quarterly and whenever water quality samples are collected from that well.

3. Treatment Plant Effluent/Treated Groundwater

East Side Performing Settling Defendants shall analyze treated water samples to verify attainment of groundwater treatment goals (i.e., at a minimum, MCLs, as stated in the discharge limits) and monitor operational parameters that are used as indicators of treatment facility performance or the need for maintenance. East Side Performing Settling Defendants shall propose appropriate parameters and schedules for sampling of treated groundwater to ensure compliance with ARARs. After a period of initial monitoring, East Side Performing Settling Defendants may propose criteria for subsequent reductions in sampling and/or analysis frequencies if the sampling results support such reductions.

4. Contaminant Mass Removal

Though mass removal is not one of EPA's remedy performance criteria described in Section III of this SOW, East Side Performing Settling Defendants shall track the cumulative mass of contaminants removed from the aquifer. The contaminants to be monitored for contaminant mass removal calculations, the rational for their selection, and the frequency of these calculations, will be described in the General Monitoring Plan, subject to EPA approval.

5. Aquifer Testing

East Side Performing Settling Defendants shall perform aquifer tests at new extraction wells to estimate aquifer transmissivity in the vicinity of the wells.

6. Air Emissions Monitoring

   If applicable, East Side Performing Settling Defendants shall perform air emission monitoring to verify that air emissions from treatment operations do not exceed ARARs.

7. Data Analysis and Reporting

   The General Monitoring Plan shall also describe how the performance data will be analyzed, interpreted, and reported to evaluate compliance with ARARs. All data shall be submitted by the deadlines specified in an agreed upon schedule. Claims of change, difference, or trend in water quality or other parameters (e.g., between observed values and an ARAR) shall include the use of appropriate statistical concepts and tests.

   All analytical data, whether or not validated, shall be submitted to EPA within 60 calendar days of sample shipment to the laboratory or 14 days of receipt of analytical results from the laboratory, whichever occurs first. All analytical data, previously validated and in electronic format in an approved data structure, shall be submitted within 90 calendar days of the sample shipment to the laboratory. Well construction information shall be submitted at the completion of the initial sampling activities or within 90 days after completion of a well, whichever is earlier.

8. Split Sampling

   The General Monitoring Plan shall also specify procedures for coordination of EPA or State collection of split or replicate samples.

9. Reporting Requirements to Support the Compliance Monitoring Plan and General Monitoring Plan

   The General Monitoring Plan shall provide a brief description of the contents and format for the Quarterly Compliance Monitoring Reports and Performance Evaluation Reports (see below).

   EPA may also request periodic updates of selected deliverables (e.g., Work Plan, Sampling Plan, Monitoring

Plans, etc.) described in this section of the SOW, as more information is gathered or as conditions change during implementation of the RD/RA.

J. Performance Evaluation Reports

Performance Evaluation Reports shall include: summaries of compliance monitoring activities conducted since the previous reporting period (including summaries of Compliance Monitoring Reports); updated water level contour maps showing measured water levels, including capture zones for extraction wells; field data to demonstrate hydraulic control; measured contaminant concentrations and associated contour maps; the interpreted extent of contamination; and appropriate groundwater modeling results used to confirm compliance, including a detailed description and explanation of improvements made to the computer model of groundwater flow and contaminant migration in the preceding year and the resulting calibration; summaries of relevant operating and field data, including mass removal; any preliminary calculations and supporting data used to evaluate compliance; descriptions of the nature of, duration of, and response to any noncompliance; and any other requirements outlined in the General Monitoring Plan and the Compliance Monitoring Plan.

Initially, at a minimum, individual contaminant contour maps shall be prepared indicating the extent of PCE, TCE (shallow and deep zones), perchlorate, 1,4-dioxane, NDMA, and hexavalent chromium (shallow zone) contamination. Additional contour maps shall be prepared if requested by EPA to indicate the extent of contamination in additional depth intervals, or for additional contaminants. Assumptions made in excluding, truncating, averaging, or otherwise selecting or manipulating the data to be used in preparing the contour maps should be clearly stated. Performance Evaluation Reports shall be provided as described in Section V of this SOW.

K. Progress Reports

East Side Performing Settling Defendants shall submit reports on progress of work required under the Consent Decree and this SOW. These progress reports shall provide information as required by Section X of the Consent Decree, except where such information is presented in other reports submitted regularly as required under this SOW, and will be due monthly, as described in Section V of this

SOW. The frequency of progress reports may be decreased in the future if the progress of work support such a decrease, and East Side Performing Settling Defendants obtain EPA approval. Standard format reporting can be used, with the ultimate goal of making the Progress Reports standardized, and adopting a compliance management by exception style.

L. Compliance Monitoring Reports

The Compliance Monitoring Reports shall include: measured contaminant concentrations at compliance wells; charts showing contaminant concentrations versus time at compliance wells; assessments and statements regarding whether Performance Criteria have been exceeded at compliance wells; predictions, if appropriate, of possible future occurrences of noncompliance; any relevant preliminary calculations and supporting data used to evaluate compliance; and any other relevant requirements outlined in the Compliance Monitoring Plan. Compliance Monitoring Reports will be due every three months, as described in Section V of this SOW. The frequency of compliance monitoring reports may be decreased in the future if the monitoring data support such a decrease, and East Side Performing Settling Defendants obtain EPA approval. The reports may be presented in a graphical format.

M. Supporting Plans

1. Sampling and Analysis Plan and Health and Safety Plan

Sampling and Analysis Plan. In accordance with Sections VIII of the Consent Decree, East Side Performing Settling Defendants shall prepare a Sampling and Analysis Plan (SAP), or update an existing Plan to perform compliance and general monitoring and carry out any other field investigations needed to complete the remedial design, and construct and operate the remedial action. The Plan shall discuss the timing of data collection activities, including data collection activities needed to establish baseline conditions before startup of the remedial action.

The SAP shall include a Field Sampling and Analysis Plan (FSAP), a Quality Assurance Project Plan (QAPP), and a schedule for implementation of all field activities including but not limited to well installation, sampling, analysis, and reporting activities. The FSAP and QAPP may be submitted

as one document or separately, and may reference an existing FSAP or QAPP. Upon EPA approval, East Side Performing Settling Defendants shall proceed to implement the sampling activities described in the SAP.

a. The FSAP shall describe sampling objectives, analytical parameters, sample locations and frequencies, sampling equipment and procedures, sample handling and analysis, management of investigation-derived wastes, and planned uses of the data. The FSAP shall be consistent with "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects" (Document Control No. 9QA-06-89, April 1990), and other applicable guidance. It shall be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. The FSAP shall include a description of the arrangements for disposal of investigation-derived waste.

b. The QAPP shall describe project objectives, organizational and functional activities, data quality objectives (DQOs), and quality assurance and quality control (QA/QC) protocols that shall be used to achieve the desired DQOs. The QAPP shall be consistent with "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, November 1999), and "Guidance for the Data Quality Objectives Process" (EPA QA/G-4, September 1994) and other applicable guidance (see list of references). The DQOs shall, at a minimum, reflect use of analytical methods for obtaining data of sufficient quality to meet National Contingency Plan requirements as identified at 40 CFR 300.435 (b). In addition, the QAPP shall address personnel qualifications, sampling procedures, sample custody, analytical procedures, document control procedures, preservation of records (see Sections VIII, XXIV, and XXV of the Consent Decree), data reduction, data validation, data management, procedures that will be used to enter, store, correct, manipulate, and

analyze data; protocols for transferring data to EPA in electronic format; and document management.

East Side Performing Settling Defendants shall demonstrate in advance and to EPA's satisfaction that each laboratory they may use is qualified to conduct the proposed work and meets the requirements specified in Section VIII of the Consent Decree. EPA may require that East Side Performing Settling Defendants submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specification, and laboratory analyses of performance samples (blank and/or spike samples). In addition, EPA may require submittal of data packages equivalent to those generated by the EPA contract laboratory program (CLP).

Health and Safety Plan. To ensure protection of on-site personnel and area residents from hazards posed by sampling activities, East Side Performing Settling Defendants shall also develop a Health and Safety Plan (or update an existing Plan). The Plan shall be in conformance with U.S. Occupational, Safety, and Health Administration (OSHA) requirements as outlined in 29 CFR §§1910 and 1926, and any other applicable requirements. The Health and Safety Plan shall describe health and safety risks, employee training, monitoring and personal protective equipment, medical monitoring, levels of protection, safe work practices and safeguards, contingency and emergency planning, and provisions for site control. EPA will review but will neither approve nor disapprove East Side Performing Settling Defendants' Health and Safety Plan.

2. Construction Quality Assurance Plan

East Side Performing Settling Defendants shall develop and implement a Construction Quality Assurance Plan to ensure, with a reasonable degree of certainty, that the completed Remedial Action meets or exceeds all design criteria, plans and specifications, and Performance Standards. The Construction Quality Assurance Plan shall include the following elements:

a. Responsibilities and authorities of all organizations and key personnel involved in the design and construction of the Remedial Action;

b. A description of the quality control organization, including a chart showing lines of authority, members of the Quality Assurance team, their responsibilities and qualifications, and acknowledgment that the Quality Assurance team will implement the quality control system for all aspects of the work specified and shall report to the East Side Performing Settling Defendants' Project Coordinator and EPA. Members of the Quality Assurance team shall have a good professional and ethical reputation, previous experience in the type of QA/QC activities to be implemented, and demonstrated capability to perform the required activities. They shall also be independent of the construction contractor;

c. Description of the observations, inspections, and control testing that will be used to assure quality workmanship, verify compliance with the plans and specifications, or meet other QC objectives during implementation of the Remedial Action. This includes identification of sample size, sample locations, and sample collection or testing frequency; and acceptance and rejection criteria. The Plan shall specify laboratories to be used, and include information which certifies that personnel and laboratories performing the tests are qualified and the equipment and procedures to be used comply with applicable standards;

d. Reporting procedures, frequency, and format for QA/QC activities. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records shall be presented in the Construction Quality Assurance Plan. The QA official shall report simultaneously to the East Side Performing Settling Defendants' representative and to EPA; and

e. A list of definable features of the work to be performed. A definable feature of work is a task which is separate and distinct from other tasks and has separate quality control requirements.

3. Construction Health and Safety Plan

East Side Performing Settling Defendants shall prepare a Construction Health and Safety Plan in compliance with OSHA regulations and protocols and other applicable requirements. The Construction Health and Safety Plan shall describe health and safety risks, employee training, monitoring and personal protective equipment, medical monitoring, individuals responsible in an emergency, and provisions for site control for workers and for visitors to the job site. EPA will review but neither approve nor disapprove East Side Performing Settling Defendants' Construction Health and Safety Plan.

N. Work Complete Report

As specified in the approved schedule included in Section V of this SOW, after all phases of the Work (including O&M) under the Consent Decree have been performed, East Side Performing Defendants shall submit a Work Complete Report. In the report, a registered Professional Engineer and East Side Performing Settling Defendants' Project Coordinator shall state that the Work has been completed in full satisfaction of the requirements of the Consent Decree. The written report shall provide a synopsis of the work defined in this SOW, describe deviations from the RD/RA Work Plan, provide actual costs of the Remedial Action (and O&M), and provide a summary of the results of operational and performance monitoring completed. The report shall contain the following statement, signed by a responsible corporate official of the East Side Performing Settling Defendants or the East Side Performing Settling Defendants' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is 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."

V. Schedule for Major Deliverables and Other Tasks [*Note: schedule to be revised as necessary to account for work completed prior to Consent Decree*]

This schedule assumes a Design-Build approach will be utilized.

ACTIVITY	DUE DATE
Lodging Date of the Consent Decree	
Notification of Project Coordinator (as required by Section XII of the Consent Decree)	Twenty (20) days after the lodging date of the Consent Decree
PLANNING DOCUMENTS	
Compliance and Sentinel Well Network Plan	Ninety (90) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised Plan due 21 days after receipt of EPA comments
Select Contractor and Initiate Compliance and Sentinel Well Installation	Thirty (30) days after EPA approval of Compliance and Sentinel Well Network Plan
Compliance and Sentinel Well Installation Report	Seventy five (75) days after completion of compliance and sentinel installation activities (EPA review time of 14 days)[1] If necessary, revised Plan due 21 days after receipt of EPA comments

	DUE DATE
Compliance and Sentinel Well Network Monitoring Plan	Forty five (45) days after EPA approval of Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
RD/RA Work Plan	Forty five (45) days after EPA approval of Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
General Monitoring Plan	Sixty (60) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 30 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
[redacted]	
Notification of Supervising Contractor (as required by Section VI of the Consent Decree)	Ninety days (90) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised contractor list due 30 days after receipt of EPA comments
RD/RA Work Plan	Update, as necessary
Conceptual and Preliminary Remedial Design Submittal	Ninety (90) days after approval of RD/RA Work Plan (EPA review time of 28 days)[1] If necessary, revised plan due 28 days after receipt of EPA comments

ACTIVITY	DUE DATE
Intermediate Remedial Design Submittal	Not required
Construction Bid Packages	Sixty (60) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 28 days)[1]
As Built Construction Drawings	Concurrent with Remedial Action Construction Report (EPA review time of 14 days)[1]
REMEDIAL ACTION	
Selection of Construction Sub Contractor(s) Notification of Selected Construction Sub Contractor(s)	Sixty (60) days after issuance of bid packages Within 5 days of selection
Pre-Construction Meeting	Twenty one (21) days after selection of construction sub contractors
Initiate Construction **Complete Construction**	Fourteen (14) days after Pre-Construction Meeting Per milestone schedule in EPA approved Conceptual and Preliminary Design submittal
Pre-Final Construction Inspection	Fourteen (14) days after East Side Performing Settling Defendants determine that the remedial action is operating as designed
Pre-Final Construction Inspection Report	Fourteen (14) days after Pre-final Construction Inspection

ACTIVITY	DUE DATE
Final Construction Inspection (if needed)	To be defined in the Pre-Final Construction Inspection Report
Final Construction Inspection Report (if needed)	Fourteen (14) days after Final Construction Inspection
Remedial Action Construction Report	**Draft due sixty (60) days after EPA approval of Pre-Final/Final Construction Inspection Report** **(EPA review time of 28 days)[1]** **If needed, revised Report due 28 days after receipt of EPA comments**
Interim Remedial Action Report	**Draft due two hundred and seventy (270) days after EPA approval of the Remedial Action Construction Report or fourteen (14) days after** East Side Performing Settling Defendants determine **that performance criteria for the remedial action are being met, whichever is earlier** **(EPA review time of 28 days)[1]** **If needed, revised Report due 28 days after receipt of EPA comments**
OPERATION AND MAINTENANCE	
Operation and Maintenance Manual	Draft Manual due 14 days after Pre-Final/Final Construction Inspection If requested by EPA, revised Manual due 21 days after receipt of EPA comments

ACTIVITY	DUE DATE
PERFORMANCE EVALUATION	
Performance Evaluation Reports	Due every 6 months, for first three years, and annually thereafter following EPA's approval of Remedial Action Construction Report
Progress Reports	Due monthly, beginning thirty (30) days after the lodging date of the Consent Decree
Quarterly Compliance and Sentinel Well Network Monitoring Reports	Per schedule in the EPA approved Compliance and Sentinel Well Network Monitoring Plan
Non-compliance Notification	Due seven (7) days after receipt of information indicating non-compliance
Compliance Action Plan	Draft due fourteen (14) days after receipt of information indicating non-compliance
Compliance Correction Report	As established in an EPA approved Compliance Action Plan
SUPPORTING PLANS	
Sampling and Analysis Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Site Health and Safety Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Construction Quality Assurance Plan, Construction Health and Safety Plan	Concurrent with Conceptual and Preliminary Design Submittal

[illegible]	DUE DATE
CERTIFICATIONS REQUIRED BY SECTION XV OF CONSENT DECREE	
Pre-Certification Inspection for Completion of the Work	Forty-five (45) days after East Side Performing Settling Defendants conclude that all Work has been performed, including completion of all Operation and Maintenance activities
Certification that all Work has been Completed	Thirty (30) days after the pre-certification inspection

1. Estimated time, in calendar days. Failure to review a deliverable within the estimated time shall not constitute a violation of the Consent Decree by the United States.

This schedule assumes a Design-Bid-Build approach will be utilized.

