

ORIGINAL

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF:

ORANGE COUNTY
NORTH BASIN

and

ORANGE COUNTY WATER DISTRICT

Proceeding Under Sections 104, 107,
and 122 of the Comprehensive
Environmental Response, Compensation,
and Liability Act, 42 U.S.C. §§ 9604,
9607, and 9622.

U.S. EPA Docket No. 2016-03

**ADMINISTRATIVE SETTLEMENT
AGREEMENT FOR REMEDIAL
INVESTIGATION/FEASIBILITY
STUDY**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ADMINISTRATIVE SETTLEMENT AGREEMENT
FOR REMEDIAL INVESTIGATION AND FEASIBILITY STUDY**

ADMINISTRATIVE SETTLEMENT AGREEMENT FOR REMEDIAL
INVESTIGATION AND FEASIBILITY STUDY
ORANGE COUNTY NORTH GROUNDWATER BASIN

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement (Settlement Agreement) is entered into voluntarily by the United States Environmental Protection Agency (EPA) and Orange County Water District (OCWD). The Settlement Agreement concerns the preparation and performance of a remedial investigation and feasibility study (RI/FS) for the northern portion of the Orange County groundwater basin that has been impacted by volatile organic compound contamination located generally within the Cities of Fullerton, Anaheim, and Placentia, and payment of Future Response Costs incurred by EPA in connection with the RI/FS.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 107, and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9604, 9607, and 9622 (CERCLA). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2923 (Jan. 29, 1987), and further delegated to Regional Administrators by EPA Delegation Nos. 14-14-C (Administrative Actions Through Consent Orders, Apr. 15, 1994) and 14-14-D (Cost Recovery Non-Judicial Agreements and Administrative Consent Orders, May 11, 1994). These authorities were further redelegated by the Regional Administrator of EPA Region 9 to the Superfund Assistant Directors by Regional Delegation 1290.15 (September 29, 1997).

3. In accordance with Sections 104(b)(2) and 122(j)(1) of CERCLA, 42 U.S.C. §§ 9604(b)(2) and 9622(j)(1), EPA notified the California Department of Toxic Substances Control and the Santa Ana Regional Water Quality Control Board on December 2, 2015 of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under State trusteeship.

4. OCWD is a special water district created in 1933 by the State of California pursuant to the Orange County Water District Act. OCWD is a public entity with the authority to manage and protect the water resources in Orange County, California, including conducting investigations of water quality within the District. As such, OCWD is interested in undertaking the work described in this Settlement Agreement. EPA and OCWD recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by OCWD in accordance with this Settlement Agreement do not constitute an admission or any evidence of liability. OCWD does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of fact in Section V and the conclusions of law and determinations in Section VI. OCWD agrees to comply with and be bound by the terms of this Settlement Agreement and further agrees that it will not contest the basis or validity of this Settlement Agreement or its terms.

II. PARTIES BOUND

5. This Settlement Agreement applies to and is binding upon EPA and upon OCWD and its successors and assigns. Any change in the form or status of OCWD, including but not limited to, any transfer of assets or real or personal property, shall not alter OCWD's responsibilities under this Settlement Agreement.

6. OCWD shall ensure that its contractors, subcontractors, and representatives receive a copy of this Settlement Agreement and comply with this Settlement Agreement. OCWD shall be responsible for any noncompliance with this Settlement Agreement.

7. Each undersigned representative of OCWD certifies that he or she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to execute and legally bind OCWD to this Settlement Agreement.

III. STATEMENT OF PURPOSE

8. In entering into this Settlement Agreement, the objectives of EPA and OCWD are: (a) to protect human health and the environment by preventing exposure to contaminated groundwater in the North Basin Study Area; (b) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the North Basin Study Area to support the development of an interim groundwater remedy to hydraulically contain contaminated groundwater originating from the majority of known or suspected sources in the North Basin Study Area, by conducting an initial Remedial Investigation as more specifically set forth in the Statement of Work (SOW) attached as Appendix A to this Settlement Agreement; (c) to identify and evaluate remedial alternatives for an interim groundwater remedy to hydraulically contain contaminated groundwater originating from the majority of known or suspected sources in the North Basin Study Area to prevent, mitigate, or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Study Area, by conducting an initial Feasibility Study as more specifically set forth in the SOW in Appendix A to this Settlement Agreement; (d) to further characterize the full nature and extent of contamination in the North Basin Study Area downgradient of the interim groundwater remedy area, by conducting certain Remedial Investigation activities as specifically set forth in the SOW attached as Appendix A to this Settlement Agreement; and (e) to recover response and oversight costs incurred by EPA with respect to this Settlement Agreement.

9. The Work conducted under this Settlement Agreement is subject to approval by EPA and shall provide all appropriate and necessary information to assess Study Area conditions and evaluate alternatives to the extent necessary to select a remedy that will be consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 (NCP). OCWD shall conduct all Work under this Settlement Agreement in compliance with CERCLA, the NCP, and all applicable EPA guidance, policies, and procedures.

IV. DEFINITIONS

Unless otherwise expressly provided in this Settlement Agreement, terms used in this Settlement Agreement 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 Settlement Agreement or its appendices, the following definitions shall apply:

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

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

“Day” or “day” shall mean a calendar day. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or federal or state holiday, the period shall run until the close of business of the next working day.

“Effective Date” shall mean the effective date of this Settlement Agreement as provided in Section XXVIII.

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

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

“RWQCB” shall mean the California Regional Water Quality Control Board, Santa Ana Region, and any successor departments or agencies of the State.

“OCWD” shall mean Orange County Water District.

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

“Engineering Controls” shall mean constructed containment barriers or systems that control one or more of the following: downward or lateral migration, infiltration, or seepage of surface runoff or rain; or natural leaching migration of contaminants through the subsurface over time. Examples include extraction wells and treatment systems, including conveyance systems needed to transport untreated and treated water, facilities for recharging treated groundwater, caps, engineered bottom barriers, immobilization processes, and vertical barriers.

“Future Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports,

and other deliverables submitted pursuant to this Settlement Agreement, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Section XII (Access and Institutional Controls) (including, but not limited to, the cost of attorney time and any monies paid to secure access, including, but not limited to, the amount of just compensation), Paragraph 42 (emergency response), Paragraph 85 (Work takeover), community involvement (including, but not limited to, the costs of any technical assistance grant under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e), and the costs incurred by the United States in enforcing the terms of this Settlement Agreement, including all costs incurred in connection with Section XV (Dispute Resolution), and all litigation costs.

“Institutional controls” shall mean non-engineered instruments, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land and/or resource use. Examples of institutional controls include easements and covenants, zoning restrictions, special building permit requirements, and well drilling prohibitions.

“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.

“Municipal solid waste” or “MSW” shall mean waste material: (1) generated by a household (including a single or multifamily residence); or (2) generated by a commercial, industrial or institutional entity, to the extent that the waste material (i) is essentially the same as waste normally generated by a household; (ii) is collected and disposed of with other municipal solid waste as part of normal municipal solid waste collection services; and (iii) contains a relative quantity of hazardous substances no greater than the relative quantity of hazardous substances contained in waste material generated by a typical single-family household.

“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.

“North Basin” shall mean the northern portion of the Orange County Groundwater Basin, located in Orange County, California, and depicted generally on the map attached as Appendix A.

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

“North Basin Study Area” or “Study Area” shall mean the area under investigation for the purposes of this Agreement.

“Paragraph” shall mean a portion of this Settlement Agreement identified by an Arabic numeral or an upper or lower case letter. References to paragraphs in the SOW will be so identified, e.g., “SOW Paragraph 15.”

“Parties” shall mean EPA and OCWD.

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

“Sampling and Analysis Plan” or “SAP” shall mean the Sampling and Analysis Plan presented either as a single work plan or two separate plans that consist of the Quality Assurance and Project Plan (QAPP) and the Field Sampling Plan (FSP).

“Section” shall mean a portion of this Settlement Agreement identified by a Roman numeral. References to sections in the SOW will be so identified, e.g., “SOW Section V.”

“Settlement Agreement” shall mean this Administrative Settlement Agreement, the SOW, all appendices attached hereto (listed in Section XXVI) and all documents incorporated by reference into this document including without limitation EPA-approved submissions. EPA-approved submissions (other than progress reports) are incorporated into and become a part of the Settlement Agreement upon approval by EPA. In the event of conflict between this Settlement Agreement and any appendix or other incorporated documents, this Settlement Agreement shall control.

“State” shall mean the State of California.

“Statement of Work” or “SOW” shall mean the Statement of Work for development of a RI/FS for the North Basin, as set forth in Appendix A to this Settlement Agreement. The Statement of Work is incorporated into this Settlement Agreement and is an enforceable part of this Settlement Agreement as are any modifications made thereto in accordance with this Settlement Agreement.

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

“Waste Material” shall mean (a) any “hazardous substance” under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any “solid waste” under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

“Work” shall mean all activities OCWD is required to perform under this Settlement Agreement, except those required by Section XIV (Retention of Records).

V. FINDINGS OF FACT

10. The North Basin is located in the northern portion of Orange County, in the cities of Fullerton, Anaheim, and Placentia. The larger Orange County groundwater basin, of which the North Basin is a part, is within the 360-square-mile coastal plain of Orange County and supplies water to more than 20 cities and water agencies serving more than 2 million customers. This area includes a range of uses including commercial, industrial, and residential uses.

11. The Orange County Water District has characterized the Orange County Groundwater Basin as consisting of three hydraulically connected aquifer zones: Shallow, Principal, and Deep. In North Basin, the Shallow Aquifer system includes unconsolidated sediments extending to an average depth of approximately 200 feet below ground surface (bgs) and the Principal Aquifer system contains unconsolidated sediments extending to a depth of over 1000 feet. The depth to groundwater in the shallow aquifer ranges from approximately 80 to 120 feet bgs, with isolated areas of shallower, perched groundwater. Contamination with volatile organic compounds (VOCs) has been detected in the Shallow and Principal aquifers, and locally in perched groundwater.

12. In 2014, EPA was approached by state and local agencies - RWQCB, DTSC, and OCWD - to investigate potential risk to the North Basin's domestic water supply in the Shallow and Principal aquifers.

13. There are many source areas in the North Basin where historical industrial activity has contaminated the soil and groundwater with chemicals, including tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), and 1,4-dioxane. The diverse array of industrial activities operating in this area includes electronics manufacturing, metals processing, aerospace manufacturing, musical instrument manufacturing, rubber and plastics manufacturing, and dry cleaning. Source cleanups are being conducted under State oversight at a number of current and former facilities. Some of these cleanups have been completed, and additional source identification and remediation at others may be required. During this RI/FS process, it is expected that State oversight of these cleanups will continue.

14. RWQCB is overseeing work and/or cleanup at six sites and oversight of initial investigation and/or remediation work at two other sites. An additional six sites are being addressed under DTSC oversight. Three of the DTSC sites have active, participating parties, and three are being cleaned up as "orphan sites"

15. Contamination associated with former industrial activity appears to have impacted both the shallow and principal aquifers. Four drinking water production wells impacted by contamination have been destroyed due to contaminant levels: Fullerton well F-FS13 (2002), Fullerton well F-KIM1 (2002), Anaheim well A-23 (2001) and private well BAST-F (2013).

16. Within the North Basin, 1,1-DCE has been detected in groundwater at concentrations up to 1,700 ug/L. PCE has been detected in groundwater at concentrations up to

3,300 ug/L. 1,4-dioxane has been detected in groundwater at concentrations up to 1,500 ug/L. TCE has been detected in groundwater at concentrations up to 23,000 ug/L.

