UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 7

IN THE MATTER OF:	ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Operable Unit #3 Missouri Electric Works Cape Girardeau, Missouri	
Ameren, et al.,	U.S. EPA, Region 7 Docket No. CERCLA-07-2016-0018
Respondents	Proceeding Under Sections 104, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9607 and 9622.

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ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Missouri Electric Works Superfund Site
Operable Unit No. 3

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and the Parties identified in Attachment A, ("Respondents"). The Settlement Agreement concerns the preparation and performance of a remedial investigation and feasibility study ("RI/FS") for the operable unit consisting of polychlorinated biphenyl (PCB) contamination or other contaminants that have migrated from the former Missouri Electric Works property located at 824 South Kingshighway (Highway 61) in Cape Girardeau, Missouri, to drainage features south of Wilson Road that include a wetland area.

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, as amended, 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. 2926 (Jan. 29, 1987), and further delegated to Regional Administrators on May 11, 1994, by EPA Delegation Nos. 14-14-C and 14-14-D. This authority was further redelegated by the Regional Administrator of EPA Region 7 to the Director, Superfund Division by R7-14-014-C and R7-14-014-D.

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 United States Department of Interior on February 25, 2009, of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal trusteeship.

4. EPA and Respondents recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondents in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondents do not admit, and retain 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, conclusions of law and determinations in Sections V and VI of this Settlement Agreement. Respondents agree to comply with and be bound by the terms of this Settlement Agreement and further agree that they 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 Respondents and their successors and assigns. Any change in ownership or corporate status of a Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Settlement Agreement.

6. Respondents are jointly and severally liable for carrying out all activities required by this Settlement Agreement. In the event of the insolvency or other failure of any one or more Respondents to implement the requirements of this Settlement Agreement, the remaining Respondents shall complete all such requirements.

7. Respondents shall ensure that their contractors, subcontractors, and representatives receive a copy of this Settlement Agreement and comply with this Settlement Agreement. Respondents shall be responsible for any noncompliance with this Settlement Agreement.

8. Each Respondent is a Donor to the Missouri Electric Works Site Trust, UMB Bank as Trustee. Respondents are represented by the Missouri Electric Work Site Trust Donors Executive Committee ("MEWSTD Executive Committee"). The MEWSTD Executive Committee certifies that it has been authorized by the Donors to act, by and through the MEWSTD Executive Chairperson, to execute and legally bind Respondents to this Settlement Agreement.

III. STATEMENT OF PURPOSE

9. In entering into this Settlement Agreement, the objectives of EPA and Respondents are: (a) 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 Site, by conducting a Remedial Investigation as more specifically set forth in the documents attached as Appendix C to this Settlement Agreement; (b) to identify and evaluate remedial alternatives to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Feasibility Study. The parties recognize that data has been collected at the Site over several years and that the data is consistent. As such a Remedial Investigation in this context shall present the data and address gaps in the data through field work, as necessary.

10. The Work conducted under this Settlement Agreement is subject to approval by EPA and shall provide all appropriate and necessary information to assess Site 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"). Respondents shall conduct all Work under this Settlement Agreement in compliance with CERCLA, the NCP, and all applicable EPA guidances, policies, and procedures.

IV. DEFINITIONS

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

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

b. "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 holiday, the period shall run until the close of business of the next working day.

c. "Effective Date" shall be the effective date of this Settlement Agreement as provided in Section XXIX.

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

e. "Engineering Controls" shall mean constructed containment barriers or systems that control one or more of the following: downward migration, infiltration or seepage of surface runoff or rain; or natural leaching migration of contaminants through the subsurface over time. Examples include caps, engineered bottom barriers, immobilization processes, and vertical barriers.

f. "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 items pursuant to this Settlement Agreement, verifying the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, Agency for Toxic Substances and Disease Registry ("ATSDR") costs, the costs incurred pursuant to Paragraph 56 (costs and attorneys' fees and any monies paid to secure access, including the amount of just compensation), Paragraph 42 (emergency response), and Paragraph 83 (Work Takeover).

g. "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.

h. "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, 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.

i. "MDNR" shall mean the Missouri Department of Natural Resources and any successor departments or agencies of the State.

j. "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.

k. "Operable Unit 3" or "OU3" shall mean that portion of the Site that is generally the area encompassing the drainage features south of Wilson Road and includes a wetland area and is down gradient of the property located at 824 South Kingshighway (Highway 61) in Cape Girardeau, Missouri. Operable Unit 3 is identified on the map attached as Appendix B.

l. "Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral.

m. "Parties" shall mean EPA and Respondents.