ACTIVITY	DUE DATE
Lodging Date of the Consent Decree	
Notification of Project Coordinator (as required by Section XII of the Consent Decree)	Twenty (20) days after the lodging date of the Consent Decree
SUBMITTAL OF DOCUMENTS	
Compliance and Sentinel Well Network Plan	Ninety (90) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised Plan due 21 days after receipt of EPA comments
Select Contractor and Initiate Compliance and Sentinel Well Installation	Thirty (30) days after EPA approval of Compliance and Sentinel Well Network Plan
Compliance and Sentinel Well Installation Report	Seventy five (75) days after completion of compliance and sentinel installation activities (EPA review time of 14 days)[1] If necessary, revised Report due 21days after receipt of EPA comments
Compliance and Sentinel Well Network Monitoring Plan	Forty five (45) days after EPA approval of Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised Plan due 21 days after receipt of EPA comments

ACTIVITY	DUE DATE
RD/RA Work Plan	Forty five (45) days after EPA approval of the Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
General Monitoring Plan	Sixty (60) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 30 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
REMEDIAL DESIGN	
Notification of Supervising Contractor (as required by Section VI of the Consent Decree)	Ninety (90) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised contractor list due 30 days after receipt of EPA comments
RD/RA Work Plan	Update, as necessary
Conceptual and Preliminary Remedial Design Submittal	One hundred twenty (120) days after approval of RD/RA Work Plan (EPA review time of 28 days)[1] If necessary, revised design due 28 days after receipt of EPA comments
Intermediate Remedial Design Submittal	Not required
Pre-Final Remedial Design Submittal	One hundred twenty (120) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 28 days)[1]
Final Remedial Design submittal (if needed)	Twenty one (21) days after EPA approval of Pre-Final Remedial Design Submittal

ACTIVITY	DUE DATE
REMEDIAL ACTION	
Selection of Construction Contractor	Sixty days (60) days after EPA approval of Pre-Final/Final Remedial Design Submittal
Notification of Selected Construction Contractor	Within 5 days of selection
Pre-Construction Meeting	Fourteen (14) days after EPA approval of selected construction contractor
Initiate Construction	Fourteen (14) days after Pre-Construction Meeting
Complete Construction	Per milestone schedule in EPA approved Pre-Final/Final Design Submittal
Pre-Final Construction Inspection	Fourteen (14) days after East Side Performing Settling Defendants determine that the remedial action is operating as designed
Pre-Final Construction Inspection Report	Fourteen (14) days after Pre-Final Construction Inspection
Final Construction Inspection (if needed)	To be defined in the Pre-Final Construction Inspection Report
Final Construction Inspection Report (if needed)	Fourteen (14) days after Final Construction Inspection
Remedial Action Construction Report	Draft due sixty (60) days after EPA approval of Pre-Final/Final Construction Inspection Report (EPA review time of 28 days)[1] If needed, revised Report due 28 days after receipt of EPA comments

ACTIVITY	DUE DATE
Interim Remedial Action Report	Draft due two hundred and seventy (270) days after EPA approval of the Remedial Action Construction Report or fourteen (14) days after East Side Performing Settling Defendants determine that performance criteria for the remedial action are being met, whichever is earlier (EPA review time of 28 days)[1] If needed, revised Report due 28 days after receipt of EPA comments
OPERATION AND MAINTENANCE	
Operation and Maintenance Manual	Draft Manual due 14 days after pre-Final/Final Construction Inspection If requested by EPA, revised Manual due 21 days after receipt of EPA comments
[illegible]	
Performance Evaluation Reports	Due every 6 months for first three years, and annually thereafter following EPA approval of Remedial Action Construction Report
Progress Reports	Due monthly, beginning thirty (30) days after the lodging date of the Consent Decree
Quarterly Compliance and Sentinel Well Network Monitoring Reports	Per schedule in the EPA approved Compliance and Sentinel Well Network Monitoring Plan
Non-compliance Notification	Due seven (7) days after receipt of information indicating non-compliance
Compliance Action Plan	Draft due fourteen (14) days after receipt of information indicating non-compliance
Compliance Correction Report	As established in an EPA approved Compliance Action Plan

ACTIVITY	DUE DATE
SUPPORTING PLANS	
Sampling and Analysis Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Site Health and Safety Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Construction Quality Assurance Plan, Construction Health and Safety Plan	No later than the date of the Pre-final/Final Remedial Design Submittal
CERTIFICATION REGARDING COMPLETION	
Pre-Certification Inspection for Completion of the Work	Forty-five (45) days after East Side Performing Settling Defendants conclude that all Work has been performed, including completion of all Operation and Maintenance activities
Certification that all Work has been Completed	Thirty (30) days after the pre-certification inspection

1. Estimated time, in calendar days. Failure to review a deliverable within the estimated time shall not constitute a violation of the Consent Decree by the United States.

VI. References

The following list, although not comprehensive, provides citations for many of the regulations and guidance documents that apply to the RD/RA process. East Side Performing Settling Defendants shall review these guidance documents and shall use the information provided therein in performing the RD/RA and preparing all deliverables under this SOW.

"National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule," 40 CFR, Part 300.

"Superfund Remedial Design/ Remedial Action Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1995 (EPA 540/R-95/059).

"Interim Final Guidance on Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties," U.S. EPA, Office of Emergency and Remedial Response, February 14, 1990, OSWER Directive No. 9355.5-01.

"EPA NEIC Policies and Procedures Manual," U.S. EPA, May 1978, revised May 1986.

"Guidance for the Data Quality Objectives Process" U.S. EPA, (EPA QA/G-4).

"EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," May 1994, U.S. EPA, (EPA QA/R-5).

"Guidance for Quality Assurance Project Plans," February 1998, U.S. EPA, (EPA QA/G-5).

"Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects," April 1990, U.S. EPA, (No. 9QA-06-89).

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (Draft), OSWER Directive No. 9283.1-2.

"Methods for Monitoring Pump-and-Treat Performance," U.S. EPA, Office of Research and Development, June 1994 (EPA 600/R-94/123).

Figure 1
(pdf file)

El Monte OU

Approximate Post-RI/FS

Well Locations

Table 1
(pdf file)

El Monte OU

Water Quality Data

Early Response Action Program Monitoring

Attachment 1

June 1999 Interim Record of Decision

(See Appendix A to the Consent Decree)

Attachment 2

Explanation of Significant Differences (ESD)

(See Appendix B to the Consent Decree)

Attachment 3
Summary of Pre-Remedial Design Work
El Monte Operable Unit

Following completion of the RI/FS, the Northwest El Monte Community Task Force (NEMCTF) performed preliminary remedial design (pre-RD) work at the Site. This work, associated with the NEMCTF's Early Response Action Program (ERAP), included the following: (1) installation and sampling of eight monitoring wells in late 1998/early 1999 and preparation of an ERAP monitoring well completion report, (2) five rounds of groundwater sampling, one in December 1998/January 1999, one in September 1999, one in June 2000, one in November 2000, and one in August 2001, at selected RI, ERAP, and facility monitoring wells, including analysis for perchlorate, 1,4-dioxane, and NDMA, (3) preparation of a report evaluating discharge options for water produced from extraction wells completed in the shallow zone, (4) groundwater modeling to assist in locating shallow zone extraction wells, (5) installation, aquifer testing, and sampling of three shallow extraction wells in the western EMOU in the summer of 2000, (6) installation and sampling of two shallow zone compliance wells in the western EMOU in the Spring of 2001, and (7) installation of a third shallow zone compliance well in the western EMOU in the Spring of 2002. The following, associated, documents were prepared by Camp Dresser and McKee (CDM) on behalf of the NEMCTF:

"Sampling and Analysis Plan, Phase 1 Early Response Action Program, El Monte Operable Unit, San Gabriel Valley, Los Angeles County, California," August 31, 1998.

"EMOU Early Response Action Program, Contaminant Transport Modeling, Proposed Western Shallow Zone Extraction Well Locations," December 10, 1999.

"*Phase 1A Early Response Action Program Report of Well Installations and Round 5 Groundwater Monitoring, El Monte Operable Unit, San Gabriel Valley, Los Angeles County, California* ," February 15, 2000

"*Discharge Options Study Report, El Monte Operable Unit, San Gabriel Valley, Los Angeles County, California,*" May 8, 2000.

Figure 1 of the SOW depicts the approximate locations of the fourteen ERAP (pre-RD, post-RI/FS) wells: eight monitoring wells (ERP-1 to ERP-8), three shallow zone extraction wells (EW-18, EW-19, and EW-20), and three shallow zone compliance wells (ERP-9, ERP-10, and ERP-11) Extraction wells EW-18, EW-19, and EW-20 were installed near the current western extent of >MCL VOC contamination in the shallow zone, with the intention of containing VOCs above 10 times MCLs. Compliance wells ERP-9, ERP-10, and ERP-11 were installed downgradient of the extraction wells to assess compliance with the performance criteria for the western shallow zone. The location of the extraction wells and the compliance wells is subject to EPA's approval. Table 1 summarizes the sampling results from the ERAP monitoring, extraction, and compliance wells.

Appendix D

Statement of Work-West Side

Appendix D to the Consent Decree

RD/RA STATEMENT OF WORK

Western Shallow and Northwestern Deep Portions of the Interim Remedial Action

El Monte Operable Unit

SAN GABRIEL VALLEY SUPERFUND SITE AREA 1

LOS ANGELES COUNTY, CALIFORNIA

October 2003

D58

TABLE OF CONTENTS

259

STATEMENT OF WORK FOR REMEDIAL DESIGN AND REMEDIAL ACTION (West Side) El Monte Operable Unit San Gabriel Valley Superfund Site Area 1

I. Introduction

This Statement of Work (SOW) describes the activities West Side Performing Settling Defendants must perform to design, construct, operate, maintain, monitor, and evaluate a portion of the interim remedial action described in the El Monte Operable Unit (EMOU) Interim Record of Decision (IROD), as supplemented by the Explanation of Significant Differences (ESD), and as set forth in this SOW. The IROD, which specifies the remedy for the site, was signed June 23, 1999. The ESD was issued in August 2002. This SOW is Appendix D to the EMOU Consent Decree.

The interim remedial action described in the IROD includes performance criteria that require control of contaminant migration in the shallow zone, the deep zone northwestern area, and the deep zone southern area. The West Side Performing Settling Defendants to this Consent Decree are required to implement the deep zone northwestern area remedial action and a portion of the shallow zone remedial action (the western portion). The western portion of the shallow zone generally refers to the contamination present west of Baldwin Avenue (Figure 1).

The EMOU addresses a several-square-mile area of groundwater contamination extending beneath portions of El Monte, Rosemead, and Temple City, in Los Angeles County, California. Chemicals of potential concern in the groundwater in the EMOU include volatile organic compounds (VOCs) listed in Table 5 of the IROD (Attachment 1) and emerging chemicals (ECs) perchlorate, n-Nitrosodimethlyamine (NDMA), hexavalent chromium, and 1,4-dioxane listed in the ESD (Attachment 2).

EPA intends to review deliverables to assess whether or not the remedial action will achieve the remedial objectives defined in the IROD, as supplemented by the ESD, and Performance Criteria set forth in the IROD, ESD, and this SOW. EPA review or approval of a task or deliverable shall not, however, be construed as a guarantee of the adequacy of such task or deliverable.

A description of the pre-Remedial Design work that has been completed by the Potentially Responsible Parties (PRPs) can be found in Attachment 3 of the SOW.

The definitions set forth in Section IV of the Consent Decree shall apply to this SOW unless expressly provided otherwise herein.

II. Summary of the El Monte OU Interim Remedial Action Components to be Addressed by this SOW

Shallow Zone - Western Portion:

The IROD, as supplemented by the ESD, requires the remedial action to prevent shallow zone groundwater contamination that exceeds 10 times the ARARs (Table 5 of the IROD) from migrating beyond its current lateral and vertical extent in the western and eastern EMOU. Figure 2 of the IROD showed that, as of 1997, the higher concentration shallow zone contamination was distributed in two areas of the EMOU. A more recent (2002) depiction of the shallow VOC contamination in the EMOU is shown on Figure 1 of this SOW. Groundwater must be monitored for compliance to verify that Performance Criteria are met. Compliance with Performance Criteria will be evaluated using data collection and analysis procedures outlined in the Compliance Monitoring Plan, as well as information presented in compliance monitoring and performance evaluation reports. EPA shall approve the locations and specifications of the *shallow zone compliance wells.*

Deep Zone - Northwestern Area:

The IROD requires the remedial action to provide sufficient hydraulic control to prevent deep zone groundwater contamination that exceeds the ARARs listed in Table 5 of the IROD from migrating beyond the Encinitas Well Field Area in the northwestern portion of the EMOU. In the northwest portion of the OU, hydraulic control can be accomplished by: (1) installing new wells upgradient of the Encinitas Well Field Area; or (2) using existing production wells alone, or in combination with new wells.

Compliance wells shall be installed in strategic locations to verify that the hydraulic control is sufficient to meet the Performance Criteria. The approximate extent of the northwestern deep zone plume can be found in Figure 3 of the IROD. EPA shall approve the locations and specifications of the deep zone compliance wells. Sentinel wells located upgradient of the compliance wells are recommended to avoid exceedances of the Performance Criteria.

Compliance monitoring wells should be located such that if ARARs are exceeded or are expected to be exceeded in upgradient sentinel monitoring wells, adequate time is available to take action to maintain concentrations below ARARs at the compliance wells.

Initial Remedial Design Work:

As an initial step, West Side Performing Settling Defendants shall design and install the compliance wells (and sentinel wells, if necessary) in the shallow and deep groundwater zones. West Side Performing Settling Defendants shall demonstrate to EPA's satisfaction that each well is appropriate for measuring compliance, as described in Section III (Performance Criteria) of this SOW. Prior to installation of compliance and sentinel wells, West Side Performing Settling Defendants shall submit to EPA a Compliance and Sentinel Well Network Plan, describing the

proposed locations and specifications of the wells, as required in Section IV of this SOW. After installation and sufficient sampling of each proposed compliance and sentinel well, EPA shall determine whether the location and construction of each well is acceptable for its proposed use. West Side Performing Settling Defendants shall submit a Compliance and Sentinel Well Installation Report, signifying the time at which compliance monitoring will begin, as described in Section IV of this SOW. After EPA approval of the Compliance and Sentinel Well Installation Report, West Side Performing Settling Defendants shall assume quarterly sampling of each well to ensure that the Performance Criteria are met in the shallow and deep zones, and submit Quarterly Compliance Monitoring Reports, as required by the Compliance Monitoring Plan.

Other Remedial Design requirements are set forth in Sections III and IV of this SOW.

III. Performance Criteria

As specified in the Consent Decree, West Side Performing Settling Defendants shall meet all Performance Criteria, Remedial Action Objectives and Applicable or Relevant and Appropriate Requirements (ARARs) set forth in the IROD, ESD, and this SOW. The IROD states that the Remedial Action Objectives (RAOs) for the EMOU are to prevent exposure of the public to contaminated groundwater above MCLs; inhibit contaminant migration from the more highly contaminated portions of the aquifer to the less contaminated areas or depths; reduce the impact of continued contaminant migration on downgradient water supply wells; and protect future uses of less contaminated and uncontaminated areas. All compliance monitoring data shall be reported in the Quarterly Compliance Monitoring Reports. The IROD requires that the remedial action provide sufficient hydraulic control of contaminated groundwater in the shallow and deep zones to meet the Performance Criteria.

The Performance Criteria include the treatment standards, standards of control, quality criteria, and other substantive requirements, criteria or limitations included in the IROD and ESD.

A. Shallow Zone Compliance with Performance Criteria

The remedial action shall prevent groundwater in the shallow zone with VOC contamination above 10 times the ARARs (Table 5 of the IROD) from migrating beyond its current lateral and vertical extent.

West Side Performing Settling Defendants shall monitor compliance with this criterion at a sufficient number of wells that meet the following requirements and have been approved by EPA:

(1) Wells located laterally and vertically downgradient of shallow groundwater contamination exceeding 10 times the relevant VOC ARARs, but generally within areas where VOC concentrations exceed the ARARs listed in Table 5 of the IROD.

(2) Wells completed with screen lengths generally of 20 feet or less located between the water table and 130 feet bgs. Alternative screened intervals and well depths may be appropriate in limited situations and will be subject to EPA evaluation and approval on a case-by-case basis.

West Side Performing Settling Defendants shall conduct quarterly sampling at the shallow zone compliance wells to ensure compliance with the shallow zone Performance Criteria. Results shall be reported in the Quarterly Compliance Monitoring Reports. The frequency of sampling may be decreased in the future if the monitoring data support such a decrease, and West Side Performing Settling Defendants obtain EPA approval. Conversely, if it appears, based on trends in sampling data, that concentrations may exceed the Performance Criteria, the sampling frequency may be increased. Contaminant concentrations at the compliance wells will be the absolute criteria for evaluating compliance. The Compliance Monitoring Plan shall specify how compliance well data will be used to demonstrate compliance with the Performance Criteria. EPA expects that groundwater containment actions will be implemented sufficiently upgradient of the compliance wells to provide enough of a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance. The use of sentinel well data will be permitted to guide containment actions which may affect or alter the measurements at the compliance wells.

To avoid exceedances of the shallow zone performance criteria, EPA recommends that West Side Performing Settling Defendants install additional sentinel wells or use existing wells upgradient of the compliance wells, where appropriate, as an early warning system to provide West Side Performing Settling Defendants sufficient time to address and prevent noncompliance.