17. OCWD is a special water district created by the State of California pursuant to the Orange County Water District Act. OCWD is a public entity undertaking the work described in this Settlement Agreement pursuant to its authority under said Act and to protect the water resources in Orange County, California; and

18. The North Basin is not listed on EPA's National Priorities List (NPL). In parallel with the RI/FS being conducted with this Agreement, EPA Region 9 is proceeding with its own evaluation of the contamination for potential NPL listing.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth in Section V, EPA has determined that:

19. The North Basin is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

20. The contamination found at the North Basin, as identified in the Findings of Fact above, includes "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) or constitutes "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under Section 104(a)(1) of CERCLA.

21. The conditions described in the Findings of Fact in Section V above constitute an actual and/or threatened "release" of a hazardous substance from the facility as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

22. OCWD is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

23. OCWD has been determined to be capable of conducting the actions set forth in this Agreement properly as provided in Section 122(a) of CERCLA, 42 U.S.C. § 9622(a). The actions required by this Settlement Agreement are necessary to protect the public health, welfare, or the environment, are in the public interest, 42 U.S.C. § 9622(a), are consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(a).

24. EPA has determined that OCWD is qualified to conduct the RI/FS within the meaning of Section 104(a) of CERCLA, 42 U.S.C. § 9604(a), and will carry out the Work properly and promptly, in accordance with Sections 104(a) and 122(a) of CERCLA, 42 U.S.C. §§ 9604(a) and 9622(a), if OCWD complies with the terms of this Settlement Agreement.

VII. SETTLEMENT AGREEMENT AND ORDER

25. Based upon the foregoing Findings of Fact and Conclusions of Law and Determinations, it is hereby Agreed that OCWD shall comply with all provisions of this Settlement Agreement, including, but not limited to, all appendices to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

VIII. DESIGNATION OF CONTRACTORS AND PROJECT COORDINATORS

26. Selection of Contractors, Personnel. All Work performed under this Settlement Agreement shall be under the direction and supervision of qualified personnel. Within 30 days after the Effective Date, and before the Work outlined below begins, OCWD shall notify EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants, and laboratories to be used in carrying out such Work. With respect to any proposed contractor, OCWD 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, or most recent version), 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; Reissued May 2006) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for OCWD shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. This Settlement Agreement is contingent on OCWD's demonstration to EPA's satisfaction that OCWD is qualified to perform properly and promptly the actions set forth in this Settlement Agreement. If EPA disapproves in writing of any person's technical qualifications, OCWD shall notify EPA of the identity and qualifications of the replacements within 30 days after the written notice. If EPA subsequently disapproves of the replacement, EPA reserves the right to terminate this Settlement Agreement and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from OCWD. During the course of the RI/FS, OCWD shall notify EPA in writing of any changes or additions in the personnel used to carry out such Work, providing their names, titles, and qualifications. EPA shall have the same right to disapprove changes and additions to personnel as it has hereunder regarding the initial notification.

27. Within 14 days after the Effective Date, OCWD shall designate a Project Coordinator who shall be responsible for administration of all actions by OCWD required by this Settlement Agreement and shall submit to EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on site or readily available during Work. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, OCWD shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within 7 days following EPA's disapproval. OCWD shall have the right to change its Project Coordinator, subject to EPA's

right to disapprove. OCWD shall notify EPA 14 days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notification. Receipt by OCWD's Project Coordinator of any notice or communication from EPA relating to this Settlement Agreement shall constitute receipt by OCWD.

28. EPA has designated Wayne Praskins of Region IX's Superfund Division as its Project Coordinator. EPA will notify OCWD of a change of its designated Project Coordinator. Except as otherwise provided in this Settlement Agreement, OCWD shall direct all submissions required by this Settlement Agreement to the Project Coordinator at US EPA Region IX, 75 Hawthorne Street, SFD-7-3, San Francisco, California, 94105, or Praskins.Wayne@epa.gov.

29. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and On-Scene Coordinator (OSC) by the NCP. In addition, EPA's Project Coordinator shall have the authority consistent with the NCP, to halt any Work required by this Settlement Agreement, and to take any necessary response action when s/he determines that conditions at the Study Area may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Settlement Agreement shall not be cause for the stoppage or delay of Work.

30. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). Such person shall have the authority to observe Work and make inquiries in the absence of EPA, but not to modify the RI/FS Work Plan.

IX. WORK TO BE PERFORMED

31. OCWD shall conduct the RI/FS in accordance with the provisions of this Settlement Agreement, the SOW, CERCLA, the NCP, and EPA guidance, including, but not limited to the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (RI/FS Guidance) (OSWER Directive # 9355.3-01, October 1988 or subsequently issued guidance), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-09A, April 1992 or subsequently issued guidance), and guidance referenced therein, and guidance referenced in the SOW, as may be amended or modified by EPA. The Remedial Investigation (RI) shall consist of collecting data to characterize North Basin conditions, determining the nature and extent of the contamination at or from the North Basin, assessing risk to human health and the environment, and conducting treatability testing as necessary to evaluate the potential performance and cost of the treatment technologies that are being considered. The Feasibility Study (FS) shall determine and evaluate (based on treatability testing, where appropriate) alternatives for remedial action to prevent, mitigate, or otherwise respond to or remedy the release or threatened release of hazardous substances, pollutants, or contaminants at or from the North Basin. The alternatives evaluated must include, but shall not be limited to, the range of alternatives described in the NCP, and shall include remedial actions that utilize permanent solutions and alternative treatment technologies or resource recovery

technologies to the maximum extent practicable. In evaluating the alternatives, OCWD shall address the factors required to be taken into account by Section 121 of CERCLA, 42 U.S.C. § 9621, and Section 300.430(e) of the NCP, 40 C.F.R. § 300.430(e).

32. OCWD shall submit all deliverables to EPA and the State in electronic form. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11", upon request by EPA, OCWD shall also provide EPA with paper copies of such exhibits.

33. Technical Specifications for Deliverables. Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.

34. Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at <https://edg.epa.gov/EME/>.

35. Each file must include an attribute name for each unit or sub-unit submitted. Consult <http://www.epa.gov/geospatial/policies.html> for any further available guidance on attribute identification and naming.

36. Spatial data submitted by OCWD does not, and is not intended to, define the boundaries of the North Basin.

37. Upon receipt of the draft FS report, EPA will evaluate, as necessary, the estimates of the risk to the public and environment that are expected to remain after a particular remedial alternative has been completed and will evaluate the durability, reliability, and effectiveness of any proposed Institutional Controls.

38. Modification of the RI/FS Work Plan.

a. If at any time during the RI/FS process, OCWD identifies a need for additional data, OCWD shall submit a memorandum documenting the need for additional data to the EPA Project Coordinator within 14 days after identification. EPA in its discretion will determine whether the additional data will be collected by OCWD and whether it will be incorporated into plans, reports, and other deliverables.

b. In the event of unanticipated or changed circumstances in the Study Area, OCWD shall notify the EPA Project Coordinator by telephone within 24 hours of discovery of the unanticipated or changed circumstances. In the event that EPA determines that the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan, EPA shall modify or amend the RI/FS Work Plan in writing accordingly. OCWD shall perform the RI/FS Work Plan as modified or amended.

c. EPA may determine that in addition to tasks defined in the initially approved RI/FS Work Plan, other additional Work may be necessary to accomplish the objectives of the RI/FS. OCWD agrees to perform these response actions in addition to those required by the initially approved RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS.

d. OCWD shall confirm its willingness to perform the additional Work, in writing to EPA within 30 days after receipt of the EPA request. If OCWD objects to any modification determined by EPA to be necessary pursuant to this Paragraph, OCWD may seek dispute resolution pursuant to Section XV (Dispute Resolution). The SOW and/or RI/FS Work Plan shall be modified in accordance with the final resolution of the dispute.

e. OCWD shall complete the additional Work according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the Work itself at any point, to seek reimbursement from OCWD, and/or to seek any other appropriate relief.

f. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions in the Study Area.

39. Off-Site Shipment.

a. OCWD may ship hazardous substances, pollutants and contaminants from the Study Area to an off-site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. OCWD will be deemed to be in compliance with CERCLA Section 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if OCWD obtains a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b). OCWD may ship Investigation Derived Waste (IDW) from the North Basin to an off-site facility only if OCWD complies with EPA's "Guide to Management of Investigation Derived Waste," OSWER 9345.3-03FS (Jan. 1992).

b. OCWD may ship Waste Material from the North Basin to an out-of-state waste management facility only if, prior to any shipment, it provides written notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This written notice requirement shall not apply to any off-site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice must

include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. OCWD also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. OCWD shall provide the written notice after the award of the contract for remedial investigation and feasibility study and before the Waste Material is shipped.

40. Meetings. OCWD shall make presentations at, and participate in, meetings at the request of EPA during the initiation, conduct, and completion of the RI/FS. In addition to discussion of the technical aspects of the RI/FS, topics will include anticipated problems or new issues. Meetings will be scheduled at EPA's discretion.

41. Progress Reports. In addition to the plans, reports, and other deliverables set forth in this Settlement Agreement, OCWD shall provide to EPA monthly progress reports by the 15th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall (a) describe the actions that have been taken to comply with this Settlement Agreement during that month, (b) include all results of sampling and tests and all other data received by OCWD, (c) describe Work planned for the next two months with schedules relating such Work to the overall project schedule for RI/FS completion, and (d) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

42. Emergency Response and Notification of Releases.

a. In the event of any action or occurrence during, arising from, or relating to performance of the Work that causes or threatens a release of Waste Material from the Study Area that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, OCWD shall immediately take all appropriate action. OCWD shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. OCWD shall also immediately notify the EPA Project Coordinator or, in the event of his/her unavailability, the OSC or the Regional Duty Officer at (415) 947-4400 of the incident or conditions. In the event that OCWD fails to take appropriate response action as required by this Paragraph, and EPA takes such action instead, OCWD shall reimburse EPA all costs of the response action not inconsistent with the NCP pursuant to Section XVIII (Payment of Response Costs).

b. In addition, in the event of any release of a hazardous substance from the Study Area, OCWD shall immediately notify the EPA Project Coordinator, the OSC, or Regional Duty Officer at (415) 947-4400 and the National Response Center at (800) 424-8802. OCWD shall submit a written report to EPA within 7 days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting

requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

X. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS

43. After review of any plan, report, or other item that is required to be submitted for approval pursuant to this Settlement Agreement, in a notice to OCWD, 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 OCWD modify the submission; or (e) any combination of the above. However, EPA shall not modify a submission without first providing OCWD at least one notice of deficiency and an opportunity to cure within 14 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.

44. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Paragraph 43.a, 43.b, 43.c, or 43.e, OCWD shall proceed to take any action required by the plan, report, or other deliverable, as approved or modified by EPA subject only to its right to invoke the Dispute Resolution procedures set forth in Section XV (Dispute Resolution) with respect to the modifications or conditions made by EPA. Following EPA approval or modification of a submission or portion thereof, OCWD shall not thereafter alter or amend such submission or portion thereof unless directed by EPA. In the event that EPA modifies the submission to cure the deficiencies pursuant to Paragraph 43.c and the submission had a material defect, EPA retains the right to seek stipulated penalties, as provided in Section XVI (Stipulated Penalties).