B. Deep Zone Compliance with Performance Criteria:

The remedial action shall provide sufficient hydraulic control to prevent groundwater in the deep zone with VOC contamination above ARARs (Table 5 of the IROD) from: (a) migrating into or beyond the Encinitas Well Field Area in the northwest portion of the OU. The Encinitas Well Field Area is defined as the area encompassed by (1) the wells listed in Section 11.1.3.2 of the IROD and (2) the current downgradient extent of contamination above ARARs in the deep zone, in the vicinity of the wells listed in Section 11.1.3.2 of the IROD.

In the northwest portion of the OU, hydraulic control can be accomplished by: (1) installing new wells upgradient of the Encinitas Well Field Area; or (2) using existing production wells alone, or in combination with new wells. If existing production wells are used, West Side Performing Settling Defendants shall demonstrate that pumping from the production wells alone, or in combination

with new wells, provides sufficient hydraulic control to meet the Performance Criteria. If existing production wells are used, West Side Performing Settling Defendants shall also provide assurances acceptable to EPA that the wells will operate in a manner that ensures compliance with the Performance Criteria, if possible. The West Side Performing Settling Defendants shall provide copies of agreements between themselves and the water companies or entities who own the production wells to EPA for approval. The remedial measures must provide sufficient hydraulic control, without the aid of other wells not included in the remedial action, to ensure that the Performance Criteria are not exceeded.

West Side Performing Settling Defendants shall monitor compliance with this criterion at a sufficient number of compliance wells that meet the following requirements and have been approved by EPA:

(1) Located within 2,000 feet of either (1) the current extent of groundwater contaminated with any VOC exceeding its ARAR or (2) a production well listed in Section 11.1.3.2 of the IROD, whichever represents the nearest margin of the Encinitas Well Field Area. The intent of locating these wells in this manner is to provide compliance points that are sufficiently distant from existing contamination above ARARs to provide enough time to ensure that additional actions can be taken before threshold concentrations are exceeded. The wells must also be sufficient in number, appropriately screened and adequately located to ensure that contamination above ARARs does not migrate away from the Encinitas Well Field Area.

(2) Located generally west to northwest of the current extent of deep zone contamination, within the area with detectable VOC concentrations in the deep zone.

(3) Completed with screen lengths of 20 feet or less within the deep zone. Larger, or multiple depth, screened intervals may be appropriate in limited situations subject to EPA evaluation and approval on a case-by-case basis.

West Side Performing Settling Defendants shall conduct quarterly sampling at the deep zone compliance wells to ensure compliance with the deep zone Performance Criteria. Results shall be reported in the Quarterly Compliance Monitoring Reports. The frequency of sampling may be decreased in the future if the monitoring data supports such a decrease and West Side Performing Settling Defendants obtain EPA approval. Conversely, if it appears, based on trends in sampling data, that concentrations may exceed the Performance Criteria, the sampling frequency may be increased. Contaminant concentrations at the compliance wells will be the absolute criterion for evaluating compliance. The Compliance Monitoring Plan shall specify how compliance well data will be used to demonstrate compliance with the Performance Criteria. EPA expects that

groundwater containment actions will be implemented sufficiently upgradient of the compliance wells to provide enough of a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance.

C. Additional Requirements

Implementation of the remedial action shall not adversely affect production wells that are not part of the remedial action (i.e., shall not increase the migration of contamination into the wells). In addition, the remedial action must meet the Performance Criteria for both the shallow and deep zones without relying on the effects of wells that are not part of the remedial action.

Indications of an imminent exceedance of the Performance Criteria at a compliance well will be considered as evidence that groundwater contamination is migrating and that additional hydraulic containment or alternative, appropriate measures, as approved by EPA, shall be required. In the event of an actual or imminent exceedance of the Performance Criteria at the compliance wells, West Side Performing Settling Defendants shall take actions (e.g., implement additional groundwater extraction and treatment) to achieve sufficient hydraulic control within a time frame specified in the Compliance Monitoring Plan (Section IV.G). A verified exceedance of the Performance Criteria at a compliance well is a violation of the Consent Decree which may result in enforcement action.

D. Groundwater Treatment and Discharge

West Side Performing Settling Defendants shall treat all groundwater that is extracted pursuant to this SOW. West Side Performing Settling Defendants shall install and operate treatment systems that are designed to reduce the concentrations of the contaminants listed in Table 5 of the IROD to below ARARs. Subject to EPA approval, these requirements may not apply to EPA-approved CERCLA Section 104(b) activities that will result in temporary high flow, high volume discharges (e.g., discharges from sampling of selected water supply wells or aquifer tests).

Extracted groundwater is expected to be treated with air stripping (with off-gas controls) or liquid-phase carbon adsorption to remove the contaminants listed in Table 5 of the IROD. Extracted groundwater may need to be treated for the contaminants listed in the ESD by ion exchange and ultraviolet light with oxidation, or other appropriate technologies, as necessary, to achieve compliance with the ARARs. If alternative treatment technologies are proposed, EPA will evaluate the alternative technologies in accordance with the criteria specified in 40 CFR Section 300.430 during remedial design.

Following treatment, extracted groundwater can either be provided to local water purveyors for use in the San Gabriel Basin ("the Basin"), or discharged to Eaton Wash or the Rio Hondo. Alternative discharge options may be used, subject to EPA approval. Unless waived by the appropriate agencies and approved by EPA, disposal of the treated groundwater must comply with the applicable or relevant and appropriate requirements (ARARs) identified in the IROD and other requirements for the contaminants listed in the ESD that need to be considered. In addition, introduction of treated groundwater into a public water supply is an offsite activity that must comply with all other state and federal requirements in effect at the time of the activity.

The extraction and treatment of groundwater shall comply with the following requirements:

1. Treatment systems shall be designed and operated to reduce the concentrations of contaminants to below the ARARs listed in Table 5 of the IROD under all anticipated operating conditions; treatment systems for the contaminants listed in the ESD shall be designed and operated, as necessary, to achieve compliance with ARARs.

2. Best available control technology for toxics (T-BACT) shall be used on new stationary operating equipment, so the cumulative carcinogenic impact from air toxics does not exceed the maximum individual cancer risk limit of ten in one million (1×10^{-5}), as required by South Coast Air Quality Management District (SCAQMD) Rule 1401;

3. For water to be provided to a public water supply, the installation and operation of treatment systems shall be designed to reduce the concentrations of parameters for which there are Federal or State *Secondary* MCLs to attain secondary MCLs;

4. Extraction and treatment systems shall comply with the substantive portions of SCAQMD Regulation XIII, comprising Rules 1301 through 1313, pertaining to new source review;

5. Extraction and treatment systems shall comply with the water quality objectives for discharge of treated water from the Regional Water Quality Control Board (RWQCB) Los Angeles Basin Plan and State Water Resources Control Board (SWRCB) Resolution 68-16, as outlined in the IROD;

6. Extraction and treatment systems shall comply with limits in visible emissions (SCAQMD Rule 401) and particulate concentrations (SCAQMD Rule 403);

7. Extraction and treatment systems shall not cause the discharge of material that is odorous or causes injury, nuisance or annoyance to the public (SCAQMD Rule 402);

8. Extraction and treatment systems shall comply with the substantive requirements in Title 22, California Code of Regulations (CCR), Sections 66264.601 -.603 for *Miscellaneous units*, and related substantive closure requirements in Sections 66264.111 - .115 for air strippers or granular activated carbon (GAC) contractors;

9. Extraction and treatment systems shall comply with container and storage requirements in Title 22, CCR, Sections 66264.170 - .178 for the storage of contaminated groundwater over 90 days;

10. Extraction and treatment systems shall comply with Title 22, CCR, Sections 66262 and 66268 and other State Hazardous Waste Control Act (HWCA) requirements for storage and disposal if the spent carbon is classified as a hazardous waste; and

11. Extraction and treatment systems shall comply with the substantive portions of the State Water Well Standards for construction of water supply wells.

IV. List of Deliverables and Other Tasks

West Side Performing Settling Defendants shall submit plans, specifications, and other deliverables for EPA review and/or approval, as specified below. EPA may also request periodic updates of selected deliverables (e.g., Work Plan, Sampling Plan, Monitoring Plans, etc.) described in this section of the SOW, as more information is gathered or as conditions change during implementation of the RD/RA. One copy of each final written deliverable shall be provided in an unbound format suitable for reproduction; additional copies shall be provided as stated in the Consent Decree. Information presented in color must be legible and interpretable when reproduced in non-color. If EPA requests, final written deliverables shall also be provided in electronic format. Subject to approval in advance by EPA, large format submittals may also be submitted electronically in a CD deliverable format.

West Side Performing Settling Defendants shall implement quality control procedures to ensure the quality of all reports and submittals to EPA. These procedures shall include but are not limited to: internal technical and editorial review; independent verification of calculations; and documentation of all reviews, problems identified, and corrective actions taken.

As described in Section XI of the Consent Decree, EPA may approve, disapprove, or modify each deliverable. Major deliverables are described below and shall be submitted according to the schedule in Section V of this SOW.

A. Compliance and Sentinel Well Network Plan

Prior to installation of compliance and sentinel wells, West Side Performing Settling Defendants shall submit to EPA a Compliance and Sentinel Well Network Plan, describing the proposed locations and specifications of the compliance or sentinel wells. All existing wells that may be used for compliance or sentinel purposes must be described in this plan. Additionally, all proposed new compliance and sentinel wells must be described and a schedule for their installation provided. West Side Performing Settling Defendants shall demonstrate to EPA's satisfaction that each proposed compliance well is appropriate for measuring compliance, as described in Section III (Performance Criteria) of this SOW. This plan will include sampling procedures for confirming the adequacy of all proposed compliance and sentinel wells. West Side Performing Settling Defendants must sample each proposed compliance and sentinel well at least two times to demonstrate that each well is suitable to be a compliance well as described in the IROD and this SOW. Additional confirmation sampling may be required for proposed compliance wells if initial sampling results are inconsistent. After installation and sufficient sampling, EPA shall determine whether each well is acceptable for use as a compliance and or sentinel well.

B. Compliance and Sentinel Well Installation Report

After installation of the compliance and sentinel wells, West Side Performing Settling Defendants shall submit a Compliance and Sentinel Well Installation Report, signifying the time at which compliance monitoring will begin. This report will include all sampling results for all proposed compliance and sentinel wells, and the data must show concentrations that adhere to the requirements for compliance and sentinel wells as outlined in the IROD and this SOW. After EPA approval of the Compliance and Sentinel Well Installation Report, West Side Performing Settling Defendants shall assume quarterly sampling of each well to ensure that the Performance Criteria are met in the shallow and deep zones, and submit Compliance Monitoring Reports, as required by the Compliance Monitoring Plan, described in Section IV.G of this SOW.

C. Remedial Design/Remedial Action Work Plan

West Side Performing Settling Defendants shall submit a Work Plan that describes the management strategy for design and construction of the remedial action ("RD/RA Work Plan"). The RD/RA Work Plan must be reviewed and

approved by EPA in accordance with Section XI of the Consent Decree. The Work Plan shall include:

1. Project Description

   The RD/RA Work Plan shall include a description of the work to be implemented by West Side Performing Settling Defendants. The initial work should first and foremost focus on the location, installation, and monitoring of compliance and sentinel wells, including preparation of the Compliance and Sentinel Well Network Plan as required in Section IV of this SOW. The Work Plan shall also include, where applicable, additional data collection efforts (see Section IV.C.7 of this SOW); extraction locations; treatment technologies; details on planned discharge of the treated water; locations of major project components; an approach for evaluating existing equipment and facilities to be used as part of the remedial action; and other key aspects of the project. The Work Plan shall briefly discuss the condition, anticipated longevity, and any limitations in the use of each existing facility.

2. Description of the Responsibility and Authority of All Organizations and Key Personnel Involved With the Remedial Action.

   The RD/RA Work Plan shall include a description of the responsibilities and qualifications of key personnel expected to direct or play a significant role in the Remedial Design, Remedial Action, or Operation and Maintenance, including West Side Performing Settling Defendants' Project Coordinator, Designer, Construction Contractor, Construction Quality Assurance personnel, and Resident Engineer. The Work Plan shall define lines of authority and provide brief descriptions of duties.

3. Schedule

   The RD/RA Work Plan shall identify the initiation and completion dates for each required design activity, construction activity, inspection, and deliverable required by the Consent Decree and this SOW, consistent with the schedule included as Section V of this SOW.

   The Work Plan shall also identify the approximate timing of meetings and other activities that may require EPA participation, but are not identified in Section V of this SOW.

   The schedule shall indicate that coordination meetings will initially occur on a monthly basis and may be decreased in frequency as deemed appropriate by EPA. The coordination meetings shall address project

status, problems, project risk management, solutions, contingency planning, and schedule. A representative of the West Side Performing Settling Defendants shall prepare a meeting summary to document all decisions made, issues outstanding, schedule changes, planned follow up, and assignments.

4. Contracting Strategy and Construction Process

The RD/RA Work Plan shall briefly describe the planned contracting strategy, including a brief description of the process for evaluation and approval of construction changes and EPA review and approval of significant changes. If the West Side Performing Settling Defendants propose a design/build approach, whereby the entire comprehensive all-in-one-package design and construction process is broken down into a series of discrete design-build packages, then, subject to EPA approval, the RD/RA Work Plan shall describe the contracting strategy consistent with this alternative project delivery approach.

5. Plans for Satisfying All Permitting Requirements and Acquiring Property, Leases, Easements, or Other Access.

The RD/RA Work Plan shall list all permits, property, leases, and easements required for implementation of the remedial action; permits, property, leases, and easements acquired to date; and a schedule for submittal of permit applications and acquisition of property, leases, or easements not yet obtained.

Where normally required, permits must be obtained for all off-site activities, such as from the California Department of Health Services for domestic use of treated water. West Side Performing Settling Defendants are not required to obtain permits for on-site remedial activities, but must comply with all substantive requirements, including local building codes. If permits will not be obtained for an onsite activity where a permit is normally required, West Side Performing Settling Defendants shall describe all consultative or coordination activities planned to identify and satisfy the substantive requirements. The status of permitting issues will be updated monthly in the monthly progress report to EPA.

6. Third Parties Necessary for Design, Construction, or Operation of the Remedial Action.

   The RD/RA Work Plan shall describe the roles and responsibilities of West Side Performing Settling Defendants, participating water producers and water agencies, and other parties expected to play a significant role in the design, construction, or operation of the remedial action. The Work Plan shall summarize and provide copies of Memorandums of Understanding and draft or final agreements with water producers and other third parties expected to participate in implementation of the remedial action. If legally-binding agreements are not in place, the Work Plan shall describe commitments made to date and planned efforts to secure necessary commitments, including an estimated schedule. If the participation of a third party is uncertain, the Work Plan shall describe alternatives to be implemented in the event that the party does not fulfill its planned role. Possible third party roles include agreeing to the use of existing equipment (e.g., groundwater extraction wells, water treatment facilities, pipelines, groundwater recharge facilities), treatment plant operation, and acceptance of treated groundwater.

7. Identification of Any Concerns about the Quantity, Quality, Completeness, or Usability of Water Quality or Other Data Upon Which the Design Will Be Based

   West Side Performing Settling Defendants shall provide a description of additional data collection efforts, if any, required for completion of the Remedial Design. This work, if any, will be initially described in the RD/RA Work Plan as one of the West Side Performing Settling Defendants' first deliverables. West Side Performing Settling Defendants shall consider whether any data are needed to verify that critical design assumptions remain valid (e.g., the areas of groundwater contamination requiring hydraulic containment). If additional data are required, West Side Performing Settling Defendants shall propose a schedule for preparation of a Sampling and Analysis Plan (or Addendum) and implementation of the Plan. The Plan shall include all appropriate efforts to evaluate additional data collected.

8. A Description of Planned Community Relations Activities to Be Conducted During Remedial Design and/or Remedial Action.

   In accordance with Section XXX of the Consent Decree, West Side Performing Settling Defendants shall cooperate with EPA and the State in providing information regarding the Work to the public. As requested by EPA or the State, West Side Performing Settling Defendants shall

participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA or the State to explain activities at or relating to the Site.

9. Updates to the RD/RA Work Plan and Periodic Reporting to EPA

The RD/RA Work Plan shall describe provisions for reporting progress to EPA (consistent with the schedule included in Section V of this SOW and the Compliance Monitoring Plan to be prepared in accordance with Section IV.G of this SOW). The RD/RA Work Plan shall also describe how the Work Plan will be updated as needed to document changes or provide information not available at the time the Work Plan is submitted.

If any of the information requested is not known at the time the RD/RA work plan must be submitted, and omitting the information from the work plan will not prevent compliance with any other requirements of this SOW, West Side Performing Settling Defendants may submit the information at a later date. If any information is omitted, West Side Performing Settling Defendants shall note in the work plan that the missing information was not available and specify when it will be submitted.