45. Resubmission.

a. Upon receipt of a notice of disapproval, OCWD shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other deliverable for approval. Any stipulated penalties applicable to the submission, as provided in Section XVI, shall accrue during the 14-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 46 and 47, respectively. Notwithstanding the receipt of a notice of disapproval, OCWD shall proceed to take any action required by any non-deficient portion of the submission, unless otherwise directed by EPA. Implementation of any non-deficient portion of a submission shall not relieve OCWD of any liability for stipulated penalties under Section XVI (Stipulated Penalties).

b. OCWD shall not proceed with any activities or tasks dependent on the following deliverables until receiving EPA approval, approval on condition, or modification of such deliverables: RI/FS Work Plan and Sampling and Analysis Plan, Groundwater Flow Modeling Plan, Groundwater Flow Monitoring Report, Risk Assessment Technical

Memorandum, ARARs Technical Memorandum, Remedial Investigation Report and Treatability Testing Work Plan, Treatability Testing Sampling and Analysis Plan, Treatability Testing Health and Safety Plan, Remedial Alternatives Identification and Screening Technical Memorandum, Detailed Analysis of Remedial Alternatives Technical Memorandum, and Feasibility Study Report. While awaiting EPA approval, approval on condition, or modification of these deliverables, OCWD shall proceed with all other tasks and activities that may be conducted independently of these deliverables, in accordance with the schedule set forth under this Settlement Agreement.

c. For all remaining deliverables not listed above in Paragraph 45.b, OCWD shall proceed with all subsequent tasks, activities, and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop OCWD from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS.

46. If EPA disapproves a resubmitted plan, report, or other deliverable, or portion thereof, EPA may again direct OCWD to correct the deficiencies. EPA shall also retain the right to modify or develop the plan, report, or other deliverable. OCWD shall implement any such plan, report, or deliverable as corrected, modified, or developed by EPA, subject only to OCWD's right to invoke the procedures set forth in Section XV (Dispute Resolution).

47. If upon resubmission, a plan, report, or other deliverable is disapproved or modified by EPA due to a material defect, OCWD shall be deemed to have failed to submit such plan, report, or other deliverable timely and adequately unless OCWD invokes the dispute resolution procedures in accordance with Section XV (Dispute Resolution) and EPA's action is revoked or substantially modified pursuant to a Dispute Resolution decision issued by EPA or superseded by an agreement reached pursuant to that Section. The provisions of Section XV (Dispute Resolution) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution.

48. In the event that EPA takes over some of the tasks, but not the preparation of the RI Report or the FS Report, OCWD shall incorporate and integrate information supplied by EPA into the final reports.

49. All plans, reports, and other deliverables submitted to EPA under this Settlement Agreement shall, upon approval or modification by EPA, be incorporated into and enforceable under this Settlement Agreement. In the event EPA approves or modifies a portion of a plan, report, or other deliverable submitted to EPA under this Settlement Agreement, the approved or modified portion shall be incorporated into and enforceable under this Settlement Agreement.

50. Neither failure of EPA to expressly approve or disapprove of OCWD's submissions within a specified time period, nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for OCWD's deliverables, OCWD is responsible for preparing deliverables acceptable to EPA.

XI. QUALITY ASSURANCE, SAMPLING, AND ACCESS TO INFORMATION

51. Quality Assurance. OCWD shall assure that Work performed, samples taken, and analyses conducted conform to the requirements of the SOW, the Sampling and Analysis Plan (SAP), and guidance identified therein. OCWD will assure that field personnel used by OCWD are properly trained in the use of field equipment and in chain of custody procedures. OCWD shall only use laboratories that have a documented quality system that complies with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001; Reissued May 2006) or equivalent documentation as determined by EPA.

52. Sampling.

a. All results of sampling, tests, modeling, or other data (including raw data) generated by OCWD, or on OCWD's behalf, during the period that this Settlement Agreement is effective, shall be submitted to EPA in the next monthly progress report as described in Paragraph 41 (unless previously submitted in a separate document). EPA will make available to OCWD validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

b. OCWD shall orally notify EPA and the State at least 14 days prior to conducting significant field events as described in the SOW, RI/FS Work Plan, or Sampling and Analysis Plan. At EPA's oral or written request, or the request of EPA's oversight assistant, OCWD shall allow split or duplicate samples to be taken by EPA (and its authorized representatives) or the State of any samples collected in implementing this Settlement Agreement. All split samples of OCWD shall be analyzed by the methods identified in the QAPP.

53. Access to Information.

a. OCWD shall make available to EPA and the State, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as Records) within its possession or control or that of its contractors or agents relating to activities at the Study Area or to the implementation of this Settlement Agreement, 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. OCWD shall also make available to EPA and the State, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

b. OCWD may assert business confidentiality claims covering part or all of the Records submitted to EPA and the State under this Settlement Agreement 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). Records determined to be confidential by EPA will be afforded the

protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA and the State, or if EPA has notified OCWD that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to OCWD. OCWD shall segregate and clearly identify all Records submitted under this Settlement Agreement for which OCWD asserts confidentiality claims.

c. OCWD may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If OCWD asserts such a privilege in lieu of providing Records, it shall provide EPA and the State with the following: (i) the title of the Record; (ii) the date of the Record; (iii) the name, title, affiliation (e.g., company or firm), and address of the author of the Record; (iv) the name and title of each addressee and recipient; (v) a description of the contents of the Record; and (vi) the privilege asserted by OCWD. However, no Records created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged or confidential.

d. 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 Records evidencing conditions at or around the Study Area.

54. In entering into this Settlement Agreement, OCWD waives any objections to any data gathered, generated, or evaluated by EPA, the State or OCWD in the performance or oversight of the Work that has been verified according to the quality assurance/quality control (QA/QC) procedures required by the Settlement Agreement or any EPA-approved RI/FS Work Plans or Sampling and Analysis Plans. If OCWD objects to any other data relating to the RI/FS, OCWD shall submit to EPA a report that specifically identifies and explains its objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within 15 days after submittal of the document containing the data.

XII. ACCESS AND INSTITUTIONAL CONTROLS

55. If any property where access is needed to implement this Settlement Agreement, is owned or controlled by OCWD, OCWD shall, commencing on the Effective Date, provide EPA, the State, and their representatives, including contractors, with access at all reasonable times to such property for the purpose of conducting any activity related to this Settlement Agreement.

56. Where any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than OCWD, OCWD shall use its best efforts to obtain all necessary access agreements within 30 days after the Effective Date, or as otherwise specified in writing by the EPA Project Coordinator. OCWD shall immediately notify EPA if

after using its best efforts they are unable to obtain such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money in consideration of access. OCWD shall describe in writing its efforts to obtain access. If OCWD cannot obtain access agreements, EPA may either (a) obtain access for OCWD or assist OCWD in gaining access, to the extent necessary to effectuate the response actions described in this Settlement Agreement, using such means as EPA deems appropriate; (b) perform those tasks or activities with EPA contractors; or (c) terminate the Settlement Agreement.

57. Notwithstanding any provision of this Settlement Agreement, EPA retains all of its 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 statutes or regulations.

XIII. COMPLIANCE WITH OTHER LAWS

58. OCWD shall comply with all applicable state and federal laws and regulations when performing the RI/FS. No local, state, or federal permit shall be required for any portion of any action conducted entirely on-site, including studies, if the action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621. Where any portion of the Work is to be conducted off-site and requires a federal or state permit or approval, OCWD shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals. This Settlement Agreement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

XIV. RETENTION OF RECORDS

59. During the pendency of this Settlement Agreement and for a minimum of 10 years after commencement of construction of any remedial action, OCWD shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the North Basin, regardless of any corporate retention policy to the contrary. Until 10 years after commencement of construction of any remedial action, OCWD shall also instruct its contractors and agents to preserve all Records of whatever kind, nature, or description relating to performance of the Work.

60. At the conclusion of this document retention period, OCWD shall notify EPA at least 90 days prior to the destruction of any such Records, and, upon request by EPA, OCWD shall deliver any such Records to EPA. OCWD may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If OCWD asserts such a privilege, it shall provide EPA with the following: (a) the title of the Record; (b) the date of the Record; (c) the name and title of the author of the Record; (d) the name and title of each addressee and recipient; (e) a description of the subject of the Record; and (f) the privilege asserted by OCWD. However, no Records created or generated pursuant to the

requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged or confidential.

61. OCWD hereby certifies that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to the North Basin since the issuance of the invitation letter by EPA regarding this Settlement Agreement and the SOW for the RI/FS for the North Basin and that it has fully complied with any and all EPA and State requests for information regarding the North Basin pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927, and state law.

XV. DISPUTE RESOLUTION

62. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

63. If OCWD objects to any EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, it shall notify EPA in writing of its objection(s) within 15 days after such action, unless the objection(s) has/have been resolved informally. EPA and OCWD shall have 60 days from EPA's receipt of OCWD's written objection(s) to resolve the dispute (the Negotiation Period). The Negotiation Period may be extended at the sole discretion of EPA. Such extension may be granted orally but must be confirmed in writing.

64. Any agreement reached by the Parties pursuant to this Section shall be in writing and shall, upon signature by the Parties, be incorporated into and become an enforceable part of this Settlement Agreement. If the Parties are unable to reach an agreement within the Negotiation Period, an EPA management official at the Assistant Director level or higher will issue a written decision. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement. OCWD's obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, OCWD shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs, and regardless of whether OCWD agrees with the decision.

XVI. STIPULATED PENALTIES

65. OCWD shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 66 and 67 for failure to comply with any of the requirements of this Settlement Agreement specified below unless excused under Section XVI (Force Majeure). "Compliance" by OCWD shall include completion of the Work under this Settlement Agreement or any activities contemplated under any RI/FS Work Plan or other plan approved under this Settlement Agreement identified below, in accordance with all applicable requirements of law, this

Settlement Agreement, the SOW, and any plans or other documents approved by EPA pursuant to this Settlement Agreement and within the specified time schedules established by and approved under this Settlement Agreement.

66. Stipulated Penalty Amounts - Work (Including Payments).

a. The following stipulated penalties shall accrue per day for any noncompliance identified in Paragraph 66.b:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 100	1st through 14th day
\$ 300	15th through 30th day
\$ 750	31st day and beyond

b. Compliance Milestones.

- (1) Payment of Future Response Costs
- (2) Submittal of Draft and Final RI/FS Work Plan (SOW Section 3.1)
- (3) Submittal of Draft and Final Field Sampling and Analysis Plan (SOW Section 3.2.1)
- (4) Submittal of Draft and Final Groundwater Flow Modeling Report (SOW Sections 3.4, 3.5, and 3.6)
- (5) Submittal of Risk Assessment Technical Memorandum (SOW Section 3.11)
- (6) Submittal of Draft and Final RI Report (SOW Section 3.7)
- (7) Submittal of Remedial Alternatives Technical Memoranda (SOW Sections 3.8 and 3.9)
- (8) Submittal of Draft and Final FS Report (SOW Section 3.12)

67. Stipulated Penalty Amounts - Reports.

The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other plans or deliverables, other than those referenced in Paragraph 66.b., pursuant to this Settlement Agreement:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 250	1st through 14th day
\$ 500	15th through 30th day
\$ 1,000	31st day and beyond

68. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 85 (Work Takeover), Respondents shall be liable for a stipulated penalty in the amount of \$50,000.

69. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Section X (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 OCWD of any deficiency; and (b) with respect to a decision by the EPA management official designated in Paragraph 64 of Section XV (Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that the EPA management official issues a final decision regarding such dispute. Nothing in this Settlement Agreement shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

70. Following EPA's determination that OCWD has failed to comply with a requirement of this Settlement Agreement, EPA may give OCWD written notification of the same and describe the noncompliance. EPA may send OCWD 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 OCWD of a violation.

71. All penalties accruing under this Section shall be due and payable to EPA within 30 days after OCWD's receipt from EPA of a demand for payment of the penalties, unless OCWD invokes the dispute resolution procedures under Section XV (Dispute Resolution). OCWD shall make all payments required by this Paragraph to EPA by Fedwire Electronic Funds Transfer to:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

and shall reference stipulated penalties, Site/Spill ID Number A9AN, and the EPA docket number for this action. At the time of payment, OCWD shall send notice that payment has been made as provided in Paragraph 79.b below.