D. Remedial Design

Remedial Design activities shall include the preparation of clear and comprehensive design documents, construction plans and specifications, and other design activities needed to implement the work and satisfy Performance Criteria set forth in the IROD, ESD, and this SOW. If EPA approves use of a design/build approach, the design and construction deliverables and milestones discussed below will need to be modified, subject to EPA approval. All plans and specifications shall be developed in accordance with relevant portions of the U.S. EPA's Superfund Remedial Design/Remedial Action Handbook (EPA 540/R-95/059), and in accordance with the schedule set forth in Section V of this SOW.

1. Conceptual and Preliminary Design

West Side Performing Settling Defendants shall submit a combined Conceptual and Preliminary Design Report in accordance with the approved schedule, as codified in the Work Plan. EPA approval is required before proceeding with further design work, unless EPA agrees otherwise. Unless modified by EPA, the Conceptual and Preliminary Design submittal shall include or address, at a minimum, the following:

a. A detailed Design Basis Report that presents and justifies the concepts, assumptions, standards, and preliminary interpretations

and calculations used in the design. The Design Basis Report shall include:

(1) Volume or flow rate of water, air, and other media requiring treatment or disposal;

(2) A summary of water quality or other data to be used during design but not previously provided to EPA, along with an analysis of whether the data confirm assumptions, recommendations, or conclusions made to date for the EMOU;

(3) Assumed treatment plant influent quality over the design life of the treatment system(s), with a description of the methodology used to develop the estimate (including discussion of the likelihood and magnitude of short-term and long-term changes in influent concentrations);

(4) An explanation of how Performance Criteria for each aquifer zone will be met;

(5) Discussion of any proposed or anticipated State or Federal drinking water or ambient water quality standards that would impact the design; and whether any special circumstances may apply.

(6) Filtration, disinfection, corrosion control, or other treatment requirements in addition to removal of site contaminants;

(7) Assumed treatment technologies and/or treatment trains (for all media and byproducts) and initial treatment process flow diagrams; appropriate equipment vendor information;

(8) Preliminary sizing of treatment system(s) and other remedial action components;

(9) Expected treatment facility removal capacity for all groundwater constituents requiring removal;

(10) Delivery locations, rates, and pressures for the treated groundwater, and other conveyance system assumptions for supplying or discharging treated groundwater;

(11) An assessment of the risk that insufficient recharge capacity may allow groundwater to leave the San Gabriel Basin and payment of make up water may be required. Provisions for alternative use of treated groundwater should be discussed;

(12) Interconnection requirements for delivery of treated groundwater, if any (e.g., connection to existing water distribution systems);

(13) System control strategy, including the level of reliability, redundancy, or specific damage prevention features needed in each major component of the remedial action to respond to seismic events, power outages, equipment failure, system maintenance, operator error, or deviations from design assumptions;

(14) Listing and discussion of the relative importance of siting criteria for new extraction wells, treatment facilities, pipelines, and other facilities, along with preliminary locations and alignments; and

(15) Estimate of the distance from each proposed extraction location to the location assumed in computer model simulations completed in support of the EMOU containment remedial actions and an evaluation of whether additional computer modeling activities are needed to verify the effectiveness of the actual extraction locations.

b. An Updated Construction Schedule for construction and implementation of the Remedial Action that identifies timing for initiation and completion of all critical path tasks; and

c. An updated list of permits, regulatory agency approvals, MOUs, access or use agreements, easements, and properties developed or acquired to date; copies of permits, approvals, and agreements not previously supplied to EPA; and activities and schedules for obtaining outstanding items required before start of construction (e.g., for use of existing facilities or disposition of the treated water).

d. Preliminary plans, specifications, and drawings, of groundwater extraction, treatment, conveyance, and monitoring systems;

e. Listing of planned specification sections

2. Intermediate Design

Unless directed otherwise by EPA, West Side Performing Settling Defendants shall not be required to provide an Intermediate Design submittal, but may seek EPA review of design concepts or documents if desired.

3. Prefinal/Final Design

West Side Performing Settling Defendants shall submit the Prefinal Design when the design effort is complete in accordance with the approved schedule. The Prefinal Design shall fully address all comments made on the Conceptual and Preliminary Design Report (and during the Intermediate Design review, if it occurs) and, if not previously addressed, be accompanied by a memorandum indicating how the comments were incorporated into the Prefinal Design. The Prefinal Design documents shall be certified by a Professional Engineer currently registered in the State of California.

The Prefinal Design shall serve as the Final Design if EPA has no further comments and provides its approval. The Prefinal Design submittals shall include a capital and operation and maintenance cost estimate; reproducible drawings and specifications; and a complete set of construction drawings in full and one-half size reduction. The Final Design should also include a schedule for construction completion, and satisfaction of the "Operational and Functional" criteria.

West Side Performing Settling Defendants shall not be required to provide a Final Design submittal if, subject to EPA approval, the RD/RA is implemented using a design/build approach. Instead, West Side Performing Settling Defendants shall (a) provide as-built construction drawings to EPA, (b) meet with EPA for monthly, or less frequent, subject to EPA approval, updates, after completion of the Conceptual and Preliminary Design, (c) provide copies of bid packages for subcontracted components of remedy construction to EPA for review, and (d) provide a milestone schedule for design/build activities in the RD/RA Work Plan. If requested by EPA, the West Side Performing Settling Defendants shall prepare Technical Memoranda documenting key decisions made during the design/build phase.

4. Applicability of RD Requirements to Extraction at the Encinitas Well Field or other Production Wells

Groundwater at the Encinitas Well Field has been impacted by contaminated groundwater from the EMOU. The Southern California Water Company (SCWC) currently treats and blends groundwater extracted from the Encinitas Well Field for VOCs, and has one treatment system in operation. If West Side Performing Settling Defendants intend to use any existing facilities and/or production wells in the Encinitas Well Field Area, or other purveyor-owned facilities and/or production wells as part of the northwestern deep zone remedial action, an agreement must be reached with the necessary water purveyors that provides for long-term extraction at the existing productions wells at rates and depths sufficient to ensure compliance with the Performance Criteria in Section III of this SOW. West Side Performing Settling Defendants shall submit as-built drawings and specifications for all existing facilities and wells to be used, operating agreements, and an operation and maintenance manual in lieu of design submittals. If any new facilities or wells will be required in the northwestern deep zone to adequately contain the contaminated groundwater plume and meet the Performance Criteria, these should be included in the design process described above in Items 1 through 4. EPA will review the documents to evaluate the project's capability to reliably achieve the Performance Criteria described in Section III of this SOW. After completing its evaluation, EPA will indicate: i) the extent to which the project appears to be achieving Performance Criteria; and ii) any needed modifications to the project or its operation to fully satisfy Performance Criteria or ensure the project's future capability to meet Performance Criteria.

E. Remedial Action

West Side Performing Settling Defendants shall implement the Remedial Action. During the design period, in preparation for implementation of the Remedial Action and in accordance with the schedule included in Section V of this SOW, West Side Performing Settling Defendants shall submit a Construction Quality Assurance Plan, a Construction Health and Safety Plan, and any needed updates to the RD/RA Work Plan. The Construction Quality Assurance Plan must be reviewed and approved by EPA prior to the initiation of the Remedial Action.

Upon approval of the Final Design and Construction Quality Assurance Plan, West Side Performing Settling Defendants shall begin construction in accordance with the approved schedule. Significant field changes to the Remedial Action as set forth in the RD/RA Work Plan and Final Design shall not be undertaken without the approval of EPA. All work on the Remedial Action shall be

documented in enough detail to produce as-built construction drawings after the Remedial Action is complete. Review and/or approval of submittals does not guarantee that the remedial action, when constructed, will meet the Performance Criteria.

1. Remedial Action Work Plan

   West Side Performing Settling Defendants shall not be required to submit a separate Remedial Action Work Plan. Instead, West Side Performing Settling Defendants shall provide supplemental information as necessary to update the Remedial Design/ Remedial Action Work Plan.

2. Preconstruction Meeting

   A Preconstruction Meeting shall be held after selection of the construction contractor but before initiation of construction. The meeting shall include West Side Performing Settling Defendants' representatives and interested federal, state and local government agency personnel; shall define the roles, relationships, and responsibilities of all parties; review work area security and safety protocols; review any access issues; review construction schedule; and review construction quality assurance procedures.

   West Side Performing Settling Defendants shall ensure that the results of the Preconstruction Meetings are documented and transmitted to all parties in attendance, including the names of people in attendance, issues discussed, clarifications made, and instructions issued.

3. Remedial Action Construction

   West Side Performing Settling Defendants shall implement the Remedial Action as detailed in the approved RD/RA Work Plan (as updated) and approved Final Design.

4. Prefinal Construction Inspection

   Within fourteen (14) days after West Side Performing Settling Defendants believe that construction is complete and the remedial action, or a discrete portion of the remedial action, is operational and functional, West Side Performing Settling Defendants shall notify EPA and the State for the purposes of conducting a prefinal inspection to be attended by EPA and West Side Performing Settling Defendants. Other participants shall include the Project Coordinator and other federal, state, and local agencies with a jurisdictional interest. If a Prefinal Construction

Inspection is held for a portion of the remedial action, one or more additional inspections shall be conducted so that the entire remedial action is inspected.

The objective of the inspection(s) is to determine whether construction is complete and the remedial action (or the inspected portion) is operating as designed. Any outstanding construction items discovered during the inspection shall be identified and corrected and noted on a bullet list. West Side Performing Settling Defendants shall certify that the equipment is effectively meeting the purpose and intent of the specifications. Retesting shall be completed where deficiencies are revealed. A Prefinal Construction Inspection Report shall be submitted by West Side Performing Settling Defendants that outlines the outstanding construction items, actions required to resolve the items, completion date for the items, and an anticipated date for a Final Inspection. The Prefinal Construction Inspection Report can be in the form of a bullet list or letter or Technical Memorandum.

5. Final Construction Inspection

Within fourteen (14) days after completion of any work identified in the prefinal inspection report, West Side Performing Settling Defendants shall notify EPA and the State for the purposes of conducting a final inspection. The final inspection shall consist of a walk-through inspection by EPA and West Side Performing Settling Defendants. The prefinal inspection report shall be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

Any outstanding construction items discovered during the inspection still requiring correction shall be identified, photographed if possible, and noted on a punch list. If any items are still unresolved, the inspection shall be considered to be a Prefinal Construction Inspection requiring another Prefinal Construction Inspection Report and subsequent Final Construction Inspection.

6. Remedial Action Construction Report

As specified in the approved schedule included in Section V of this SOW, after construction is completed on the entire remedial action and the systems are operating as designed, West Side Performing Settling Defendants shall submit a Remedial Action Construction Report. In the report, a registered Professional Engineer and West Side Performing

Settling Defendants' Project Coordinator shall state that the construction of the Remedial Action has been completed in accordance with the RD/RA Work Plan submitted under this SOW. The written report shall provide a synopsis of the work defined in this SOW, describe deviations from the RD/RA Work Plan, include as-built drawings signed and stamped by a licensed Professional Engineer, provide actual costs of the Remedial Action (and O&M to date), and provide a summary of the results of operational and performance monitoring completed to date. The report shall contain the following statement, signed by a responsible corporate official of the West Side Performing Settling Defendants or the West Side Performing Settling Defendants' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is 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. Interim Remedial Action Report

As specified in the approved schedule included in Section V of this SOW, after West Side Performing Settling Defendants have determined that the performance criteria of the remedial action are being met, West Side Performing Settling Defendants shall submit an Interim Remedial Action Report pursuant to EPA 540-R-98-016, OSWER Directive 9320.2-09A-P "Close Out Procedures for National Priorities List Sites", January 2000. In the report, a registered Professional Engineer and West Side Performing Settling Defendants' Project Coordinator shall certify that the Interim Remedial Action is "operational and functional" as intended and that performance criteria listed in Section III of this SOW are being met. The written report shall provide a summary of the results of operational and performance monitoring completed to date and shall provide documentation to substantiate the West Side Performing Settling Defendants' certification in full satisfaction with the Consent Decree, including, but not limited to, relevant data presented in accordance with Sections IV.J (Performance Evaluation Reports) and IV.L (Compliance Monitoring Reports) of this SOW. The report shall also summarize deviations from the RD/RA Work Plan and shall contain the following statement, signed by a responsible corporate official of the West Side Performing Settling Defendants or the West Side Performing Settling Defendants' Project Coordinator:

"To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is 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."

F. Operation and Maintenance

Operation and Maintenance (O&M) shall be performed in accordance with the approved Operation and Maintenance Manual.

1. Operation and Maintenance Plan

West Side Performing Settling Defendants shall not be required to submit an Operation and Maintenance (O&M) Plan. O&M-related information shall be provided in the O&M Manual (see Section IV.F.2 of this SOW) and/or the Compliance Monitoring Plan (see Section IV.G of this SOW).

2. Operation and Maintenance Manual

West Side Performing Settling Defendants shall submit a draft Operation and Maintenance Manual during the design period in accordance with the approved schedule, and a revised draft after the final construction inspection to incorporate manufacturer/vendor information and any design modifications implemented during the Remedial Action. The Operation and Maintenance Manual must be reviewed and approved by EPA. The manual shall include all necessary Operation and Maintenance information for the operating personnel, and provide or address the following:

a. System description;

b. Startup and shutdown procedures;

c. Criteria for determining when the remedial action is "operational and functional"

d. Description and schedule of normal operation and maintenance tasks, including equipment and material requirements, anticipated equipment replacement for significant components, availability of spare parts, provisions for remote monitoring and control, operator training and certification requirements, staffing needs, and related requirements;

e. Indicators of system performance and/or maintenance (e.g., parameters to be monitored to determine timing for activated carbon or ion exchange resin replacement or to assess biological reactor performance);

f. Criteria to be used to determine whether the treated groundwater will be supplied to one or the other of the available alternative discharge options approved by EPA;

g. Any planned variation in groundwater extraction rate, including whether each extraction well is to be operated at constant or variable flow rate, and a description of the magnitude and timing of any expected variation;

h. Record keeping and reporting requirements, including operating and inspection logs, maintenance records, and periodic reports; and

i. Description and analysis of potential operating problems (e.g., equipment failure, higher than expected contaminant concentrations), including emergency operating and response activities and relevant health and safety information.

3. Applicability of O&M Requirements to Extraction at the SCWC Wells or Other Production Wells in the northwestern deep zone of the EMOU

See Section IV.D.4 of this SOW.

G. Compliance Monitoring Plan

Compliance monitoring activities shall be performed in accordance with the approved Compliance Monitoring Plan, to evaluate whether the Performance Criteria, as described in Section III of this SOW, in the ESD, and in the IROD, are met. The Compliance Monitoring Plan shall specify the locations of compliance wells and any sentinel wells, sampling methods, and, at a minimum, a quarterly sampling frequency. West Side Performing Settling Defendants shall submit the Compliance Monitoring Plan no later than the specified date in the approved schedule. Compliance with the Performance Criteria will be confirmed by results from sampling at EPA-approved compliance wells on a quarterly basis, and shall be documented in Compliance Monitoring Reports. EPA shall be notified of noncompliance with any Performance Criteria within 5 days of receipt of data verifying noncompliance. In addition West Side Performing Settling Defendants shall collect appropriate confirmation samples within 10 days of receipt of data indicating potential noncompliance (for example, after the first

exceedance of Performance Criteria at a compliance well). The Compliance Monitoring Plan shall address the following requirements:

1. Data Collection Parameters

   West Side Performing Settling Defendants shall specify the locations of compliance and sentinel wells in the shallow and deep groundwater zones. Such wells shall comply with and be adequate to meet the Performance Criteria. The Compliance Monitoring Plan shall contain sufficient information for EPA to assess whether the compliance and sentinel wells meet Performance Criteria. West Side Performing Settling Defendants shall specify sampling methods, data analysis procedures, and, at a minimum, a quarterly sampling frequency.

2. Computer Modeling

   West Side Performing Settling Defendants may be required by EPA to perform computer model simulations of groundwater flow and contaminant migration as part of compliance monitoring or to evaluate modifications to the extraction plan, if needed. The Compliance Monitoring Plan shall describe proposed changes to the calibration of an existing model, or propose a schedule for providing such information. All models must be calibrated by West Side Performing Settling Defendants and approved by EPA prior to use. If modeling work is performed, wells that are not considered part of the remedial action, but which do cause hydraulic influence, will be accounted for in the modeling simulations.

   Subject to approval by EPA, West Side Performing Settling Defendants may propose alternative methods of evaluating whether the remedy is achieving the compliance performance objectives, and, if needed, the nature and scope of modifications to the extraction plan.

3. Split Sampling

   The Compliance Monitoring Plan shall specify procedures for coordination of EPA or State collection of split or replicate samples.

4. Contingency Action

   The Compliance Monitoring Plan shall propose contingency plans to be used in the event that additional compliance monitoring activities are required to evaluate compliance with Performance Criteria. Contingency actions could include increases in monitoring frequency and installation

of additional groundwater monitoring wells, as approved by EPA. If compliance monitoring data indicate noncompliance, West Side Performing Settling Defendants shall submit a Compliance Action Plan to EPA within 14 days of receipt of data verifying noncompliance. Actions may include, but not necessarily be limited to, additional compliance monitoring to confirm the finding, operational modifications followed by additional compliance monitoring, or design and construction efforts for additional extraction activities.

5. Data Reporting

The Compliance Monitoring Plan shall propose electronic reporting formats to support submittal of all groundwater data to EPA.

H. Monitoring Plan(s) for Other Potential Remedial Actions

If West Side Performing Settling Defendants propose to use passive remedial actions at certain locations, and these actions are shown to be capable of compliance with applicable Performance Criteria, then West Side Performing Settling Defendants must monitor these locations in accordance with an EPA-approved monitoring plan.

I. General Monitoring Plan

Monitoring activities for wells other than the compliance and sentinel wells shall be performed in accordance with the approved General Monitoring Plan. The plan shall specify type, locations, frequencies, methods, and duration of monitoring activities. West Side Performing Settling Defendants shall submit the General Monitoring Plan no later than the date specified in the approved schedule. The General Monitoring Plan shall address the following requirements:

1. Data Collection Parameters

A description of the types of data to be collected, sampling and data gathering methods, monitoring locations, sampling frequencies, and if appropriate, minimum monitoring duration.

2. Well Discharge

West Side Performing Settling Defendants shall measure flow rates at each extraction well (and calculate volumes of water extracted) as a function of time, using a meter/totalizer installed on the discharge pipe for each extraction well. The reading on the meter/totalizer shall be

recorded at least quarterly and whenever water quality samples are collected from that well.

3. Treatment Plant Effluent/Treated Groundwater

West Side Performing Settling Defendants shall analyze treated water samples to verify attainment of groundwater treatment goals (i.e., at a minimum, MCLs, as stated in the discharge limits) and monitor operational parameters that are used as indicators of treatment facility performance or the need for maintenance. West Side Performing Settling Defendants shall propose appropriate parameters and schedules for sampling of treated groundwater to ensure compliance with ARARs. After a period of initial monitoring, West Side Performing Settling Defendants may propose criteria for subsequent reductions in sampling and/or analysis frequencies if the sampling results support such reductions.

4. Contaminant Mass Removal

Though mass removal is not one of EPA's remedy performance criteria described in Section III of this SOW, West Side Performing Settling Defendants shall track the cumulative mass of contaminants removed from the aquifer. The contaminants to be monitored for contaminant mass removal calculations, the rationale for their selection, and the frequency of these calculations, will be described in the General Monitoring Plan, subject to EPA approval.

5. Aquifer Testing

West Side Performing Settling Defendants shall perform aquifer tests at new extraction wells to estimate aquifer transmissivity in the vicinity of the wells.

6. Air Emissions Monitoring

If applicable, West Side Performing Settling Defendants shall perform air emission monitoring to verify that air emissions from treatment operations do not exceed ARARs.

7. Data Analysis and Reporting

The General Monitoring Plan shall also describe how the performance data will be analyzed, interpreted, and reported to evaluate compliance with ARARs. All data shall be submitted by the deadlines specified in an

agreed upon schedule. Claims of change, difference, or trend in water quality or other parameters (e.g., between observed values and an ARAR) shall include the use of appropriate statistical concepts and tests.

All analytical data, whether or not validated, shall be submitted to EPA within 60 calendar days of sample shipment to the laboratory or 14 days of receipt of analytical results from the laboratory, whichever occurs first. All analytical data, previously validated and in electronic format in an approved data structure, shall be submitted within 90 calendar days of the sample shipment to the laboratory. Well construction information shall be submitted at the completion of the initial sampling activities or within 90 days after completion of a well, whichever is earlier.

8. Split Sampling

The General Monitoring Plan shall also specify procedures for coordination of EPA or State collection of split or replicate samples.

9. Reporting Requirements to Support the Compliance Monitoring Plan and General Monitoring Plan

The General Monitoring Plan shall provide a brief description of the contents and format for the Quarterly Compliance Monitoring Reports and Performance Evaluation Reports (see below).

EPA may also request periodic updates of selected deliverables (e.g., Work Plan, Sampling Plan, Monitoring Plans, etc.) described in this section of the SOW, as more information is gathered or as conditions change during implementation of the RD/RA.

J. Performance Evaluation Reports

Performance Evaluation Reports shall include: summaries of compliance monitoring activities conducted since the previous reporting period (including summaries of Compliance Monitoring Reports); updated water level contour maps showing measured water levels, including capture zones for extraction wells; field data to demonstrate hydraulic control; measured contaminant concentrations and associated contour maps; the interpreted extent of contamination; and appropriate groundwater modeling results used to confirm compliance, including a detailed description and explanation of improvements made to the computer model of groundwater flow and contaminant migration in the preceding year and the resulting calibration; summaries of relevant operating and field data, including mass removal; any preliminary calculations and supporting data used to evaluate compliance; descriptions of the nature of,

duration of, and response to any noncompliance; and any other requirements outlined in the General Monitoring Plan and the Compliance Monitoring Plan.

Initially, at a minimum, individual contaminant contour maps shall be prepared indicating the extent of PCE, TCE (shallow and deep zones), perchlorate, 1,4-dioxane, NDMA, and hexavalent chromium (shallow zone) contamination. Additional contour maps shall be prepared if requested by EPA to indicate the extent of contamination in additional depth intervals, or for additional contaminants. Assumptions made in excluding, truncating, averaging, or otherwise selecting or manipulating the data to be used in preparing the contour maps should be clearly stated. Performance Evaluation Reports shall be provided as described in Section V of this SOW.

K. Progress Reports

West Side Performing Settling Defendants shall submit reports on progress of work required under the Consent Decree and this SOW. These progress reports shall provide information as required by Section X of the Consent Decree, except where such information is presented in other reports submitted regularly as required under this SOW, and will be due monthly, as described in Section V of this SOW. The frequency of progress reports may be decreased in the future if the progress of work support such a decrease, and West Side Performing Settling Defendants obtain EPA approval. Standard format reporting can be used, with the ultimate goal of making the Progress Reports standardized, and adopting a compliance management by exception style.

L. Compliance Monitoring Reports

The Compliance Monitoring Reports shall include: measured contaminant concentrations at compliance wells; charts showing contaminant concentrations versus time at compliance wells; assessments and statements regarding whether Performance Criteria have been exceeded at compliance wells; predictions, if appropriate, of possible future occurrences of noncompliance; any relevant preliminary calculations and supporting data used to evaluate compliance; and any other relevant requirements outlined in the Compliance Monitoring Plan. Compliance Monitoring Reports will be due every three months, as described in Section V of this SOW. The frequency of compliance monitoring reports may be decreased in the future if the monitoring data support such a decrease, and West Side Performing Settling Defendants obtain EPA approval. The reports may be presented in a graphical format.

M. *Supporting Plans*

1. Sampling and Analysis Plan and Health and Safety Plan

Sampling and Analysis Plan. In accordance with Section VIII of the Consent Decree, West Side Performing Settling Defendants shall prepare a Sampling and Analysis Plan (SAP), or update an existing Plan to perform compliance and general monitoring and carry out any other field investigations needed to complete the remedial design, and construct and operate the remedial action. The Plan shall discuss the timing of data collection activities, including data collection activities needed to establish baseline conditions before startup of the remedial action.

The SAP shall include a Field Sampling and Analysis Plan (FSAP), a Quality Assurance Project Plan (QAPP), and a schedule for implementation of all field activities including but not limited to well installation, sampling, analysis, and reporting activities. The FSAP and QAPP may be submitted as one document or separately, and may reference an existing FSAP or QAPP. Upon EPA approval, West Side Performing Settling Defendants shall proceed to implement the sampling activities described in the SAP.

a. The FSAP shall describe sampling objectives, analytical parameters, sample locations and frequencies, sampling equipment and procedures, sample handling and analysis, management of investigation-derived wastes, and planned uses of the data. The FSAP shall be consistent with "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects" (Document Control No. 9QA-06-89, April 1990), and other applicable guidance. It shall be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. The FSAP shall include a description of the arrangements for disposal of investigation-derived waste.

b. The QAPP shall describe project objectives, organizational and functional activities, data quality objectives (DQOs), and quality assurance and quality control (QA/QC) protocols that shall be used to achieve the desired DQOs. The QAPP shall be consistent with "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, November 1999), and "Guidance for the Data Quality Objectives Process" (EPA QA/G-4, September 1994) and other applicable guidance (see list of references). The DQOs shall, at a minimum, reflect use of

analytical methods for obtaining data of sufficient quality to meet National Contingency Plan requirements as identified at 40 CFR 300.435 (b). In addition, the QAPP shall address personnel qualifications, sampling procedures, sample custody, analytical procedures, document control procedures, preservation of records (see Sections VIII, XXIV, and XXV of the Consent Decree), data reduction, data validation, data management, procedures that will be used to enter, store, correct, manipulate, and analyze data; protocols for transferring data to EPA in electronic format; and document management.

West Side Performing Settling Defendants shall demonstrate in advance and to EPA's satisfaction that each laboratory they may use is qualified to conduct the proposed work and meets the requirements specified in Section VIII of the Consent Decree. EPA may require that West Side Performing Settling Defendants submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specification, and laboratory analyses of performance samples (blank and/or spike samples). In addition, EPA may require submittal of data packages equivalent to those generated by the EPA contract laboratory program (CLP).

Health and Safety Plan. To ensure protection of on-site personnel and area residents from hazards posed by sampling activities, West Side Performing Settling Defendants shall also develop a Health and Safety Plan (or update an existing Plan). The Plan shall be in conformance with U.S. Occupational, Safety, and Health Administration (OSHA) requirements as outlined in 29 CFR §§1910 and 1926, and any other applicable requirements. The Health and Safety Plan shall describe health and safety risks, employee training, monitoring and personal protective equipment, medical monitoring, levels of protection, safe work practices and safeguards, contingency and emergency planning, and provisions for site control. EPA will review but will neither approve nor disapprove West Side Performing Settling Defendants' Health and Safety Plan.

2. Construction Quality Assurance Plan

West Side Performing Settling Defendants shall develop and implement a Construction Quality Assurance Plan to ensure, with a reasonable degree of certainty, that the completed Remedial Action meets or exceeds all design criteria, plans and specifications, and Performance Standards. The

Construction Quality Assurance Plan shall include the following elements:

a. Responsibilities and authorities of all organizations and key personnel involved in the design and construction of the Remedial Action;

b. A description of the quality control organization, including a chart showing lines of authority, members of the Quality Assurance team, their responsibilities and qualifications, and acknowledgment that the Quality Assurance team will implement the quality control system for all aspects of the work specified and shall report to the West Side Performing Settling Defendants' Project Coordinator and EPA. Members of the Quality Assurance team shall have a good professional and ethical reputation, previous experience in the type of QA/QC activities to be implemented, and demonstrated capability to perform the required activities. They shall also be independent of the construction contractor;

c. Description of the observations, inspections, and control testing that will be used to assure quality workmanship, verify compliance with the plans and specifications, or meet other QC objectives during implementation of the Remedial Action. This includes identification of sample size, sample locations, and sample collection or testing frequency; and acceptance and rejection criteria. The Plan shall specify laboratories to be used, and include information which certifies that personnel and laboratories performing the tests are qualified and the equipment and procedures to be used comply with applicable standards;

d. Reporting procedures, frequency, and format for QA/QC activities. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records shall be presented in the Construction Quality Assurance Plan. The QA official shall report simultaneously to the West Side Performing Settling Defendants' representative and to EPA; and

e. A list of definable features of the work to be performed. A definable feature of work is a task which is separate and distinct from other tasks and has separate quality control requirements.

3. Construction Health and Safety Plan

West Side Performing Settling Defendants shall prepare a Construction Health and Safety Plan in compliance with OSHA regulations and protocols and other applicable requirements. The Construction Health and Safety Plan shall describe health and safety risks, employee training, monitoring and personal protective equipment, medical monitoring, individuals responsible in an emergency, and provisions for site control for workers and for visitors to the job site. EPA will review but neither approve nor disapprove West Side Performing Settling Defendants' Construction Health and Safety Plan.

N. Work Complete Report

As specified in the approved schedule included in Section V of this SOW, after all phases of the Work (including O&M) under the Consent Decree have been performed, West Side Performing Settling Defendants shall submit a Work Complete Report. In the report, a registered Professional Engineer and West Side Performing Settling Defendants' Project Coordinator shall state that the Work has been completed in full satisfaction of the requirements of the Consent Decree. The written report shall provide a synopsis of the work defined in this SOW, describe deviations from the RD/RA Work Plan, provide actual costs of the Remedial Action (and O&M), and provide a summary of the results of operational and performance monitoring completed. The report shall contain the following statement, signed by a responsible corporate official of the West Side Performing Settling Defendants or the West Side Performing Settling Defendants' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is 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."

V. Schedule for Major Deliverables and Other Tasks [*Note: schedule to be revised as necessary to account for work completed prior to Consent Decree*]

This schedule assumes a Design-Build approach will be utilized.

	DUE DATE
Lodging Date of Consent Decree	
Notification of Project Coordinator (as required by Section XII of the Consent Decree)	Twenty (20) days after the lodging date of the consent Decree
SUBMITTALS	
Compliance and Sentinel Well Network Plan	Thirty (30) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised Plan due 14 days after receipt of EPA comments
Initiate Compliance and Sentinel Well Installation	Forty-five (45) days after EPA approval of Compliance and Sentinel Well Network Plan
Compliance and Sentinel Well Installation Report	Forty five (45) days after completion of compliance and sentinel installation activities (EPA review time of 14 days)[1] If necessary, revised Report due 21days after receipt of EPA comments
Compliance and Sentinel Well Network Monitoring Plan	Thirty (30) days after EPA approval of Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised Plan due 21 days after receipt of EPA comments

ACTIVITY	DUE DATE
RD/RA Work Plan	Forty five (45) days after EPA approval of the Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
General Monitoring Plan	Sixty (60) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 30 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
REMEDIAL DESIGN	
Notification of Supervising Contractor (as required by Section VI of the Consent Decree)	Ninety (90) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised contractor list due 30 days after receipt of EPA comments
RD/RA Work Plan	Update, as necessary
Conceptual and Preliminary Remedial Design Submittal	Ninety (90) days after approval of RD/RA Work Plan (EPA review time of 28 days)[1] If necessary, revised design due 28 days after receipt of EPA comments
Intermediate Remedial Design Submittal	Not required
Construction Bid Packages	Forty five (45) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 28 days)[1]
As-Built Construction Drawings	Concurrent with Remedial Action Construction Report

ACTIVITY	DUE DATE
REMEDIAL ACTION	
Selection of Construction Sub Contractors	Sixty days (60) days after issuance of bid packages
Notification of Selected Construction Sub Contractors	Within 5 days of selection
Pre-Construction Meeting	Twenty one (21) days after selection of construction sub contractors
Initiate Construction	Fourteen (14) days after Pre-Construction Meeting
Complete Construction	Per milestone schedule in EPA approved Conceptual and Preliminary Design Submittal
Pre-Final Construction Inspection	Fourteen (14) days after West Side Performing Settling Defendant determines that the remedial action is operating as designed
Pre-Final Construction Inspection Report	Fourteen (14) days after Pre-Final Construction Inspection
Final Construction Inspection (if needed)	To be defined in the Pre-Final Construction Inspection Report
Final Construction Inspection Report (if needed)	Fourteen (14) days after Final Construction Inspection
Remedial Action Construction Report	Draft due sixty (60) days after EPA approval of Pre-Final/Final Construction Inspection Report (EPA review time of 28 days)[1] If needed, revised Report due 28 days after receipt of EPA comments

ACTIVITY	DUE DATE
Interim Remedial Action Report	Draft due two hundred and seventy (270) days after EPA approval of the Remedial Action Construction Report or fourteen (14) days after West Side Performing Settling Defendant determines that performance criteria for the remedial action are being met, whichever is earlier (EPA review time of 28 days)[1] If needed, revised Report due 28 days after receipt of EPA comments
[illegible]	
Operation and Maintenance Manual	Draft Manual due 14 days after pre-Final/Final Construction Inspection If requested by EPA, revised Manual due 21 days after receipt of EPA comments
[illegible]	
Performance Evaluation Reports	Due every 6 months for first three years, and annually thereafter following EPA approval of Remedial Action Construction Report
Progress Reports	Due monthly, beginning thirty (30) days after the lodging date of the Consent Decree
Quarterly Compliance and Sentinel Well Network Monitoring Reports	Per schedule in the EPA approved Compliance and Sentinel Well Network Monitoring Plan
Non-compliance Notification	Due seven (7) days after receipt of information indicating non-compliance
Compliance Action Plan	Draft due fourteen (14) days after receipt of information indicating non-compliance
Compliance Correction Report	As established in an EPA approved Compliance Action Plan

[illegible]	DUE DATE
[illegible] REPORTING PLANS	
Sampling and Analysis Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Site Health and Safety Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Construction Quality Assurance Plan, Construction Health and Safety Plan	Concurrent with Conceptual and Preliminary Design Submittal
[illegible] [illegible] [illegible] [illegible]	
Pre-Certification Inspection for Completion of the Work	Forty-five (45) days after West Side Performing Settling Defendant concludes that all Work has been performed, including completion of all Operation and Maintenance activities
Certification that all Work has been Completed	Thirty (30) days after the pre-certification inspection

1. Estimated time, in calendar days. Failure to review a deliverable within the estimated time shall not constitute a violation of the Consent Decree by the United States.