72. The payment of penalties shall not alter in any way OCWD's obligation to complete performance of the Work required under this Settlement Agreement.

73. Penalties shall continue to accrue as provided in Paragraph 69 during any dispute resolution period, but need not be paid until 15 days after the dispute is resolved by agreement or by receipt of EPA's decision.

74. If OCWD fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. OCWD shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 71.

75. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of OCWD's violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided in this Settlement Agreement, except in the case of willful violation of this Settlement Agreement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Section XX (Reservation of Rights by EPA), Paragraph 85. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

XVII. FORCE MAJEURE

76. OCWD agrees to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, *force majeure* is defined as any event arising from causes beyond the control of OCWD or of any entity controlled by OCWD, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite OCWD's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

77. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, OCWD shall notify EPA orally within five (5) business days of when OCWD first knew that the event might cause a delay. Within seven (7) days thereafter, OCWD shall provide to EPA in

writing 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; OCWD's rationale for attributing such delay to a *force majeure* event if it intends to assert such a claim; and a statement as to whether, in the opinion of OCWD, such event may cause or contribute to an endangerment to public health, welfare, or the environment. Failure to comply with the above requirements shall preclude OCWD 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.

78. 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 Settlement Agreement 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 OCWD in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify OCWD in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XVIII. PAYMENT OF RESPONSE COSTS

79. Payments of Future Response Costs.

a. OCWD shall pay EPA all Future Response Costs not inconsistent with the NCP. On a periodic basis, EPA will send OCWD a bill requiring payment that includes a Regional SCORPIOS cost summary, which includes direct and indirect costs incurred by EPA, its contractors, and DOJ. OCWD shall make all payments within 30 days after receipt of each bill requiring payment, except as otherwise provided in Paragraph 81 of this Settlement Agreement. Payments shall be made to EPA by Fedwire Electronic Funds Transfer ("EFT") to:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

and shall reference Site/Spill ID Number A9AN and the EPA docket number for this action.

b. At the time of payment, OCWD shall send notice that payment has been made to Wayne Praskins by email at Praskins.Wayne@epa.gov, and to the EPA Cincinnati Finance Center by email at cinwd_acctsreceivable@epa.gov, or by mail to

EPA Cincinnati Finance Office
26 W. Martin Luther King Drive
Cincinnati, Ohio 45268

Such notice shall reference Site/Spill ID Number A9AN and the EPA docket number for this action.

c. The total amount to be paid by OCWD pursuant to Paragraph 79.a may be deposited by EPA in the North Basin Special Account to be retained and used to conduct or finance response actions at or in connection with the North Basin, or to be transferred by EPA to the EPA Hazardous Substance Superfund, provided, however, that EPA may deposit a Future Response Costs payment directly into the EPA Hazardous Substance Superfund if, at the time the payment is received, EPA estimates that the North Basin Special Account balance is sufficient to address currently anticipated future response actions to be conducted or financed by EPA at or in connection with the North Basin. Any decision by EPA to deposit a Future Response Costs payment directly into the EPA Hazardous Substance Superfund for this reason shall not be subject to challenge by OCWD pursuant to the dispute resolution provisions of this Settlement or in any other forum.

80. Interest. If OCWD does not pay Future Response Costs within 30 days after OCWD's receipt of a bill, OCWD shall pay Interest on the unpaid balance. The Interest unpaid Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. If EPA receives a partial payment, Interest shall accrue on any unpaid balance. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of OCWD's failure to make timely payments under this Section. OCWD shall make all payments required by this Paragraph in the manner described in Paragraph 79.

81. OCWD may contest payment of any costs billed under Paragraph 79 if it determines that EPA has made a mathematical error or included a cost item that is not within the definition of Future Response Costs, or if it believes EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP. Such objection shall be made in writing within 30 days after receipt of the bill and must be sent to the EPA Project Coordinator. Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, OCWD shall within the 30 day period pay all uncontested Future Response Costs to EPA in the manner described in Paragraph 79. Simultaneously, OCWD shall establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation, and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. OCWD shall send to the EPA Project Coordinator 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, OCWD shall initiate the Dispute Resolution procedures in Section XV (Dispute Resolution). If EPA prevails in the dispute, within 5 days after the resolution of the dispute, OCWD shall pay the sums due (with accrued interest) to EPA in the manner described in Paragraph 79. If OCWD prevails concerning any aspect of the contested costs, OCWD shall pay that portion of the costs (plus associated accrued interest) for which it did not prevail to EPA in the manner described in Paragraph 79. OCWD shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XV (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding OCWD's obligation to reimburse EPA for its Future Response Costs. Nothing herein limits the ability of the State to seek reimbursement of its costs related to ongoing oversight of investigations and cleanups at facilities within the Study Area or to seek reimbursement of costs related to activities performed under this Settlement Agreement.

XIX. COVENANT NOT TO SUE BY EPA

82. In consideration of the actions that will be performed and the payments that will be made by OCWD under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, EPA covenants not to sue or to take any administrative action against OCWD pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work and Future Response Costs. This covenant not to sue shall take effect upon the Effective Date. This covenant not to sue is conditioned upon the complete and satisfactory performance by OCWD of its obligations under this Settlement Agreement, including, but not limited to, payment of Future Response Costs pursuant to Paragraph 79 (Payment of Future Response Costs). This covenant not to sue extends only to OCWD and does not extend to any other person.

XX. RESERVATIONS OF RIGHTS BY EPA

83. Except as specifically provided in this Settlement Agreement, nothing in this Settlement Agreement shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste on, at, or from the Study Area. Further, nothing in this Settlement Agreement shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring OCWD or any other person in the future to perform additional activities pursuant to CERCLA or any other applicable law.

84. The covenant not to sue set forth in Section XIX above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against OCWD with respect to all other matters, including, but not limited to:

- a. liability for failure by OCWD to meet a requirement of this Settlement Agreement;
- b. liability for costs not included within the definitions of Future Response Costs;
- c. liability for performance of response action other than the Work;
- d. criminal liability;
- e. liability for violations of federal or state law that occur during or after implementation of the Work;
- f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;
- g. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the North Basin; and
- h. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the North Basin not paid as Future Response Costs under this Settlement Agreement.

85. Work Takeover. In the event EPA determines that OCWD has ceased implementation of any portion of the Work, are seriously or repeatedly deficient or late in its performance of the Work, or are implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary. OCWD may invoke the procedures set forth in Section XV (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Notwithstanding any other provision of this Settlement Agreement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XXI. COVENANT NOT TO SUE BY OCWD

86. OCWD covenants not to sue and agree not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Future Response Costs, or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of the Work or arising out of the response actions for which the Future Response Costs have or will be incurred, including any claim under the United States Constitution, the State Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, or at common law; or

c. any claim pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, Section 7002(a) of RCRA, 42 U.S.C. § 6972(a), or state law relating to the Work or payment of Future Response Costs.

87. These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Section XX (Reservations of Rights by EPA), other than in Paragraph 84.a (liability for failure to meet a requirement of the Settlement Agreement) or 84.d (criminal liability), but only to the extent that OCWD's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

88. OCWD reserves, and this Settlement Agreement is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her 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, the foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of OCWD's plans, reports, other deliverables, or activities.

89. Nothing in this Agreement shall be deemed to constitute approval or 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).

XXII. OTHER CLAIMS

90. By issuance of this Settlement Agreement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of OCWD.

91. Nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages, and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

92. No action or decision by EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIII. EFFECT OF SETTLEMENT/CONTRIBUTION

93. Nothing in this Settlement Agreement shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Settlement Agreement. Except as provided in Section XXI (Covenant Not to Sue by OCWD), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Study Area against any person not a Party hereto. Nothing in this Settlement Agreement diminishes the right of the United States pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

94. The Parties agree that this Settlement Agreement constitutes an administrative settlement pursuant to which OCWD has, as of the Effective Date, resolved liability to the United States within the meaning of Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), and is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, or as may be otherwise provided by law, for the "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work and Future Response Costs.

95. The Parties further agree that this Settlement Agreement constitutes an administrative settlement pursuant to which OCWD has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

96. OCWD shall, with respect to any suit or claim brought by it for matters related to this Settlement Agreement, notify EPA in writing no later than 60 days prior to the initiation of such suit or claim. OCWD also shall, with respect to any suit or claim brought against it for matters related to this Settlement Agreement, notify EPA in writing within 10 days after service of the complaint or claim upon it. In addition, OCWD shall notify EPA within 10 days after service or receipt of any Motion for Summary Judgment and within 10 days after receipt of any order from a court setting a case for trial, for matters related to this Settlement Agreement.

97. In any subsequent administrative or judicial proceeding initiated by EPA, or by the United States on behalf of EPA, for injunctive relief, recovery of response costs, or other relief relating to the Study Area, OCWD 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 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 covenant by EPA set forth in Section XIX.

XXIV. INDEMNIFICATION

98. OCWD shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees, and representatives from any and all claims or causes of action arising from, or on account of negligent or other wrongful acts or omissions of OCWD, its officers, directors, employees, agents, contractors, subcontractors, and representatives in carrying out actions pursuant to this Settlement Agreement. In addition, OCWD agrees to pay the United States all costs incurred by the United States, 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 based on negligent or other wrongful acts or omissions of OCWD, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of OCWD in carrying out activities pursuant to this Settlement Agreement. Neither OCWD nor any such contractor shall be considered an agent of the United States.

99. The United States shall give OCWD notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with OCWD prior to settling such claim.

100. OCWD waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between OCWD and any person for performance of Work on or relating to the Study Area. In addition, OCWD shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between OCWD and any person for performance of Work on or relating to the Study Area.

XXV. INSURANCE

101. At least 30 days prior to commencing any on-site Work under this Settlement Agreement, OCWD shall secure, and shall maintain for the duration of this Settlement Agreement, commercial general liability insurance with limits of \$2 million dollars, for any one occurrence, and automobile insurance with limits of \$1 million dollars, combined single limit, naming the EPA as an additional insured with respect to all liability arising out of the activities

performed by or on behalf of OCWD pursuant to this Settlement Agreement. Within the same period, OCWD shall provide EPA with certificates of such insurance and a copy of each insurance policy. OCWD shall submit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of the Settlement Agreement, OCWD shall satisfy, or shall ensure that its 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 OCWD in furtherance of this Settlement Agreement. If OCWD demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then OCWD need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVI. INTEGRATION/APPENDICES

102. This Settlement Agreement and its appendices and any deliverables, technical memoranda, specifications, schedules, documents, plans, reports (other than progress reports), etc. that will be developed pursuant to this Settlement Agreement and become incorporated into and enforceable under this Settlement Agreement constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following appendices are attached to and incorporated into this Settlement Agreement: Appendix A, the SOW, including attachments 1-3, and Appendix B, Map.

XXVII. ADMINISTRATIVE RECORD

103. EPA will determine the contents of the administrative record file for selection of the remedial action. OCWD shall submit to EPA documents developed during the course of the RI/FS upon which selection of the response action may be based. Upon request of EPA, OCWD shall provide copies of plans, task memoranda for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. Upon request of EPA, OCWD shall additionally submit any previous studies conducted under state, local, or other federal authorities relating to selection of the response action, and all communications between OCWD and state, local, or other federal authorities concerning selection of the response action. At EPA's discretion, OCWD shall establish a community information repository at or near the Study Area, to house one copy of the administrative record.

XXVIII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

104. This Settlement Agreement shall be effective 10 days after the Settlement Agreement is signed by the Regional Administrator or his/her delegate.

105. This Settlement Agreement may be amended by mutual agreement of EPA and OCWD. Amendments shall be in writing and shall be effective when signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to the Settlement Agreement.

106. No informal advice, guidance, suggestion, or comment by the EPA Project Coordinator or other EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by OCWD shall relieve OCWD of its obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

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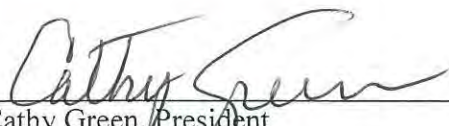
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XXIX. NOTICE OF COMPLETION OF WORK

107. When EPA determines that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including but not limited to payment of Future Response Costs and record retention, EPA will provide written notice to OCWD. If EPA determines that any Work has not been completed in accordance with this Settlement Agreement, EPA will notify OCWD, provide a list of the deficiencies, and require that OCWD modify the RI/FS Work Plan if appropriate in order to correct such deficiencies, in accordance with Paragraph 38 (Modification of the RI/FS Work Plan). Failure by Respondents to implement the approved modified RI/FS Work Plan shall be a violation of this Settlement Agreement.


Agreed this 21st day of SEPT, 2016.

ORANGE COUNTY WATER DISTRICT


By: 
Cathy Green, President

By: 
Michael R. Markus, P.E., General Manager

APPROVED AS TO FORM:
RUTAN & TUCKER, LLP.


General Counsel, Orange County Water District

It is so AGREED this 4th day of October, 2016.

BY: 
John Lyons
Acting Assistant Director
Superfund Division
Region IX
U.S. Environmental Protection Agency

EFFECTIVE DATE: October 14th, 2016

**STATEMENT OF WORK
for
Remedial Investigation and Feasibility Study
(RI/FS)**

ORANGE COUNTY NORTH BASIN



US EPA Region IX
June 2016

Statement of Work for Remedial Investigation/Feasibility Study

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Acronyms

ANSI	American National Standards Institute
ARAR	Applicable or Relevant and Appropriate Requirement
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
COC	Chemical of Concern
CSM	Conceptual Site Model
DCE	Dichloroethene
DQO	Data Quality Objectives
DTSC	California Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
FSP	Field Sampling Plan
HSP	Health and Safety Plan
IC	Institutional Control
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NELAP	National Environmental Laboratory Accreditation Program
OCWD	Orange County Water District
OSHA	Occupational Safety and Health Administration
OSWER	EPA Office of Solid Waste and Emergency Response
OU	Operable Unit
QA/QC	Quality Assurance/ Quality Control
QAPP	Quality Assurance Project Plan
QMP	Quality Management Plan
PCE	Perchloroethene (tetrachloroethene)
RAOs	Remedial Action Objectives
RI/FS	Remedial Investigation/ Feasibility Study
RSL	Regional Screening Levels
RWQCB	Regional Water Quality Control Board, Santa Ana Region
SAP	Sampling and Analysis Plan
SOW	Statement of Work
TBC	To be Considered
TCE	Trichloroethene
TM	Technical Memorandum
VOC	Volatile Organic Compound

STATEMENT OF WORK FOR REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

Orange County North Basin

1. Introduction and General Requirements

1.1. *Purpose*

This Statement of Work (SOW) describes activities to be performed by Orange County Water District (OCWD) at the Orange County North Basin Study Area (North Basin or Study Area) pursuant to the Settlement Agreement, Docket # 2016-03 (Settlement Agreement). Figure 1 in Attachment 1 shows the location of the Study Area. The Settlement Agreement requires OCWD to conduct a Remedial Investigation and Feasibility Study (RI/FS) to support the development of an interim groundwater remedy to hydraulically contain contaminated groundwater originating from the majority of known or suspected sources in the Study Area, and to further characterize the nature and extent of contamination in the Study Area. EPA may use the results of the RI/FS to identify and propose remedial actions needed to address human health risks, and ecological risks if a pathway for exposure is identified.

OCWD shall furnish all necessary and appropriate personnel, materials, and services needed for, or incidental to, performing and completing the work.

1.2. *EPA Oversight and State Review*

In accordance with the schedules established in the Settlement Agreement or in this SOW, OCWD shall submit to EPA and the State of California (the State) plans, reports and other deliverables required under the Settlement Agreement, this SOW and the Work Plan required by Section 3.1 of this SOW. All plans, reports and other deliverables will be reviewed and approved or disapproved by EPA pursuant to Section X of the Settlement Agreement (“EPA Approval of Plans and Other Submissions”), except for the Health and Safety Plan (HSP), which will be reviewed by EPA but neither approved nor disapproved.

If EPA disapproves a deliverable and requests modifications, OCWD shall revise the deliverable and resubmit it to EPA and the State, as provided in Section X of the Settlement Agreement. After receipt of comments from EPA, if any, on a draft document, OCWD shall submit for EPA and State review a revised document within 14 days of receipt of such comments or within 21 days of receipt of such comments for the RI/FS Work Plan, Sampling & Analysis and Health and Safety Plans for RI fieldwork, RI Report, Groundwater Flow Modeling Plan, Groundwater Flow Modeling Report, Remedial Alternatives Identification and Screening Technical Memorandum (TM), Detailed Analysis of Remedial Alternatives TM, and FS Report, unless specified

otherwise in the Settlement Agreement, in Attachment 2 to this SOW, or in writing by EPA.

EPA will review deliverables to assess the likelihood that the work will achieve the requirements set forth in the Settlement Agreement and this SOW. Notwithstanding any action by EPA or the State, OCWD remain fully responsible for satisfying the provisions and requirements of the Settlement Agreement and this SOW. Nothing in the Settlement Agreement, this SOW, or any other submission shall be deemed to constitute a warranty or representation of any kind by EPA or the State that full performance of the RI and FS will achieve these requirements. OCWD's compliance with submissions approved by EPA does not foreclose EPA from seeking additional work as provided for in the Settlement Agreement.

1.3 Communication between EPA, OCWD, and State Agencies

The primary EPA contact for activities to be conducted pursuant to this SOW is the EPA Project Manager:

Wayne Praskins
Remedial Project Manager
U.S. EPA, Region IX
75 Hawthorne Street, SFD-7-3
San Francisco, CA 94105
(415) 972-3181
praskins.wayne @epa.gov

The alternate contact for EPA is:

Caleb Shaffer
Section Chief, California Site Cleanup Section 1
U.S. EPA, Region IX
75 Hawthorne Street, SFD-7-1
San Francisco, CA 94105
(415) 972-3336
shaffer.caleb@epa.gov

The legal contact for EPA is:

Bethany Dreyfus
U.S. EPA, Region IX
Office of Regional Counsel, ORC-3
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3886
dreyfus.bethany@epa.gov

Appendix A to Settlement Agreement, Docket #2016-03

The California Department of Toxic Substances Control (DTSC) contact is:

John Scandura
Branch Chief
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630-4732
john.scandura@dtsc.ca.gov
(714) 484-5440

The Santa Ana Regional Water Quality Control Board (RWQCB) contact is:

Ann Sturdivant
Section Chief, Site Cleanup Program
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501
ann.sturdivant@waterboards.ca.gov
(951) 782-4904

The OCWD contact is:

Dave Mark
Principal Hydrogeologist
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708
dmark@ocwd.com
(714) 378-3337

The alternate contact for OCWD is:

William Hunt
Director of Special Projects
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708
whunt@ocwd.com
(714) 378-8229

1.4 Contractor Personnel and Qualifications

As required by Section VIII of the Settlement Agreement, and in accordance with the schedule included as Attachment 2 to this SOW, OCWD shall notify EPA in writing of the names, titles, and qualifications of the supervising personnel, including contractors to be used in carrying out the Work, and provide a copy of the proposed contractor's Quality Management Plan (QMP). EPA will issue a notice of disapproval or an authorization to proceed regarding hiring of the proposed contractor.

1.5 Reporting to EPA and the State

1.5.1 Monthly Progress Report

OCWD shall prepare and submit written Monthly Progress Reports as required by Section IX of the Settlement Agreement. The progress reports shall, at a minimum: (1) describe the actions that have been taken to comply with the Settlement Agreement during that month, (2) describe Work planned for the next two months with schedules relating such Work to the overall project schedule, (3) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays, (4) describe any modifications that OCWD has proposed to the EPA or that have been approved by the EPA, and (5) describe any community relations activities completed during the previous month or planned for the next two months. Progress reports are due by the fifteenth day of the following month.

1.5.2 Progress Meetings and Documentation of Critical Decisions

Any critical decisions made in meetings or conversations with EPA representatives shall be documented in a written submittal submitted by OCWD to EPA and the State within five (5) days of the decision. The submittal shall document the decision and the rationale for the decision.

1.5.3 Reporting During Field Efforts

OCWD shall communicate more frequently when field work is occurring, in accordance with any requirements in the approved Work Plan or any approved Sampling and Analysis Plans (SAPs) submitted in accordance with this SOW.

1.6 EPA Guidance and Reference Materials

OCWD shall complete the Work in accordance with the provisions of the Settlement Agreement, this SOW, CERCLA, the National Contingency Plan (NCP), and EPA guidance, including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and

Feasibility Studies under CERCLA” (OSWER Directive # 9355.3-01, October 1988 or subsequently issued guidance), "Guidance for Data Usability in Risk Assessment” (OSWER Directive #9285.7-05, October 1990 or subsequently issued guidance), guidance referenced therein, and guidance referenced in Attachment 3 to this SOW.

2. Background

2.1. *Orange County North Basin*

The Orange County Groundwater Basin is part of the 360-square-mile coastal plain of Orange County. The Santa Ana River, the primary surface water drainage feature in the area, is located east and southeast of the Study Area. The northern portion of the Basin, which includes the cities of Fullerton, Anaheim and Placentia, falls within the region known as the Forebay, the predominant area of basin recharge. In the Study Area, OCWD has identified three aquifers or aquifer systems: Shallow, Principal and Deep. The Principal Aquifer is the primary source of approximately 70 percent of the potable water supply in OCWD’s boundary. However, the Shallow Aquifer is also locally used for potable water supply. In portions of the Study Area, the boundary between the Shallow and Principal Aquifers is generally delineated by a fine-grained layer at a depth of approximately 200 to 250 feet; however, this fine-grained layer may be absent or discontinuous, particularly in the eastern part of the Study Area.

OCWD is responsible for managing the Orange County Groundwater Basin, which supplies water to more than 20 cities and other water agencies, serving more than two million customers. OCWD has divided the aquifers into the three aforementioned primary aquifer systems based on the presence of regional aquitards, differences in potentiometric surfaces, and changes in water quality. In the Study Area, the Shallow Aquifer includes sediments extending to an average depth of approximately 200 feet below ground surface (bgs). The Principal Aquifer contains unconsolidated strata extending to an average depth of about 850 feet. The Deep Aquifer contains the unconsolidated aquifers below the Principal Aquifer, extending to an average depth of 1,300 feet bgs. Groundwater in these aquifers generally occurs under unconfined conditions in the North Basin and under semi-confined to confined conditions further west and south. The depth to groundwater in the Shallow Aquifer ranges from approximately 80 to 120 feet bgs. In the Shallow Aquifer, groundwater flow in the area is generally from east to west, but flow may change seasonally and year to year due to changes in groundwater pumping patterns and recharge

Investigations of the North Basin, the area generally under the cities of Anaheim, Fullerton and Placentia, have revealed groundwater contamination from volatile organic compounds (VOCs) and other chemicals. Beginning in the 1950s, VOCs were used for industrial activities in this area. Releases of VOCs into the environment are believed to have resulted in comingled groundwater contamination plumes. To protect public health due to elevated levels of VOCs, four drinking water production wells impacted by contamination have been destroyed: Fullerton well F-FS13 (2002), Fullerton well F-KIM1 (2002), Anaheim well A-23 (2001) and private well BAST-F (2013). High concentrations of perchloroethene (PCE), trichloroethene (TCE), 1,1-

dichloroethene (1,1-DCE) and 1,4-dioxane have been detected in monitoring wells in the Study Area. Other chemicals, including but not limited to 1,2-dichloroethane (1,2-DCA), perchlorate, nitrate, and 1,2,3-trichloropropane, have also been detected.