This schedule assumes a Design-Bid-Build approach will be utilized.

ACTIVITY	DUE DATE
Lodging Date of Consent Decree	
Notification of Project Coordinator (as required by Section XII of the Consent Decree)	Twenty (20) days after the lodging date of the Consent Decree
[illegible]	
Compliance and Sentinel Well Network Plan	Thirty (30) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised Plan due 14 days after receipt of EPA comments
Initiate Compliance and Sentinel Well Installation	Forty-five (45) days after EPA approval of Compliance and Sentinel Well Network Plan
Compliance and Sentinel Well Installation Report	Forty five (45) days after completion of compliance and sentinel installation activities (EPA review time of 14 days)[1] If necessary, revised Report due 21days after receipt of EPA comments
Compliance and Sentinel Well Network Monitoring Plan	Thirty (30) days after EPA approval of Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised Plan due 21 days after receipt of EPA comments

ACTIVITY	DUE DATE
RD/RA Work Plan	Forty five (45) days after EPA approval of the Compliance and Sentinel Well Installation Report (EPA review time of 21 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
General Monitoring Plan	Sixty (60) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 30 days)[1] If necessary, revised plan due 21 days after receipt of EPA comments
[illegible]	
Notification of Supervising Contractor (as required by Section VI of the Consent Decree)	Ninety (90) days after the lodging date of the Consent Decree (EPA review time of 14 days) [1] If necessary, revised contractor list due 30 days after receipt of EPA comments
RD/RA Work Plan	Update, as necessary
Conceptual and Preliminary Remedial Design Submittal	Ninety (90) days after approval of RD/RA Work Plan (EPA review time of 28 days)[1] If necessary, revised design due 28 days after receipt of EPA comments
Intermediate Remedial Design Submittal	Not required
Pre-Final Remedial Design Submittal	Ninety (90) days after EPA approval of Conceptual and Preliminary Design Submittal (EPA review time of 28 days)[1]

[illegible]	[illegible]
Final Remedial Design Submittal (if needed)	Twenty one (21) days after EPA approval of Pre-Final Remedial Design Submittal (EPA review time of 14 days)[1]
[illegible]	
Selection of Construction Contractor	Sixty days (60) days after EPA approval of Pre-Final/Final Remedial Design Submittal
Notification of Selected Construction Contractor	Within 5 days of selection
Pre-Construction Meeting	Fourteen (14) days after EPA approval of selected construction contractor
Initiate Construction	Fourteen (14) days after Pre-Construction Meeting
Complete Construction	Per milestone schedule in EPA approved Pre-Final/Final Design Submittal
Pre-Final Construction Inspection	Fourteen (14) days after West Side Performing Settling Defendant determines that the remedial action is operating as designed
Pre-Final Construction Inspection Report	Fourteen (14) days after Pre-Final Construction Inspection
Final Construction Inspection (if needed)	To be defined in the Pre-Final Construction Inspection Report
Final Construction Inspection Report (if needed)	Fourteen (14) days after Final Construction Inspection

ACTIVITY	DUE DATE
Remedial Action Construction Report	Draft due sixty (60) days after EPA approval of Pre-Final/Final Construction Inspection Report (EPA review time of 28 days)[1] If needed, revised Report due 28 days after receipt of EPA comments
Interim Remedial Action Report	Draft due two hundred and seventy (270) days after EPA approval of the Remedial Action Construction Report or fourteen (14) days after West Side Performing Settling Defendant determines that performance criteria for the remedial action are being met, whichever is earlier (EPA review time of 28 days)[1] If needed, revised Report due 28 days after receipt of EPA comments
[illegible]	
Operation and Maintenance Manual	Draft Manual due 14 days after pre-Final/Final Construction Inspection If requested by EPA, revised Manual due 21 days after receipt of EPA comments
[illegible]	
Performance Evaluation Reports	Due every 6 months for first three years, and annually thereafter following EPA approval of Remedial Action Construction Report
Progress Reports	Due monthly, beginning thirty (30) days after the lodging date of the Consent Decree
Quarterly Compliance and Sentinel Well Network Monitoring Reports	Per schedule in the EPA approved Compliance and Sentinel Well Network Monitoring Plan
Non-compliance Notification	Due seven (7) days after receipt of information indicating non-compliance

ACTIVITY	DUE DATE
Compliance Action Plan	Draft due fourteen (14) days after receipt of information indicating non-compliance
Compliance Correction Report	As established in an EPA approved Compliance Action Plan
REPORTING [illegible]	
Sampling and Analysis Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Site Health and Safety Plan	No later than the date of the Conceptual and Preliminary Remedial Design submittal
Construction Quality Assurance Plan, Construction Health and Safety Plan	No later than the date of the Pre-final/Final Remedial Design Submittal
CERTIFICATION REQUIRING INSPECTION [illegible]	
Pre-Certification Inspection for Completion of the Work	Forty-five (45) days after West Side Performing Settling Defendant concludes that all Work has been performed, including completion of all Operation and Maintenance activities
Certification that all Work has been Completed	Thirty (30) days after the pre-certification inspection

1. Estimated time, in calendar days. Failure to review a deliverable within the estimated time shall not constitute a violation of the Consent Decree by the United States.

VI. References

The following list, although not comprehensive, provides citations for many of the regulations and guidance documents that apply to the RD/RA process. West Side Performing Settling Defendants shall review these guidance documents and shall use the information provided therein in performing the RD/RA and preparing all deliverables under this SOW.

"National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule," 40 CFR, Part 300.

"Superfund Remedial Design/ Remedial Action Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1995 (EPA 540/R-95/059).

"Interim Final Guidance on Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties," U.S. EPA, Office of Emergency and Remedial Response, February 14, 1990, OSWER Directive No. 9355.5-01.

"EPA NEIC Policies and Procedures Manual," U.S. EPA, May 1978, revised May 1986.

"Guidance for the Data Quality Objectives Process" U.S. EPA, (EPA QA/G-4).

"EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," May 1994, U.S. EPA, (EPA QA/R-5).

"Guidance for Quality Assurance Project Plans," February 1998, U.S. EPA, (EPA QA/G-5).

"Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects," April 1990, U.S. EPA, (No. 9QA-06-89).

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (Draft), OSWER Directive No. 9283.1-2.

"Methods for Monitoring Pump-and-Treat Performance," U.S. EPA, Office of Research and Development, June 1994 (EPA 600/R-94/123).

Figure 1
(pdf file)

El Monte OU

Approximate Post-RI/FS

Well Locations

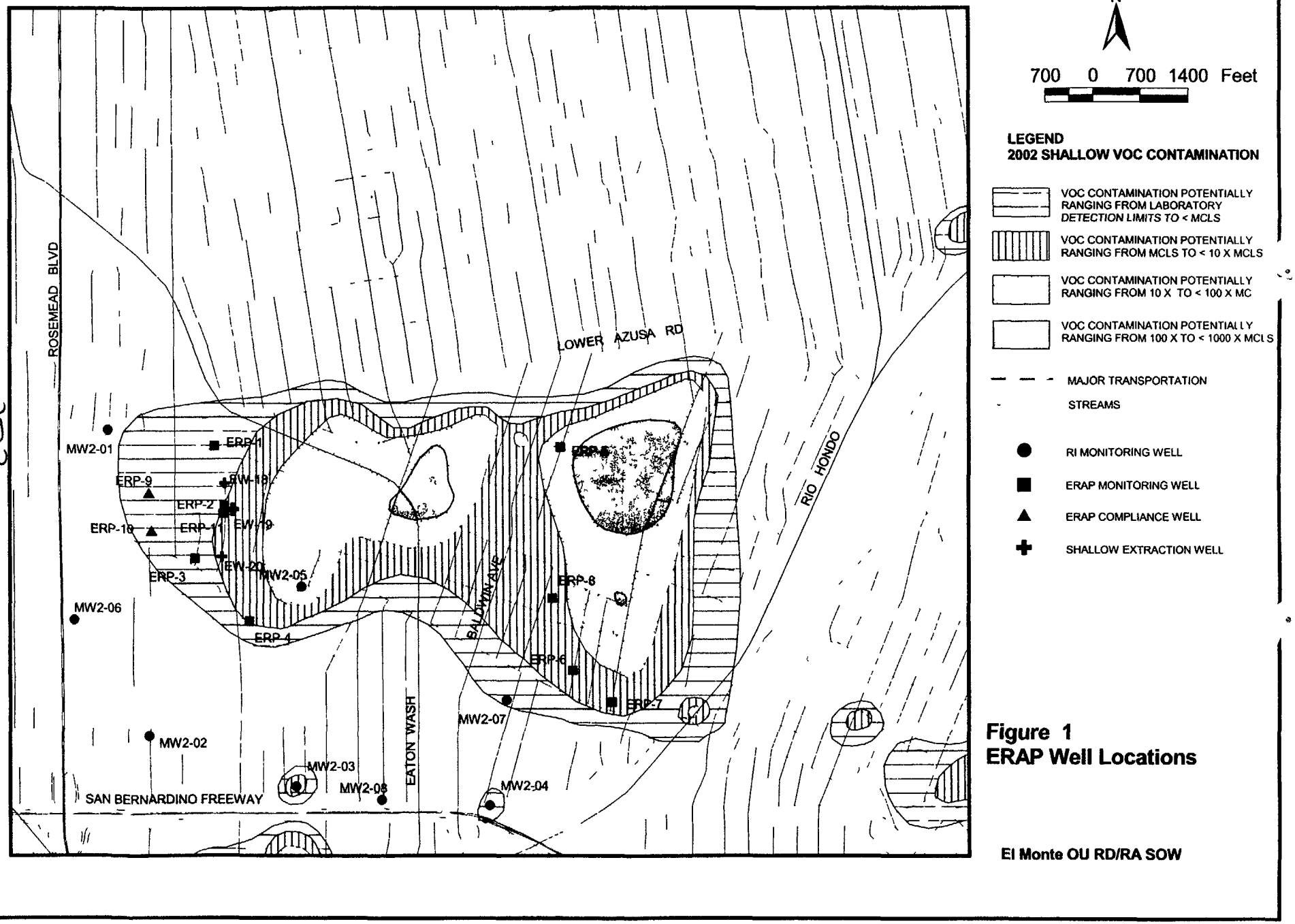


Figure 1
ERAP Well Locations

El Monte OU RD/RA SOW

Table 1
(pdf file)

El Monte OU

Water Quality Data

Early Response Action Program Monitoring

Table 1
El Monte OU
Water Quality Data
RI Monitoring, Early Response Action Program Monitoring (ERAP), and ERAP Extraction Wells

Well	Screened Interval (feet bgs)	Sample Date (mo/year)	PCE	TCE	1,2-DCA	1,1-DCE	c-1,2-DCE	1,1-DCA	1,1,1-TCA	CFM	MC	CCl_4	PER	NDMA	14A	Cr^{+6}	NO_3 (mg/L)	TDS (mg/L)
ERP-1	97 117	Jan 99	0 89	3 2	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	68	--
		Sep-99	<0 5/<0 5	3 5/3 2	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<10/<10	<0 5/<0 5	--	--	--	--	75/76	--
		Jun-00	<0 5	2 9	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
		Nov-01	<0 5	4 4	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	110	540
ERP 2	82-102	Dec-98	<0 5	14	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	100	--
		Sep-99	0 72	10	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	120	--
		Jun-00	3	31	<1	<1	<1	<1	<1	<1	<10	<1	9 6	0 0024	0 23	--	--	--
ERP 3	85-105	Jan-99	0 7	0 69	<0 5	<0 5	<0 5	<0 5	<0 5	22	<10	<0 5	--	--	--	--	19	--
		Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	19	<10	<0 5	--	--	--	--	28	--
		Jun-00	<1	<1	<1	<1	<1	<1	<1	34	<10	<1	--	--	--	--	--	--
		Nov-01	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	39	<5	<0 5	--	--	--	--	29	680
ERP-4	70-90	Jan-99	2 9	1 8	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	54	--
		Sep-99	2 9	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	47	--
		Jun-00	4 9	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
		Nov-01	6 9	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	1 5	<5	<0 5	--	--	--	--	57	510
ERP 5	69-89	Jan-99	150	610	<2 5	<2 5	<2 5	<2 5	<2 5	<2 5	<50	20	--	--	--	--	79	--
		Sep-99	230	920	<5	<5	<5	<5	<5	<5	<100	27	--	--	--	--	73	--
		Jun-00	180	760	<25	<25	<25	<25	<25	<25	<250	<25	<4	0 0041	0 0351	--	--	--
		Aug-01	120	480	<0 5	2 2	0 53	<0 5	<0 5	0 69	<5	15	<4	--	<0 5	4 5	110	620
ERP-6	40-60	Jan-99	14/12	18/16	<0 5/<0 5	0 51/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<10/<10	<0 5/<0 5	--	--	--	--	180/180	--
		Sep-99	29	42	<1	1 9	<1	<1	<1	<1	<20	<1	--	--	--	--	180	--
		Jun-00	22/24	18/19	<0 5/<0 5	1 1/1 1	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<5/<5	<0 5/<0 5	4 3/3 3J	0 0016J/0 0024	0 23/0 18	--	--	--
ERP-7	42-62	Dec-98	84	180	<2 5	<2 5	<2 5	<2 5	<2 5	<2 5	<50	<2 5	--	--	--	--	90	--
		Sep-99	14	25	<0 5	0 55	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	81	--
		Aug-01	3 9	7 2	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	--	--	19	150	970
		Nov-01	4 5	8 3	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	--	--	18	140	1 100
ERP-8 (zone 3)	155-165	Apr 99	0 56	4 3	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	39	--
		Sep-99	<0 5	<0 5	<0 5	<0 5	<0 6	<0 7	<0 8	<0 9	<0 10	<0 11	<0 12	<0 13	<0 14	--	<0 5	--
		Nov-00	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
ERP-8 (zone 2)	255-265	Apr-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	14	--
		Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	14	--
		Nov-00	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
		Jun-03	<1	<1	<1	<2	<1	<1	<1	<1	<10	<2	--	--	--	--	--	--
ERP-8 (zone 1)	360-370	Apr 99	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<10/<10	<0 5/<0 5	--	--	--	--	2/1 9	--
		Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	0 79	--
		Nov-00	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
		Jun-03	2 1	9	<1	<2	<1	<1	<1	<1	<10	<2	--	--	--	--	--	--
ERP 9	96-116	Aug-01	1 8	3 3	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	18	490
ERP 10	96-116	Aug-01	1 9	1 8	<0 5	<0 5	<0 5	<0 5	<0 5	33	<5	<0 5	--	--	--	--	21	550
ERP 11	161-171	May-02	<0 5	11	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	42	320
EW-18[a]	80-110	Jun-00	<0 5	7	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
		Aug-00	<0 5	7 4	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	<0 002	0 12	--	95	560
		Aug-01	<0 5	1 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	5 8	--	<0 5	8 3	--	560
EW 19[a]	80-110	Jun-00	3	36	<1	<1	<1	<1	<1	<1	<10	<1	--	--	--	--	--	--
		Jul-00	4 1	41	<1	<1	<1	<1	<1	<1	<10	<1	4 7	<0 002	0 37	--	93	540
		Aug-01	<0 5/<0 5	4 3/4 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<5/<5	<0 5/<0 5	6 3/7 2	--	<0 5/<0 5	10/10	--	670
EW 20[a]	80-110	Jun-00	1 5	42	<1 3	<1 3	<1 3	<1 3	<1 3	<1 3	<13	<1 3	--	--	--	--	--	--
		Aug-00	1 6	40	<1	<1	<1	<1	<1	<1	<10	<1	<4	<0 002	0 51	--	73	570
		Aug-01	1 5	40	0 62	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	5	--	<0 5	12	--	610
MW2-01	120-140	Sep-99	1 4	2 7	<0 5	<0 5	<0 5	<0 5	<0 5	0 51	<10	<0 5	--	--	--	--	69	
		Jun-00	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
		Nov-01	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<5/<5	<0 5/<0 5	--	--	--	--	92/88	560/610
MW2-02	60-80	Sep-99	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<10/<10	<0 5/<0 5	--	--	--	--	69/70	
		Nov-01	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	96	660

Table 1
El Monte OU
Water Quality Data
RI Monitoring, Early Response Action Program Monitoring (ERAP), and ERAP Extraction Wells