The North Basin is not on the National Priorities List. DTSC completed a site discovery report in February 2011 and petitioned EPA to conduct an investigation in November 2014 (DTSC 2014). Accordingly, in parallel to the planned RI/FS work, EPA is conducting a Preliminary Assessment and Site Inspection as prescribed by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) to help evaluate whether the Study Area warrants a proposed listing.

2.2. *Source areas*

The Study Area was used primarily for agricultural purposes from about 1920 to 1954. Since that time, industrial activity has increased, and multiple industrial facilities in the area are known or suspected to have contributed to the groundwater contamination. The RWQCB and DTSC have identified several sites potentially responsible for groundwater contamination in the North Basin.

The RWQCB is overseeing investigation work and/or cleanup at six sites, namely AC Products (172 East La Jolla St., Placentia); Aerojet (601 South Placentia Ave., Fullerton); Alcoa Plant 1 (800 S. State College Blvd., Fullerton); Monitor Plating (800 East Orangefair Lane, Anaheim); Northrop Kester Solder (1730 North Orangethorpe Park, Anaheim); and Northrop Y-12 (301 E. Orangethorpe Ave., Anaheim). The RWQCB also provided oversight of initial investigative and/or remediation work at the former Fullerton Manufacturing (311 S. Highland Ave, Fullerton) and Northrop ESD/EMD sites (500 E. Orangethorpe Ave, Anaheim).

DTSC is overseeing investigation and/or cleanup work at an additional four sites, namely the former Chicago Musical Instruments (CMI) (350 S. Raymond Ave., Fullerton); Orange County Metal Processing (1711 East Kimberly Ave., Fullerton); PCA Metal Finishing (1726 East Roslyn Ave., Fullerton); and Crucible Materials (2100 Orangethorpe Ave., Fullerton). DTSC considers CMI, Orange County Metal Processing, and PCA Metal Finishing to be “orphan sites,” but the status of the CMI site may change. In April 2016, DTSC proposed a settlement with Pitney Bowes Inc. and Novitex Enterprise Solutions, Inc. to perform response actions at the CMI site.

Additionally, the Orange County Health Care Agency (OCHCA) has overseen work at some sites in the Study Area.

As stated in EPA’s September 2015 letter to both State agencies, EPA expects that the RWQCB and DTSC will continue investigatory and remedial work at sites they are currently overseeing.

2.3. Regional Plume

Spills, leaks, and other contaminant releases are believed to have resulted in comingled plumes of groundwater contamination in an area several miles long and a mile or more wide. Attachment 1 includes a figure depicting the approximate extent and levels of contamination. The actual extent and levels of contamination may differ from the depiction in the figure, especially in areas with limited data. Data collected as part of the planned RI will be used to improve the understanding of the nature and extent of groundwater contamination in the Study Area.

3. List of Deliverables and Other Tasks

OCWD shall plan and conduct RI and FS work in accordance with this SOW and relevant EPA regulations and guidance, some of which are referenced in Attachment 3. The RI/FS shall, among other things, include field investigation as described in this SOW and, in support of an interim remedy, identify applicable or relevant and appropriate requirements (ARARs); assess potential risks to human health and the environment; and develop, screen, and evaluate remedial action alternatives. Section 3.1.8 describes the preliminary objectives of the interim remedy.

OCWD shall submit plans, reports, and other deliverables for EPA and State review. This SOW requires written submittals describing the results of groundwater modeling, describing the results of the baseline risk assessment, identifying ARARs, describing the development and screening of remedial alternatives, and providing the results of the detailed evaluation of remedial alternatives, as well as a RI Report and a FS Report. Major deliverables are specified in Attachment 2. Pursuant to Section X of the Settlement Agreement, EPA may approve, disapprove, require modifications of, or modify each deliverable.

OCWD shall implement quality control procedures to ensure the quality of all reports and submittals to EPA and the State. These procedures shall include, but are not limited to, internal technical and editorial review; and documentation of all reviews, problems identified, and corrective actions taken.

3.1. Remedial Investigation/Feasibility Study Work Plan

OCWD shall submit a draft RI/FS Work Plan (hereafter “Work Plan”) for EPA and State review and approval in accordance with Section IX of the Settlement Agreement and relevant EPA guidance. The Work Plan shall describe the tasks required to complete the RI/FS, the methodologies to be used, information to be produced during and at the conclusion of each task, a description of the work products that will be submitted to EPA, and a schedule for their completion. OCWD may request to meet with EPA and the State prior to submission of the Work Plan to clarify any questions regarding the SOW.

OCWD shall submit a Revised RI/FS Work Plan, if directed by EPA. Upon approval by EPA, OCWD shall implement the Work Plan. Upon its approval by EPA pursuant to Section X of the Settlement Agreement, the Work Plan (and other plans, reports, and deliverables submitted to EPA under the Settlement Agreement) shall be incorporated into and become enforceable under the Settlement Agreement. The Work Plan shall include the elements described in Sections 3.1.1 through 3.1.14 of this SOW.

3.1.1. Study Area Description and Conceptual Site Model (CSM)

The Work Plan shall include a brief description of the Study Area, including the suspected sources, nature, and extent of soil and groundwater contamination; and geographic, hydrogeologic, ecological, cultural, or natural resource features relevant to the RI/FS.

The Work Plan shall also provide an initial conceptual site model (CSM) for the Study Area, along with provisions for updating the CSM when appropriate based on the availability of new information.

3.1.2. Data Management

The Work Plan shall describe how water level, water quality, and other data to be compiled during the RI/FS will be managed. Unless otherwise indicated, data shall be submitted to EPA and the State in electronic format. When necessary due to file size, OCWD shall provide an acceptable file transfer mechanism for the submission of large documents.

3.1.3. RI Activities

The Work Plan shall describe previous findings relevant to the Study Area, and field activities needed to satisfy the requirements of this SOW. The Work Plan shall include provisions for submittal of one or more SAPs that will generate data needed to satisfy the following objectives:

- Refine the CSM and fill data gaps to support the development and evaluation of remedial alternatives for an interim remedy and further characterize the nature and extent of contamination in the Study Area;
- Prepare a baseline risk assessment for human health in support of an interim remedy-
- Evaluate risks to ecological receptors;
- Provide any other data needed to satisfy the requirements of this SOW; and,
- Provide data to address any concerns about the quantity, quality, completeness, or usability of water quality or other data that will be used to satisfy the requirements of this SOW.

The RI investigation shall include, at a minimum:

- Review of existing data developed by EPA, RWQCB, DTSC, OCWD, private companies, and other local entities relevant to the nature and extent of groundwater contamination in the Study Area;
- Creation of a list of potential chemicals of concern (COCs), likely including but not limited to PCE, TCE, 1,1-DCE and 1,4-dioxane;
- Evaluation of the sources of contamination;
- Construction and sampling of new groundwater monitoring wells needed to support development of an interim groundwater remedy and better define groundwater flow directions and the nature and extent of groundwater contamination. A preliminary list of wells is provided in Table 1 in Attachment 1; and,
- Measurements of groundwater elevations and collection and analysis of groundwater samples for possible COCs from new and selected existing groundwater wells throughout the Study Area. The Work Plan shall propose initial sampling frequencies by well and COC, and provide for modifying those frequencies as the investigation progresses. If accessible, sampling existing groundwater monitoring wells associated with the site at 311 South Highland Avenue in Fullerton, California (known as the “Fullerton Manufacturing” site) should be included.

The monitoring well locations shown on Figure 1 in Attachment 1 are subject to change based on constructability and ability to secure access in a timely manner.

As described in more detail in Section 4 of this SOW, the SAP shall describe planning, field, laboratory, data review and interpretation, and reporting efforts needed to satisfy the RI objectives.

3.1.4. Technical Reports

The Work Plan shall include provisions for the preparation and submittal to EPA of one or more technical reports that summarize the results of RI field activities. If appropriate, the reports shall update figures showing water level contours and/or the nature and extent of groundwater contamination in plan view and/or vertical cross section, update the CSM, and make recommendations for any additional RI work needed to satisfy the requirements of this SOW.

3.1.5. Groundwater Flow Modeling

The Work Plan shall include provisions for the use of a numeric groundwater flow model to better understand groundwater movement in the Study Area, support the placement of

groundwater monitoring wells and complete other field activities, and/or evaluate remedial alternatives.

OCWD has developed a groundwater flow model of the Study Area (the “OCWD Model”). The Work Plan shall include provisions for submittal to EPA of a report documenting the development and calibration of the OCWD Model.

The Work Plan shall include provisions for submittal to EPA of a Groundwater Flow Modeling Plan. The Plan shall provide for revisions to the OCWD model if needed to address EPA comments, and provisions for submittal to EPA of preliminary modeling results and a Groundwater Modeling Report at the completion of the modeling effort.

The model shall be calibrated over a wide-range of hydrogeological conditions and have the capability to simulate transient conditions in three dimensions. The model shall be capable of conducting particle tracking simulations to evaluate hydraulic control. The modeling effort shall include a sensitivity analysis. The modeling effort should consider the procedures outlined in EPA’s guidance document “A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems, EPA/600/R-08/003, January 2008.”

3.1.6. Risk Assessment

The Work Plan shall include provisions for the preparation and submittal of a Technical Memorandum (TM) that presents the results of a Baseline Human Health Risk Assessment to support an interim remedy for the Study Area. The risk assessment shall be conducted in accordance with applicable EPA and State guidance, including but not limited to “Interim Final Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part A),” (RAGS, EPA-540-1-89-002, OSWER Directive 9285.7-01A, December 1989); and “Interim Final Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments),” (RAGS, EPA 540-R-97-033, OSWER Directive 9285.7-01D, January 1998).

The risk assessment shall address pathways of exposures to contaminated groundwater that pose an actual or potential risk to human health and the environment (e.g., human consumption, dermal contact, inhalation). The risk assessment shall also consider cumulative exposure where multiple contaminants are present.

This task will also evaluate whether there are potentially complete exposure pathways for site contaminants to ecological receptors. If no potentially complete exposure pathways exist, then the ecological risk assessment will be considered complete with documentation of that finding and no further work will be necessary. The Work Plan will include provisions for preparation of an ecological risk assessment in accordance with applicable EPA guidance if EPA determines that there are complete exposure pathways for site contaminants to ecological receptors

3.1.7. Treatability Studies and Pilot Testing

The Work Plan shall include provisions for treatability studies and pilot testing if necessary to support the development of an interim remedy. OCWD shall submit plans for any proposed testing to EPA and the State and obtain EPA approval prior to conducting the corresponding field work. The results of any treatability studies or pilot tests shall be included in the screening of remedial alternatives described below.

3.1.8. Preliminary Remedial Objectives and Remedial Alternatives Development and Screening

The preliminary objectives of an interim remedy would be: i) protect human health and the environment by preventing exposure to contaminated groundwater in the Study Area; and ii) hydraulically contain contaminated groundwater to protect water supply wells and groundwater resources threatened by the spread of the contamination. The area targeted for hydraulic containment (the “Target Area”) shall include contaminated groundwater from the majority of known or suspected sources of groundwater contamination in the Study Area. The preliminary Target Area boundary is shown in Figure 1 in Attachment 1.

The Work Plan shall include provisions for the preparation and submittal to EPA of a TM that: i) refines the remedial action objectives; ii) identifies a range of remedial actions including engineering controls and any institutional controls (ICs) needed to address the risks; and iii) provides the results of an initial screening of alternatives to reduce the number of potential remedies for the final detailed evaluation.

3.1.9. Detailed Evaluation of Remedial Alternatives

The Work Plan shall include provisions for the preparation and submittal to EPA of a TM that presents a detailed evaluation of interim remedial alternatives that pass the initial screening based on the nine evaluation criteria specified in 40 CFR 300.430[e][9]. The submittal shall also evaluate any ICs identified as a component of the remedial alternatives. The evaluation shall: (1) state the objectives of the ICs; (2) determine the specific types of ICs to be used to meet the remedial action objectives; (3) determine when the ICs need to be implemented and for what duration; (4) discuss and document

any prior or necessary agreements and with whom (e.g., state and/or local government entities, local landowners, conservation organizations, OCWD) for securing, maintaining and enforcing the ICs.

3.1.10. Applicable or Relevant and Appropriate Requirements

The Work Plan shall include provisions for the preparation and submittal to EPA of a ARARs TM that describes potentially applicable or relevant and appropriate requirements (ARARs) under federal or state law and any proposed ARARs waivers, as required in CERCLA section 121(d). ARARs are environmental regulations, standards, criteria, or limitations, promulgated under federal or more-stringent state laws, for consideration for each remedial alternative being evaluated. Each ARAR evaluated shall be designated as “applicable” or “relevant and appropriate” and linked to the specific remedial activity being evaluated. The ARARs TM shall consider action-specific, chemical-specific, and location-specific ARARs as well as To Be Considered (TBC) criteria, including advisories or guidance that are not promulgated or independently enforceable but which may be used to set protective cleanup levels.

3.1.11. RI and FS Reports

The Work Plan shall include provisions for submittal to EPA and the State a draft RI Report and draft FS Report. The RI and FS Reports collectively shall provide, summarize, and discuss the following:

- Study Area background and setting;
- Sources, nature and extent of groundwater contamination;
- Results of groundwater modeling conducted in support of the RI/FS;
- Baseline human health risk assessment and evaluation of ecological risks;
- Data quality and usability;
- Remedial action objectives;
- ARARs;
- The identification and screening of remedial alternatives, including pilot testing;
- A detailed analysis of interim remedial alternatives, including an evaluation of ICs;
- The roles and responsibilities of the OCWD, water utilities, or other third parties required for implementation of each remedial alternative;
- Existing facilities (e.g., groundwater extraction wells, water treatment systems, pipelines) that may be used as part of a remedy, including their planned use, condition, expected life and the potential for increased maintenance or reduced lifespan compared to new facilities.

Upon review of the draft documents, EPA may require OCWD to revise the RI and FS Reports. When complete, the RI and FS reports, along with an Administrative Record, may provide the basis for a Proposed Plan and Record of Decision to be prepared by EPA in accordance with CERCLA Sections 113(k) and 117(a).

3.1.12. Updated Project Schedule.

The Work Plan shall include a schedule consistent with Attachment 2 of this SOW that provides dates for deliverables and other critical path activities required for the RI/FS. The schedule shall include time for EPA and State review of written deliverables and for meetings with EPA representatives when appropriate.

3.1.13. Roles and Responsibilities of Key Personnel and Organizations.

The Work Plan shall describe the roles and responsibilities of individuals and organizations involved in the RI/FS effort, including contractors and major subcontractors.

3.1.14. Permits, Access, Coordination, and Compliance with Substantive Requirements

The Work Plan shall list all permits, easements, access agreements, and approvals anticipated for implementation of the RI/FS.

3.2. Plans

3.2.1. Sampling and Analysis Plan

In accordance with Section IX of the Settlement Agreement, OCWD shall prepare a Sampling and Analysis Plan (SAP) for field and laboratory activities required to implement the RI/FS. SAPs are required for sample collection and analysis as well as physical measurements such as groundwater levels, borehole geophysics, aquifer parameters, and geodetic survey data.

The SAP submitted pursuant to this SOW shall consist of a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP), as described in EPA guidance, including, without limitation, “EPA Guidance for Quality Assurance Project Plans (QA/G-5)” (EPA/600/R-02/009, December 2002 or subsequently issued guidance), and “EPA Requirements for Quality Assurance Project Plans (QA/R-5)” (EPA 240/B-01/003, March 2001 or subsequently issued guidance). Key guidance documents are listed in Attachment 3. The plans shall include, or be accompanied by, a schedule for implementation of the planned sampling, analysis, and reporting activities. The FSP and QAPP may be submitted separately or as one document. Upon EPA approval of a SAP, OCWD shall implement the activities described therein.

- a. The FSP shall describe sampling and data gathering objectives; proposed monitoring well locations and planned uses of the data; well construction and well development procedures; sampling and data collection methods; sample frequencies; sampling equipment and equipment decontamination procedures; sample preservation, packing, labeling, and shipment

procedures; chain-of-custody procedures; numbers and types of samples (including quality control [QC] samples); use and maintenance of field logs; and management of investigation-derived wastes.

The FSP 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 FSP shall include a schedule that describes activities that must be completed in advance of sampling, including access agreements and arrangements for disposal of investigation-derived waste. The FSP shall include provisions for the collection of split samples by EPA.

b. The QAPP shall describe the project objectives and organization, functional activities, data quality objectives (DQOs), and quality assurance and quality control (QA/QC) protocols that will be used to achieve the DQOs. In addition, the QAPP shall address personnel qualifications, sampling procedures, sample custody, analytical procedures, document control procedures, preservation of records (in accordance with Section XIV of the Settlement Agreement), and procedures that will be used to enter, store, manage, correct, manipulate, review, validate, transfer, and analyze data, and ensure that reported data are accurate and defensible.

OCWD shall be prepared to demonstrate to EPA's satisfaction that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern, in the media of interest, at detection and quantification limits consistent with DQOs and requirements specified in the approved QAPP for the work. OCWD shall only use laboratories that have documented Quality Assurance Programs that comply with ANSI/ASQ 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. If the laboratory is not in the EPA Contract Laboratory Program ("CLP"), OCWD shall submit for EPA review and approval, if EPA requests, a laboratory QA program plan. EPA may require that OCWD submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications.

OCWD shall submit analytical data and well construction information to EPA and the State in accordance with the schedule included in Attachment 2.

3.2.2. Health and Safety Plan

OCWD shall prepare a Health and Safety Plan (HSP) in accordance with EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992 or subsequently issued guidance). The HSP shall comply with all currently applicable Occupational Safety and

Health Administration (OSHA) regulations found at 29 C.F.R. Part 1910, as well as any related requirements specific to California. EPA will review but neither approve nor disapprove the HSP. The OCWD shall consider all changes to the plan recommended by EPA and shall implement the plan while conducting the RI/FS.

3.3. *RI Field Work*

OCWD shall conduct RI field work in accordance with any approved SAPs and the HSP. OCWD shall notify EPA at least two weeks in advance of any field effort.

3.4. *Groundwater Flow Modeling Plan*

OCWD shall submit a Groundwater Flow Modeling Plan in accordance with the approved Work Plan.

3.5. *Groundwater Flow Modeling*

OCWD shall conduct groundwater flow modeling in accordance with the approved Work Plan and approved Groundwater Flow Modeling Plan.

3.6. *Groundwater Flow Modeling Reports*

OCWD shall submit a report documenting the development and calibration of the OCWD model, preliminary modeling results, and a Groundwater Flow Modeling Report in accordance with the approved Work Plan and Groundwater Flow Modeling Plan.

3.7. *Remedial Investigation Report*

OCWD shall submit to EPA for review and approval a draft RI Report in accordance with the approved Work Plan, followed by a final RI Report incorporating any revisions required by EPA.

3.8. *Remedial Alternatives Screening TM*

OCWD shall submit a Remedial Alternatives Screening TM documenting the results of the screening of remedial alternatives in accordance with the approved Work Plan. This effort may include pilot testing as discussed in section 3.1.7.

3.9. *Remedial Alternatives Evaluation TM*

OCWD shall submit a Remedial Alternatives Evaluation TM documenting the results of the evaluation of remedial alternatives in accordance with the approved Work Plan.

3.10. ARARs TM

OCWD shall submit a TM identifying ARARs in accordance with the approved Work Plan.

3.11. Risk Assessment TM

OCWD shall submit a Risk Assessment TM documenting the results of the baseline human health risk assessment, and an ecological risk assessment if deemed necessary in accordance with the approved Work Plan.

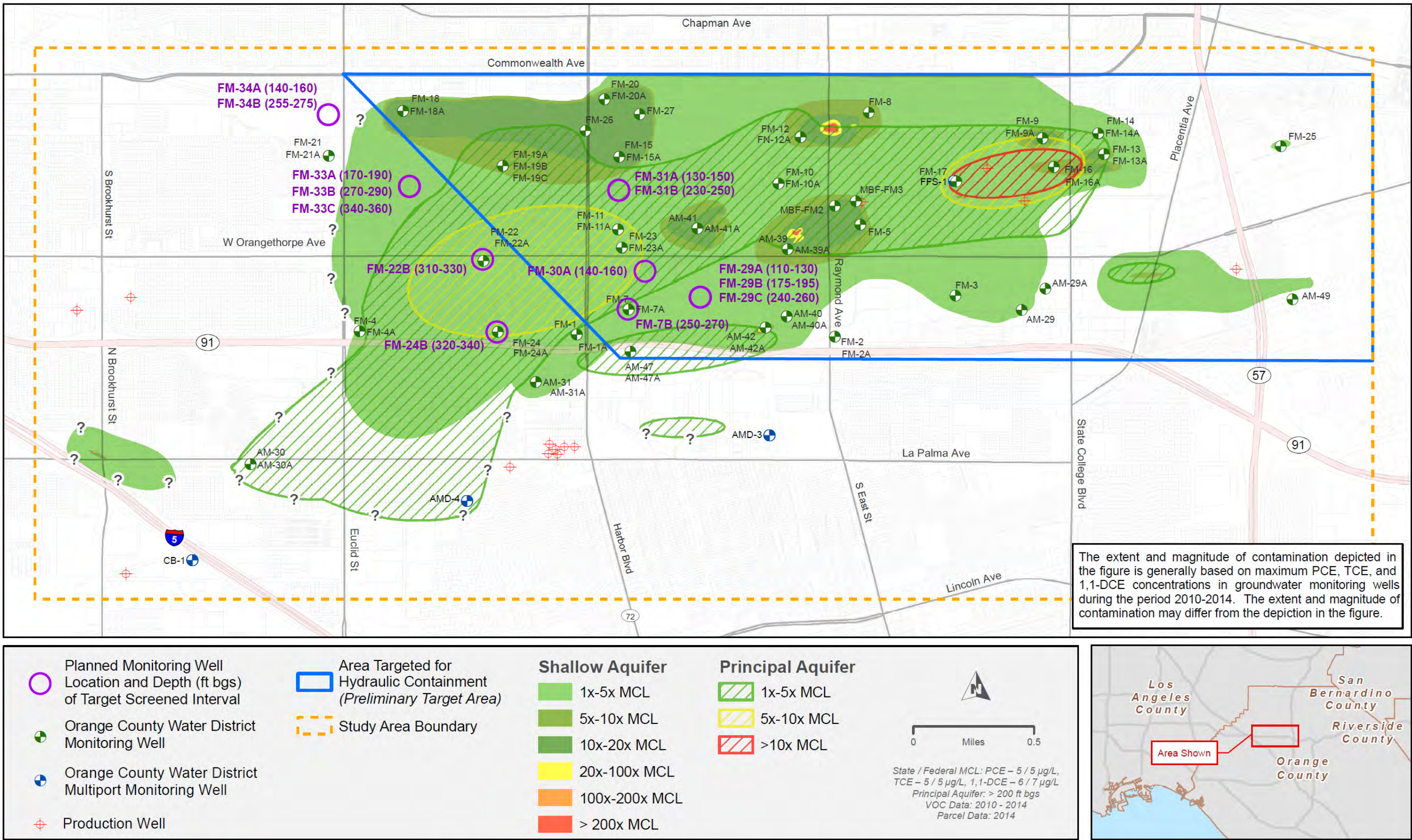
3.12. FS Report

OCWD shall submit a draft FS Report in accordance with the approved Work Plan, and a final FS Report incorporating revisions required by EPA.