Well	Screened Interval (feet bgs)	Sample Date (mo/year)	PCE	TCE	1,2-DCA	1,1-DCE	c-1,2-DCE	1,1-DCA	1,1,1-TCA	CFM	MC	CCl_4	PER	NDMA	14A	Cr^{+6}	NO_3 (mg/L)	TDS (mg/L)
MW2-05 (zone 4)	110-120	Sep-99	25	42	<1	<1	<1	<1	<1	<1	<20	<1	--	--	--	--	85	--
		Dec-00	23	38	<1	1 6	1 3	<1	<1	<1	<10	<1	8 1	0 002J	0 28	--	--	--
		Oct-01	56/49	56/54	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<5/<5	<0 5/<0 5	5 2/5 8	0 0048/0 0041	1 7/1 7	13/12	85/94	520/520
MW2-05 (zone 3)	180-190	Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	--	--
MW2-05 (zone 2)	280-290	Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	<0 5	--
MW2-05 (zone 1)	374-384	Sep-99	0 65	2 8	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	11	--
		Dec-00	<0 5	2 2	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	0 0014J	0 03	--	--	--
MW2-06 (zone 3)	154-164	Sep-99	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<10/<10	<0 5/<0 5	--	--	--	--	22/22	--
		Oct-01	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	23	300
MW2-06 (zone 2)	274-284	Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	1 2	--
		Oct-01	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	3 1	230
MW2-06 (zone 1)	364-374	Sep-99	2 5	2	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	17	--
		Dec-00	2 3	2	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5				--	--	--
MW2-07 (zone 5)	54-64	Sep-99	2 2	2 1	<0 5	2 6	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	190	--
		Oct-01	0 97	0 97	<0 5	0 83	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	190	1 000
MW2-07 (zone 4)	105-115	Sep-99	39	88	<1 3	1 6	<1 3	<1 3	<1 3	<1 3	<25	<1 3	--	--	--	--	79	--
		Dec-00	12/15	20/25	<0 5/<0 5	0 92/1	0 93/1 1	<0 5/<0 5	<0 5/<0 5	<0 5/<0 5	<5/<5	<0 5/<0 5	<4	<0 002	0 12	--	--	--
		Oct-01	1 8	2 2	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	<0 002	0 5	6 3	57	640
MW2-07 (zone 3)	180-190	Sep-99	0 55	3 7	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	7 6	--
		Nov-00	<0 5	2 7	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
MW2-07 (zone 2)	280-290	Sep-99	3 8	9 8	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	33	--
		Nov-00	4 2	17	<0 5	<0 5	0 58	<0 5	<0 5	<0 5	<5	<0 5	--	--	0 11	--	--	--
		Jun-03	2 1/2 1	12/11	<1/<1	<2/<2	<1/<1	<1/<1	<1/<1	<1/<1	<10/<10	<2/<2	--	--	--	--	--	--
MW2-07 (zone 1)	360-370	Sep-99	0 89	2	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	13	--
		Nov-00	1 6	1 7	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	--	--
		Jun-03	6 4	<1	<1	<2	<1	<1	<1	<1	<10	<2	--	--	--	--	--	--
MW2-08 (zone 4)	130-140	Sep-99	2 3	1 6	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	50	--
		Dec-00	1 7	1 6	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	<0 002	0 01	--	--	--
		Oct-01	3 2	2 3	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	<0 002	<0 5	9 2	58	410
MW2-08 (zone 3)	228-238	Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	16	--
		Oct-01	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	<0 5	250
		Jun-03	<1	<1	<1	<2	<1	<1	<1	<1	<10	<2	--	--	--	--	--	--
MW2-08 (zone 2)	336-348	Sep-99	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	19	--
		Jun-00	2 8	0 78	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	<4	<0 002	0 0654	--	--	--
		Jun-03	3 4	<1	<1	<2	<1	<1	<1	<1	<10	<2	--	--	--	--	--	--
MW2-08 (zone 1)	388-398	Sep-99	4 1	1 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<10	<0 5	--	--	--	--	6 3	--
		Oct-01	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<5	<0 5	--	--	--	--	6 4	220
		Jun-03	<1	<1	<1	<2	<1	<1	<1	<1	<10	<2	--	--	--	--	--	--
		MCL (ug/l)	5	5	0 5	6	6	5	200	100	5	0 5	4[b]	0 01[b]	3[b]	11[c]	45 (36)	500[d] (750)

NOTES
Values in ug/l, unless otherwise indicated
Duplicate results shown where applicable J = Concentration is estimated because it falls between the method detection limit and laboratory reporting limit
PCE = Tetrachloroethene, TCE = Trichlolorethene, 1 2-DCA = 1,2-Dichloroethane, 1 1-DCE = 1,1-Dichloroethene,
C-1 2-DCE = Cis-1,2-Dichloroethene, 1,1-DCA = 1,1-Dichloroethane, 1,1,1-TCA = 1,1,1-Trichloroethane, CFM = Chloroform, MC = Methylene Chloride,
CCl_4 = Carbon Tetrachloride, PER = Perchlorate, NDMA = n Nitrosodimethylamine 14A = 1,4-Dioxane, NO_3 = Nitrate, TDS = Total Dissolved Solids
MCL = EPA or California Maximum Contaminant Level (whichever is lower), values in parentheses are Los Angeles Regional Water Quality Control Board
Basin Plan objectives for non-degradation of surface water and groundwater
-- = Not Sampled
aVOC nitrate and TDS results shown are average from samples collected during aquifer testing, bCalifornia Action Level, cCalifornia Toxics Rule 4-day average for protection of human health and freshwater aquatic life
[d]Secondary MCL

Attachment 1

June 1999 Interim Record of Decision

(See Appendix A to the Consent Decree)

Attachment 2

Explanation of Significant Differences (ESD)

(See Appendix B to the Consent Decree)

Attachment 3
Summary of Pre-Remedial Design Work
El Monte Operable Unit

Following completion of the RI/FS, the Northwest El Monte Community Task Force (NEMCTF) performed preliminary remedial design (pre-RD) work at the Site. This work, associated with the NEMCTF's Early Response Action Program (ERAP), included the following: (1) installation and sampling of eight monitoring wells in late 1998/early 1999 and preparation of an ERAP monitoring well completion report, (2) five rounds of groundwater sampling, one in December 1998/January 1999, one in September 1999, one in June 2000, one in November 2000, and one in August 2001 at selected RI, ERAP, and facility monitoring wells, including analysis for perchlorate, 1,4-dioxane, and NDMA, (3) preparation of a report evaluating discharge options for water produced from extraction wells completed in the shallow zone, (4) groundwater modeling to assist in locating shallow zone extraction wells, (5) installation, aquifer testing, and sampling of three shallow extraction wells in the western EMOU in the summer of 2000, (6) installation and sampling of two shallow zone compliance wells in the western EMOU in the Spring of 2001, and (7) installation of a third shallow zone compliance well in the western EMOU in the Spring of 2002. The following, associated, documents were prepared by Camp Dresser and McKee (CDM) on behalf of the NEMCTF:

"Sampling and Analysis Plan, Phase 1 Early Response Action Program, El Monte Operable Unit, San Gabriel Valley, Los Angeles County, California," August 31, 1998.

"EMOU Early Response Action Program, Contaminant Transport Modeling, Proposed Western Shallow Zone Extraction Well Locations," December 10, 1999.

"Phase 1A Early Response Action Program Report of Well Installations and Round 5 Groundwater Monitoring, El Monte Operable Unit, San Gabriel Valley, Los Angeles County, California ," February 15, 2000.

"Discharge Options Study Report, El Monte Operable Unit, San Gabriel Valley, Los Angeles County, California," May 8, 2000.

Figure 1 of the SOW depicts the approximate locations of the fourteen ERAP (pre-RD, post-RI/FS) wells: eight monitoring wells (ERP-1 to ERP-8), three shallow zone extraction wells (EW-18, EW-19, and EW-20), and three shallow zone compliance wells (ERP-9, ERP-10, and ERP-11). Extraction wells EW-18, EW-19, and EW-20 were installed near the current western extent of >MCL VOC contamination in the shallow zone, with the intention of containing VOCs above 10 times MCLs. Compliance wells ERP-9, ERP-10, and ERP-11 were installed downgradient of the extraction wells to assess compliance with the performance criteria for the western shallow zone. The location of the extraction wells and the compliance wells is subject to EPA's approval. Table 1 summarizes the sampling results from the ERAP monitoring, extraction, and compliance wells.

Appendix E

General Site Map

Appendix E

General Site Map

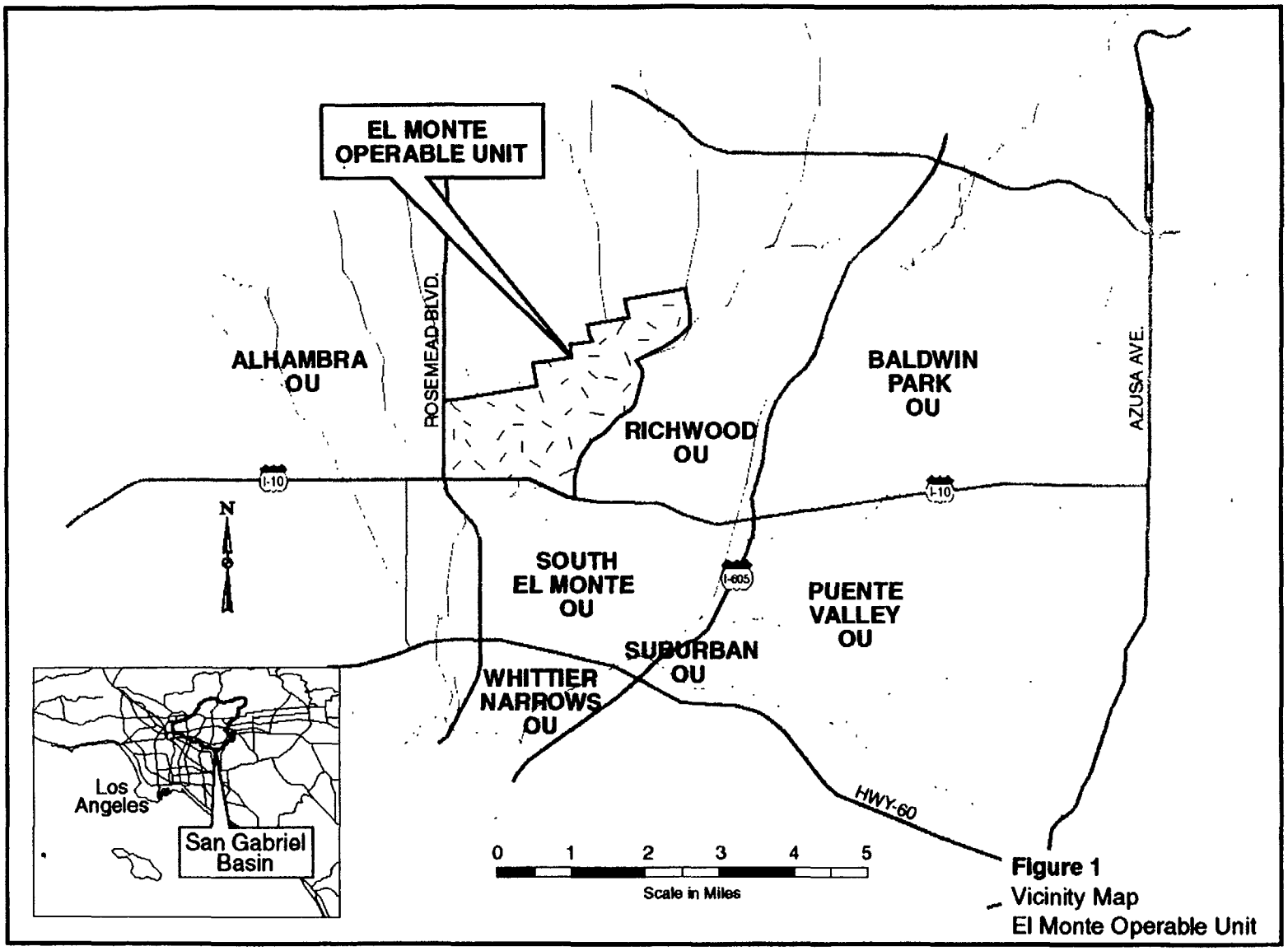


Figure 1
Vicinity Map
El Monte Operable Unit

Appendix F

List of Settling Defendants

1. "Settling Defendants" include all of the following:

Adams Family Trust, dated 11/14/86, a California trust
Sparling Instruments Co., Inc., a California corporation

Ball Glass Container Corporation, a Delaware corporation

Beagle Manufacturing Company, Inc., a California corporation
Beagle Properties, Inc., a California corporation

Brown Jordan Company, a Delaware corporation

Chadbury Company, Inc., a California corporation, f/k/a Chadwick-Helmuth Company, Inc.
Chadwick Associates, a California partnership

Clayton Industries, a California corporation
Clayton Land Holding Company, Inc., a California nonprofit corporation

Fairchild Holding Corp., a Delaware corporation

Nikko Materials USA, Inc. dba Gould Electronics, an Arizona corporation

"Grand Avenue Industrial Park Group" members:

Lyle A. Schmidt, an individual
Karen L. Schmidt, an individual
Glen E. Powell, an individual
The estate of Thalia Powell
Harbert Grand Investment Company, LLC, a California limited liability company
Larry G. Lindquist, an individual
Charleen S. Lindquist, an individual
David Rodriguez, Jr., an individual
Dolores Rodriguez, an individual

Hermetic Seal Corporation, a Delaware corporation

Johnson Controls, Inc., a Wisconsin corporation

M.C. Gill Corporation, a California corporation

Miller Dial Corp., a California corporation
Parks Properties, Inc., a California corporation

Paul Lee, an individual

PerkinElmer, Inc., a Massachusetts corporation, f/k/a EG&G Birtcher, Inc.
Birtcher Medical Systems, Inc., a California corporation,
f/k/a The Birtcher Corporation

Plato Products, Inc., a California corporation
Kenel, Inc., a California corporation
Eldred and Kent, a California general partnership

Precision Coil Spring Company, a California corporation

B. J. Sabin, an individual
Sabin Construction, Inc., a California corporation

Safety-Kleen Systems, Inc., a Wisconsin corporation

Trail Chemical Corporation, a California corporation

Union Pacific Railroad Company, a Delaware corporation

2. "East Side Performing Settling Defendants" include all of the following:

Nikko Materials USA, Inc. dba Gould Electronics

Johnson Controls, Inc.

3. "West Side Performing Settling Defendant" includes all of the following:

Hermetic Seal Corporation

4. "Contributing Settling Defendants" include all of the following:

Adams Family Trust
Sparling Instruments Co., Inc.

Ball Glass Container Corporation

Beagle Manufacturing Company, Inc.
Beagle Properties, Inc.

Brown Jordan Company

Chadbury Company, Inc., f/k/a Chadwick-Helmuth Company, Inc.
Chadwick Associates

Clayton Industries
Clayton Land Holding Company, Inc.

Fairchild Holding Corp.

"Grand Avenue Industrial Park Group" members
Lyle A. Schmidt
Karen L. Schmidt
Glen E. Powell
The estate of Thalia Powell
Harbert Grand Investment Company, LLC
Larry G. Lindquist
Charleen S. Lindquist
David Rodriguez, Jr.
Dolores Rodriguez

M.C. Gill Corporation

Miller Dial Corp.
Parks Properties, Inc.

PerkinElmer, Inc., f/k/a EG&G Birtcher, Inc.
Birtcher Medical Systems, Inc., f/k/a The Birtcher Corporation

Plato Products, Inc.
Kenel, Inc.
Eldred and Kent

Precision Coil Spring Company

B. J. Sabin
Sabin Construction, Inc.

Trail Chemical Corporation

Union Pacific Railroad Company

5. "Ability-to-Pay Settling Defendants" include all of the following:

Safety-Kleen Systems, Inc.

Paul Lee

Appendix G
Addresses for Notices Pursuant to Section XXVI (Notices and Submissions) and for Service Pursuant to Section XXXIII (Signatories/Service)

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Re: DJ # 90-11-2-354/3

Bella Dizon
Remedial Project Manager
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street,
San Francisco, CA 94105

Keith Takata
Director, Superfund Division
United States Environmental Protection Agency
Region 9
75 Hawthorne Street,
San Francisco, CA 94105

As to State of California DTSC:

Jackie Spiszman
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630-4732
Phone: (714) 484-5300
Fax: (714) 484-5302

Ann Rushton
Deputy Attorney General
Environment Section
Office of the Attorney General
300 South Spring Street
Los Angeles, CA 90013
Phone: (213) 897-2608
Fax: (213) 897-2802

Adams Family Trust
Sparling Instruments Co., Inc.

John H. Adams, Trustee
110 Mason Circle, Suite D
Concord, CA 94524

Fax: (925) 671-9636

and

Malissa Hathaway McKeith, Esq.
Miguel A. Sanqui, Esq.
Loeb & Loeb LLP
10100 Santa Monica Blvd.
Suite 2200
Los Angeles, California 90067

Fax: (310) 282-2200

Ball Glass Container Corporation

Patrick S. Looney, Esq.
Ball Corporation
10 Longs Peak Drive
Broomfield, CO 80021-2510

Fax: (303) 460-2691

and

Patricia L. Shanks, Esq.
Bingham McCutchen LLP
355 S. Grand Ave., Suite 4400
Los Angeles, CA 90071

Fax: (213) 680-6499

Beagle Manufacturing Company, Inc.

Robert S. McCracken, President
Beagle Manufacturing Co., Inc.
2136 Kings Crest Drive
West Covina, CA 91791

Fax: (626) 918-5339

Beagle Properties, Inc.

Jean L. Drabble, President
Beagle Properties, Inc.
300 N. Lake Ave., Suite 930
Pasadena, CA 91101

Fax: (310) 979-0159

and

Michael E. Mills, Esq.
Mills & Mills
1990 S. Bundy Drive, Suite 540
Los Angeles, CA 90025-5245

Fax: (310) 979-0159

Brown Jordan Company

Frank Taff, Chief Operating Officer
9860 Gidley Street
El Monte, California 91731
Fax: (626) 575-0126

and

Matthew Shaps, Esq.
Paul Hastings Janofsky & Walker, LLP
55 Second Street, 24th Floor
San Francisco, CA 94105-3441
Fax: (415) 856-7100

Chadbury Company, Inc.
Chadwick Associates

William H. Chadwick
102 Andre Drive
Arroyo Grande, CA 93420

Fax: (626) 350- 4236

and

Michael R. Leslie, Esq.
Caldwell, Leslie, Newcombe & Pettit, a Professional Corporation
1000 Wilshire Blvd., Suite 1000
Los Angeles CA 90017

Fax: (213) 629-9022

Clayton Industries

William Clayton Jr.
Chairman of the Board
Clayton Industries
4213 North Temple City Blvd.
El Monte California 92731-1091

Fax: (626) 443-5662

and

Edward S. Renwick
Hanna and Morton LLP
444 South Flower Street
Suite 1500
Los Angeles, CA 90071

Fax: (213) 623-3379

Clayton Land Holding Company, Inc.

Clayton Land Holding Co, Inc.
402 North Division Street
Carson City, Nevada 89703
Attention: Andrew MacKenzie
Vice President

Fax: (775) 882-7918

and

Brian Crozier, Esq.
Brorby, Crozier and Dobie PC
111 Congress Avenue, Suite 2250
Austin Texas 78701

Fax: (512) 320-7041

Fairchild Holding Corp.

Michael Hodge, Esq.
Fairchild Corporation
45025 Aviation Drive, Suite 400
Dulles, VA 20166-7516

Fax: (703) 478-5767

Nikko Materials USA, Inc., dba Gould Electronics

Thomas N. Rich
Chief Financial Officer and Secretary
Nikko Materials USA, Inc.
34929 Curtis Blvd.
Eastlake, OH 44095

Fax: (440) 953-5014

and

Robert A. Grantham, Esq.
Hoffman & Grantham LLP
555 W. 5th Street, 31st Floor
Los Angeles, California 90013-1018
Fax: (213) 996-8441

and

David Blount, Esq.
Landye Bennett Blumstein LLP
1300 S. W. Fifth Avenue
Suite 3500
Wells Fargo Tower
Portland, OR 97201

Fax: (503) 224-4133

"Grand Avenue Industrial Park Group" members

Michael A. Francis
Demetriou, Del Guercio, Springer & Francis, LLP
801 South Grand Avenue, Suite 1000
Los Angeles, California 90017-4613

Fax: (213) 624-0174

Hermetic Seal Corporation

Christopher H. Bateman
Chief Financial Officer
Hermetic Seal Corporation
4232 Temple City Blvd.
Rosemead, CA 91770

Fax: (626) 582-1187

and

Steve Goldfarb
455 Bella Court
St. Helena, CA 94572

Fax: (707) 967-8449

and

Thomas P. Schmidt, Esq.
Law Offices of Thomas P. Schmidt
1650 Ximeno Avenue, Suite 210
Long Beach, CA 90804

Fax: (310) 372-7706

Johnson Controls, Inc.

Dennis Reis LLC
P.O. Box 170740, Milwaukee, WI 53217
7000 N. Green Bay Ave, Glendale, WI 53209

Fax: (414) 540-1006

M.C. Gill Corporation

Kenneth A. Boudreau
M.C. Gill Corporation
4056 Easy Street
El Monte, CA 91731

Fax: (626) 279-6051

and

Richard J. McNeil, Esq.
Irell & Manella LLP
840 Newport Center Drive, Suite 400
Newport Beach, CA 92660-6324

Fax: (949) 760-5200

Miller Dial Corp.

Phil Rutten, President
Miller Dial Corp.
4400 N. Temple City Blvd.
El Monte, CA 91731

Fax: (626) 443-3267

and

Martin J. ("Kelly") McTigue
Morgan, Lewis & Bockius LLP
300 South Grand Avenue , Suite 2200
Los Angeles, CA 90071

Fax: (213) 612-2554

Parks Properties, Inc.

Vernon Giles, President
Parks Properties, Inc.
903 E. Route 66, Suite D
Glendora, CA 91740

Fax: (626) 963-6269

Paul Lee

9264 Steele Street
Rosemead, CA 91770

Fax: (626) 288-8766

PerkinElmer, Inc.

John L. Healy, Esq.
Associate General Counsel
PerkinElmer, Inc.
45 William Street
Wellesley, MA 02481

Fax (781) 431-4115

and

Craig S. Bloomgarden, Esq.
Steefel, Levitt & Weiss
550 S. Hope St., Suite 1665
Los Angeles, CA 90071

Fax (213) 599-3450

Birtcher Medical Systems, Inc.

Birtcher Medical Systems, Inc.
c/o ConMed Corporation
Att.: Daniel S. Jonas, Esq.
525 French Road
Utica, New York 13502-5994

Fax (315) 793-8929

and

Randolph C. Visser, Esq.
Morgan, Lewis & Bockius
300 S. Grand Avenue
Suite 2200
Los Angeles, California 90071-3132

Fax (213) 612-2501

Plato Products, Inc. and Kenel, Inc.

Gary Lachman, President
Plato Products, Inc.
18731 Railroad Street
Industry, CA 91748

Fax: (626) 913-9270

and

Barry C. Groveman, Esq.
Musick, Peeler & Garrett LLP
One Wilshire Blvd., 29th Floor
Los Angeles, CA 90017-3383

Fax: (213) 624-1376

Eldred and Kent

George Kent
1985 Vista
Sierra Madre, CA 91024

and

William D. Eldred
519 East Laurel Ave.
Glendora, CA 91741

Precision Coil Spring Company

Al Goering
Bert Goering
The Precision Coil Spring Company
10107 Rose Street
El Monte, California 91734

Fax (626) 444-3712

and

Malissa Hathaway McKeith, Esq.
Miguel A. Sanqui, Esq.
Loeb & Loeb LLP
10100 Santa Monica Blvd.
Suite 2200
Los Angeles, California 90067

Fax (310) 282-2200

B. J. Sabin
Sabin Construction, Inc.

B. J. Sabin
145 Alamo Hills Court
Alamo, CA 94507

Fax: (925) 838-7713

and

Patricia L. Walker, Esq.
Law Office of Patricia L. Walker
300 Arlington Way
Menlo Park, CA 94025-2319

Fax: (650) 328-9119

Safety-Kleen Systems, Inc.

Safety Kleen Systems, Inc.
Chip Duffie
5400 Legacy Drive
Cluster 2, Building 3
Plano, Texas 75024

Fax: (972) 265-2953

and

Kirk Wilkinson, Esq.
Latham & Watkins
633 W. Fifth Street
Los Angeles, CA 90071-2007

Fax: (213) 891-8763

Trail Chemical Corporation

William J. Peters
Trail Chemical Corporation
9904 Gidley Street
El Monte, CA 91731

Fax: (626) 442-4140

and

Stephen L. Marsh, Esq.
Luce Forward Hamilton & Scripps
600 W. Broadway, Suite 2600
San Diego, CA 92101-3391

Fax: (619) 645-5363

Union Pacific Railroad Company

David P. Young, Esq.
Union Pacific Railroad
1416 Dodge Street, Rm. 830
Omaha, NE 68179

Fax: (402) 271-7107

and

James A. Levy
Union Pacific Railroad
9451 Atkinson Street, Suite 100
Roseville, CA 95747-9711

Fax: (916) 789-5562

and

Patricia M. O'Toole, Esq.
The O'Toole Law Firm
P.O. Box 352348
Los Angeles, CA 90035-0260
333 South Grand Avenue, 42nd Floor
Los Angeles, CA 90071

Fax: (213) 683-1148

Appendix H

Payment Obligations of Contributing Settling Defendants

1. "De Minimis Group": The following Contributing Settling Defendants will pay, collectively, into a qualified settlement fund, established pursuant to IRC § 468B(g) by Performing Settling Defendant, Nikko Materials USA, Inc. (dba Gould Electronics), the sum of Three Million Seven Hundred Fifty Thousand Dollars ($3,750,000.00) within 70 days of the Effective Date (unless an appeal of the entry of the Consent Decree is taken, in which case the payment will not become due until 10 days after final resolution of the appeal in favor of entry): Ball Glass Container Corporation, Beagle Manufacturing Company, Inc., Beagle Properties, Inc., Brown Jordan Company, Chadbury Company, Inc. (f/k/a Chadwick-Helmuth Company, Inc.), Fairchild Holding Corp., M. C. Gill Corporation, Miller Dial Corp., Precision Coil Spring Company, B. J. Sabin, and Union Pacific Railroad Company.

2. "West Side Settlors" Group: The following Contributing Settling Defendants will pay to Performing Settling Defendant, Hermetic Seal Corporation, their respective shares of the sum of Two Million Six Hundred Fifty Thousand Dollars ($2,650,000.00) within 30 days after execution of this Consent Decree by all Parties hereto: Adams Family Trust, Clayton Industries, and Plato Products, Inc., Kenel, Inc. and Eldred and Kent.

3. "Grand Avenue Industrial Park Group": The following Contributing Settling Defendants will pay into a qualified settlement fund, established pursuant to IRC § 468B(g) by Performing Settling Defendant, Nikko Materials USA, Inc. (dba Gould Electronics), their respective shares of the sum of Three Hundred Thousand Dollars ($300,000.00) within 70 days of the Effective Date (unless an appeal of the entry of the Consent Decree is taken, in which case the payment will not become due until 10 days after final resolution of the appeal in favor of entry): Lyle A. Schmidt, Karen L. Schmidt, Glen E. Powell, the estate of Thalia Powell, Harbert Grand Investment Company, LLC, Larry G. Lindquist, Charleen S. Lindquist, David Rodriguez, Jr., and Dolores Rodriguez.

4. Trail Chemical Corporation: Contributing Settling Defendant, Trail Chemical Corporation, will pay into a qualified settlement fund, established pursuant to IRC § 468B(g) by Performing Settling Defendant, Nikko Materials USA, Inc. (dba Gould Electronics), the sum of

One Hundred Eighty-Seven Thousand Five Hundred Dollars ($187,500.00) within 70 days of the Effective Date (unless an appeal of the entry of the Consent Decree is taken, in which case the payment will not become due until 10 days after final resolution of the appeal in favor of entry).

5. PerkinElmer, Inc.: Contributing Settling Defendant, PerkinElmer, Inc., will pay into a qualified settlement fund, established pursuant to IRC § 468B(g) by Performing Settling Defendant, Nikko Materials USA, Inc. (dba Gould Electronics), the sum of Eight Hundred Thousand Dollars ($800,000.00) within 70 days of the Effective Date (unless an appeal of the entry of the Consent Decree is taken, in which case the payment will not become due until 10 days after final resolution of the appeal in favor of entry).

6. Birtcher Medical Systems, Inc.: Contributing Settling Defendant, Birtcher Medical Systems, Inc., will pay into a qualified settlement fund, established pursuant to IRC § 468B(g) by Performing Settling Defendant, Nikko Materials USA, Inc. (dba Gould Electronics), the sum of One Million Twenty-Five Thousand Dollars ($1,025,000.00) within 70 days of the Effective Date (unless an appeal of the entry of the Consent Decree is taken, in which case the payment will not become due until 10 days after final resolution of the appeal in favor of entry).

Appendix I

List of Recipients of EPA Special Notice Letter Dated July 12, 2001

Remedial Design/Remedial Action

Recipients of 7/12/01 Special Notice Letter
Remedial Design/Remedial Action
El Monte Operable Unit

R. David Hoover, President
Ball-Foster Glass Container Co
10 Longs Peak Drive
Broomfield, CO 80021
For Property located at 4000 Arden Drive, El Monte, CA 91731

Robert S. McCracken, President
Beagle Mfg. Co., Inc.
4377 Baldwin Ave.
El Monte, CA 91731

Bill Echols, President
Brown Jordan Co.
9860 Gidley St.
El Monte, CA 91731

William Chadwick, President
Chadwick-Helmuth Co., Inc.
4601 N. Arden Drive
El Monte, CA 91731

John Clayton, President
Clayton Manufacturing
4213 N. Temple City Blvd.
El Monte, CA 91731

Robert L. Coombes
Crown City Plating Co.
4350 Temple City Blvd.
El Monte, CA 91731

Daniel T. Heaney
EG&G, Inc.
45 William Street
Wellesley, MA 02481
For Property located at 4505 N. Arden Drive, El Monte, CA 91731

Eric Steiner, President, CEO, Director
Fairchild Corporation
45025 Aviation Drive, Suite 400
Dulles, VA 20166
For Properties located at 9440 and 9620 Gidley Street, Temple City, CA 91780

328

Recipients of 7/12/01 Special Notice Letter
Remedial Design/Remedial Action
El Monte Operable Unit

C. David Ferguson, CEO
Gould Electronics, Inc.
34929 Curtis Boulevard
East Lake, OH 94095
For Properties located at 4323 Arden Drive El Monte,. CA 91731, 4505 N. Arden Drive, El Monte, CA 91731, and 4601 N. Arden Drive El Monte, CA 91731

Andrew Goldfarb, President
Hermetic Seal Corp.
4232 Temple City Blvd.
Rosemead, CA 91770-1552

Merwyn C. Gill, Chief Executive Officer
M.C. Gill Corporation
4056 Easy Street
El Monte, CA 91731

Mr. Philip Rutten, President
Miller Dial Corporation
4400 N. Temple City Boulevard
El Monte, CA 91731

Clifford Christ
Navcom Defense Electronics, Inc.
4323 Arden Drive
El Monte,. CA 91731

Gary Lachman, President
Plato Products, Inc.
18731 Railroad St.
Industry, CA 91748
For Property located at 4357 Rowland Ave., El Monte, CA 91731

Albert H. Goering, President
Precision Coil Spring Company of California
10107 Rose Street
El Monte, CA 91731-1801

Bill Sabin
Sabin Construction
145 Alamo Hills Court
Alamo, CA 94507
For Property located at 4327 North Temple City Blvd., Temple City, CA 91780

Recipients of 7/12/01 Special Notice Letter
Remedial Design/Remedial Action
El Monte Operable Unit

Charles Christianson
Sparling Instruments, Inc.
4097 Temple City Blvd.
El Monte, CA 91731

Harold Henderson, President
Trail Chemical Corporation
9904 Gidley St.
El Monte, CA 91731-1186

R.K. Davidson, President
Union Pacific Railroad Company
1416 Dodge Street, Suite 5900
Omaha, NE 68179
For Property located at 4301 Temple City Boulevard, Temple City, CA (leased by former Glendora Cedar Products, Inc.)

Raymond E. Harbert and Mabel G. Harbert
Harbert Family Trust
11706 E. Romma Blvd., Apt. 204
El Monte, California 91732
For Property located at 10946 East Grand Avenue, Temple City, CA

Larry Lindquist
Lindquist Family Trust
627 Hampton Road
Arcadia, CA 91006
For Property located at 10946 East Grand Avenue, Temple City, CA

Lyle A. and Karen L. Schmidt
2300 South 3rd Avenue
Arcadia, California 91006
For Property located at 10946 East Grand Avenue, Temple City, CA

Glen Powell
Powell Trust
11706 Ramona Blvd.
El Monte, CA 91731
For Property located at 10946 East Grand Avenue, Temple City, CA

330

Recipients of 7/12/01 Special Notice Letter
Remedial Design/Remedial Action
El Monte Operable Unit

Paul Lee
9416 East Valley Blvd.
Rosemead, CA 91770
For Property located at 9406 East Valley Blvd., Rosemead, CA 91770

Hugh Young
28198 Merced Avenue
Wasco, CA 93280
For Property located at 9406 East Valley Blvd., Rosemead, CA 91770

Evelyn Stewart
c/o Allison Adams
P.O. Box 265
Stanton, CA 90680
For Property located at 3728 Rockwell Avenue, El Monte, CA 91731

Catalina Tao
Majestice Handicrafts Company
10180 East Valley Blvd.
El Monte, CA 91731
For Property located at 10180 East Valley Blvd., El Monte, CA 91731