3.13. Community Involvement Activities

OCWD shall implement any community involvement activities specified in the approved Work Plan or that EPA directs OCWD to complete. EPA expects to take the lead role in implementing community involvement activities for the Study Area but may request that OCWD assist EPA by participating in public meetings, preparing fact sheets, placing documents in the local information repository, placing announcements in local newspapers, providing translation services, or conducting other community involvement activities. OCWD is a local public agency with independent community involvement responsibilities including conduct of OCWD-led community involvement activities. Where these activities may relate to this Work, OCWD will coordinate with EPA and, where applicable, the affected Cities.

**Attachment 1 to the SOW: Study Area, Preliminary Target Area
for Interim Remedy, and Monitoring Well Locations and
Rationale**



**FIGURE 1. ORANGE COUNTY NORTH BASIN: PLANNED GROUNDWATER MONITORING WELL LOCATIONS
APPROXIMATE EXTENT OF GROUNDWATER CONTAMINATION**

Table 1. Planned Groundwater Monitoring Wells – Orange County North Basin Remedial Investigation

Well No. ^(a)	Target Depth(s) of Screened Interval ^(b)	Justification/Notes
FM-7B	250-270	To evaluate the benefits of hydraulically containing contaminated groundwater at or near the FM-7 location. Adjacent FM-7A and FM-7 have shown decreasing VOC concentrations since they were installed in 2009. Vertical extent and presence of VOCs in the Principal Aquifer in this area is unknown.
FM-29A FM-29B FM-29C	110-130, 175-195, 240-260	To characterize the lateral and vertical extent of groundwater contamination in the vicinity of one-time grab samples MW-GW01, MW-GW02, OW-GW01, and OW-GW02 Principal Aquifer well (FM-29C, 250-ft depth) may be eliminated if down-gradient Principal Aquifer well at FM-7B does not exhibit VOCs at concentrations greater than MCL/NL.
FM-30A	140-160	To characterize the extent of shallow groundwater contamination between the FM-7 and FM-23 locations
FM-31A FM-31B	130-150 230-250	To characterize the lateral and vertical extent of groundwater contamination down-gradient of FM-10, between the FM-11 and FM-15 locations.
FM-24B	320-340	To characterize the vertical extent of Principal Aquifer contamination observed in FM-24 (screened 271-291), which exhibits significantly higher VOC concentrations than adjacent Shallow Aquifer monitoring well FM-24A (screened 154-174).
FM-22B	310-330	To characterize the vertical extent of Principal Aquifer contamination observed in FM-22 (screened 242-262), which exhibits significantly higher VOC concentrations than adjacent Shallow Aquifer monitoring well FM-22A (screened 150-170). Provides data to evaluate the possible need to pump from deeper parts of the Principal Aquifer.
FM-33A FM-33B FM-33C	170-190, 270-290, 340-360	To characterize the lateral and vertical extent of groundwater contamination in the Shallow and Principal Aquifers, including helping to define the lateral down-gradient extent of Principal Aquifer contamination observed in FM-19C.
FM-34A FM-34B	140-160, 255-275	To characterize the extent of groundwater contamination downgradient of FM-18A/18. Additional downgradient monitoring may be needed if elevated VOCs are detected at this location.

Notes:

(a) Well locations shown on accompanying map have not been ground-truthed and are subject to change pending suitability for well construction and ability to secure access.

(b) Assume 20-ft-long screened intervals. Actual length and depth of screened intervals will depend on observed lithology.

Attachment 2 to the SOW. Due Dates for Major Deliverables and Other Activities

Ref SOW Section	Ref Settlement Agreement Section	Activity or Deliverable	Due ^{1, 2, 3, 4, 5}
-	-	Effective Date of Settlement Agreement	
1.4	VIII	Notification of Personnel to be used for the Work, including submittal of QMP	Fourteen (14) days after the Effective Date of the Settlement Agreement
-	VIII	Notification of Project Coordinator	Fourteen (14) days after the Effective Date of the Settlement Agreement
-	XXV	Proof of commercial general liability and automobile liability insurance	Thirty (30) days before commencing any onsite Work
1.5	IX	Monthly Progress Reports	15 th day of the following month
1.5	IX	Meeting Notes	5 days after any meeting where critical decisions are made or per EPA/State request.
3.1	IX	RI/FS Work Plan	Ninety (90) days after the Effective Date of the Settlement Agreement
3.3	IX	EPA notification of planned field work	Two weeks before field effort begins
3.2	IX	SAP and HSP for RI fieldwork	Ninety (90) days after the Effective Date of the Settlement Agreement
3.3	IX	RI fieldwork	As specified in approved SAP
3.7	IX	RI Report	As specified in approved Work Plan
3.4	IX	Groundwater Flow Modeling Plan	As specified in approved Work Plan
3.5	IX	Groundwater Flow Modeling	As specified in approved Work Plan or approved Groundwater Flow Modeling Plan
3.6	IX	Groundwater Flow Modeling Report	As specified in approved Work Plan or approved Groundwater Flow Modeling Plan
3.11	IX	Risk Assessment TM	As specified in approved Work Plan
3.10	IX	ARARs TM	As specified in approved Work Plan
3.8	IX	Remedial Alternatives Identification and Screening TM	As specified in approved Work Plan

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Ref SOW Section	Ref Settlement Agreement Section	Activity or Deliverable	Due ^{1, 2, 3, 4, 5}
3.9	IX	Detailed Analysis of Remedial Alternatives TM	As specified in approved Work Plan
3.12	IX	FS Report	As specified in approved Work Plan
4	IX	Submittal of analytical data, whether or not validated	Forty-two (42) calendar days of sample shipment to the laboratory or 14 days of receipt of analytical results from the laboratory, whichever occurs first.
4	IX	Submittal of validated analytical data	Ninety (90) calendar days of the sample shipment to the laboratory
4	IX	Groundwater well construction information	Ninety (90) days after completion of a well.

¹ Unless otherwise indicated, all deliverables shall be provided in an electronic format (e.g., PDF) to EPA, EPA's contractor, the RWQCB, and DTSC.

² All deliverables set forth in Attachment 2 will be reviewed and approved by EPA in accordance with Section X of the Settlement Agreement, except for the Health and Safety Plan(s), which will be reviewed but neither approved nor disapproved.

³ Revised versions of documents, if needed, are due 14 days after receipt of EPA comments, unless specified otherwise in the Settlement Agreement, this Attachment, or in writing by EPA

⁴ Where possible, information presented in color should be interpretable when reproduced in black and white.

⁵ Estimated time is in calendar days.

Attachment 3 to the SOW. Selected References and Guidance

Ahmed, Rafiq, Cal/EPA Department of Toxic Substances Control. *North Orange County Site Discovery Project*. Cooperative Agreement No. V-97999001-2 with U.S. EPA Region IX. February 2011.

Black, Stewart W., California Department of Toxic Substances Control. *Petition to Conduct a Preliminary Assessment of Hazardous Substance Releases in the North Orange County Basin Groundwater Plume Area*. Letter to Enrique Manzanilla, U.S. EPA Region IX. November 25, 2014.

Intera Geoscience and Engineering Solutions, for Orange County Water District. *Conceptual Model Refinement, North Basin Groundwater Modeling Project*. February 18, 2015.

National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule, Federal Register 40 CFR Part 300, March 8, 1990 and as revised

Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992

A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems, EPA/600/R-08/003, January 2008

Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration, OSWER Directive 9283.1-33, June 26, 2009

Superfund Green Remediation Strategy, September 2010, available at: <http://www.epa.gov/superfund/greenremediation/sf-gr-strategy.pdf>

CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, (DRAFT), OSWER Directive No. 9234.1-01 and -02, August 1988

Superfund Community Involvement Handbook, U.S. EPA, Office of Solid Waste and Emergency Response, EPA-540-K-05-003, April 2005

Policy Guidance for Direct Domestic Use of Extremely Impaired Sources, California Department of Public Health Policy Memorandum 97-005

Clarification of the Role of Applicable, or Relevant and Appropriate Requirements in Establishing Preliminary Remediation Goals Under CERCLA, EPA 540/F-97/008, OSWER 9200.4-23, August 1997

USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic

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Methods Data Review, USEPA-540-R-08-01, June 2008, EPA Office of Emergency and Remedial Response (see <http://www.epa.gov/superfund/programs/clp/> for most recent versions).

USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010 (see <http://www.epa.gov/superfund/programs/clp/> for most recent versions).

EPA Guidance on Systematic Planning Using the Data Quality Objectives Process (QA/G-4), February 2006.

EPA Requirements for Quality Management Plans (QA/R-2), EPA/240/B-01/002, March 2001.

EPA Requirements for Quality Assurance Project Plans (QA/R-5), EPA/240/B-01/003, March 2001.

EPA Region IX Sampling and Analysis Plan Guidance and Template, R9QA/002.1, April 2000.

Manzanilla, Enrique, EPA Region IX. Letter to Barbara A. Lee, California Department of Toxic Substances Control, and Kurt Berchtold, Santa Ana Regional Water Quality Control Board. September 3, 2015.

EPA Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. OSWER Publication 9200.2-154. June 2015.

Interim Final Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part A). EPA-540-1-89-002, OSWER Directive 9285.7-01A, December 1989.

Interim Final Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments). EPA 540-R-97-033, OSWER Directive 9285.7-01D, January 1998.

EPA Region 9 Response Action Levels and Recommendations to Address Near-Term Inhalation Exposures to Trichloroethylene (TCE) in Air from Subsurface Vapor Intrusion. July 19, 2014.

Region 9 Superfund Data Evaluation/Validation Guidance (Draft), USEPA, Quality Assurance Office, R9QA/006.1, December 2001

Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-10., U.S. EPA, Office of Emergency and Remedial Response, EPA/540/G-89/004, October 1988.

Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, American National Standards Institute (ANSI), ANSI/ASQ E4 1994, January 5, 1995.

Appendix A to Settlement Agreement, Docket #2016-03

California Code of Regulations (CCR) Title 8, Article 109, Section 5192 Hazardous Waste Operations and Emergency Response (HAZWOPER), California Occupational Safety and Health Administration (Cal OSHA)

Code of Federal Regulations, Occupational Safety and Health Administration (OSHA), (CFR) Title 29, Section 1910.120

A Compendium of Superfund Field Operations Methods, EPA Office of Solid Waste and Emergency Response (OSWER), Directive No. 9355.0-14, August 1987.

CERCLA Compliance With Other Laws Manual, EPA Office of Solid Waste and Emergency Response (OSWER), Directive Nos. 9234.1 (part I) and 9234.1-02 (part 2), Part I -August 1988 and Part II -August 1989.

Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, EPA Office of Solid Waste and Emergency Response (OSWER), Publication 9200.2-154, June 2015.