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

o. "Respondents" shall mean those Parties identified in Appendix A."

p. "Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

q. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent, the SOW, all appendices attached hereto (listed in Section XXVII) 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.

r. "Site" shall mean the former Missouri Electric Works property, encompassing approximately 6.4 acres, located at 824 South Kingshighway (Highway 61) in Cape Girardeau, Cape Girardeau County, Missouri, and all areas where contamination from the property has come to be located. The Site is depicted generally on the map attached as Appendix B."

s. "State" shall mean the State of Missouri.

t. "Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); and (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

u. "Work" shall mean all activities Respondents are required to perform under this Settlement Agreement, except those required by Section XIV (Retention of Records).

v. "RI Work Plan" shall mean the documents developed to describe the activities needed to complete the RI as set forth in paragraph 36 and attached as Appendix C.

V. FINDINGS OF FACT

12. The Site is comprised of the former Missouri Electric Works property, approximately 6.4 acres located at 824 South Kingshighway (Highway 61) in Cape Girardeau, Missouri and all areas where contamination from this facility has come to be located. The Site is located in a predominately commercial/industrial area of Cape Girardeau and is approximately 1.6 miles west of the Mississippi River.

13. MEW, Inc. operated an electrical repair, service, and resale business at the Site from 1954 until 1992. Electrical equipment handled at the Site consisted of oil-filled electrical transformers, electric motors, electric equipment controls and oil-filled switches. Oil from the transformers and other equipment was disposed of on Site soils. Spills and the disposal of spent industrial solvents used to clean the electrical equipment being repaired or serviced occurred.

14. As a result of MEW Inc.'s operations, soil on the Site and adjacent properties was contaminated with PCBs. Groundwater contamination was also detected. Contaminants detected in groundwater included 1,1,1-TCA, TCE, PCE, 1,1-DCA, 1,1-DCE, 1,2-DCE, benzene, chlorobenzene, 1,1,4-TCB, 1,2-DCB, 1,3-DCB, 1,4-DCB and PCBs.

15. The Respondents identified in Attachment A to this Settlement Agreement and Order are persons that EPA contends arranged for disposal or treatment of, or transport of, hazardous substances found at the Site.

16. In response to a release or a substantial threat of a release of hazardous substances at the Site, the Respondents completed an investigation of on-site soils contamination in June 1990. The on-site soils contamination is identified as Operable Unit 1 ("OU1").

17. The Site was listed on the National Priorities List ("NPL") pursuant to CERCLA Section 105, 42 U.S.C. § 9605, and 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on February 21, 1990, 55 Fed. Reg. 6150.

18. The decision by EPA on the remedial action to be implemented at OU1 of the Site is embodied in a final Record of Decision ("ROD"), executed on September 28, 1990, on which the State had a reasonable opportunity to review and comment and on which the State has given its concurrence. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

19. The remediation addressing the OU1 soils contamination was completed in September 2000 by Respondents.

20. In response to a release or a substantial threat of a release of hazardous substances at or from the Site, and pursuant to a Consent Decree approved by this Court in March 1998, Settling Defendants commenced on June 12, 2000, a Remedial Investigation and Feasibility Study ("RI/FS") for the groundwater at Operable Unit 2 ("OU2") at the Site in accordance with 40 C.F.R. § 300.430.

21. Respondents completed a Remedial Investigation ("RI") Report and a Feasibility Study ("FS") Report for OU2 on July 5, 2005.

22. The decision by EPA on the remedial action being implemented at OU2 of the Site is embodied in a final ROD, executed on September 28, 2005, on which the State had a reasonable opportunity to review and comment and on which the State has given its concurrence. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

23. The Site also has an area identified as Operable Unit 3 ("OU3") which is generally the area encompassing the drainage features south of Wilson Road and includes a wetland area, all downgradient from OU1. Sampling data from areas in OU3 have indicated the presence of hazardous substances including PCBs.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, EPA has determined that:

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

25. The contamination found at the Site, 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).

26. The conditions described in the Findings of Fact 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).

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

28. Respondents are responsible parties under Sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622. Each Respondent arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment of hazardous substances at the facility, within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

29. The actions required by this Settlement Agreement are necessary to protect public health, welfare or the environment, are in the public interest, are consistent with CERCLA and the NCP, and will expedite effective remedial action and minimize litigation, within the meaning of Section 122(a) of CERCLA, 42 U.S.C. § 9622(a).

30. EPA has determined that Respondents are qualified to conduct the RI/FS 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 Respondents comply with the terms of this Settlement Agreement.

VII. SETTLEMENT AGREEMENT AND ORDER

31. Based upon the foregoing Findings of Fact and Conclusions of Law and Determinations, it is hereby Ordered and Agreed that Respondents 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

32. Selection of Contractors, Personnel. All Work performed under this Settlement Agreement shall be under the direction and supervision of qualified personnel. The Settling Defendants have selected, and EPA has not disapproved, Mark Kroening, Philips Environmental Services, 210 West Sand Bank Road, Columbia, Illinois 62236 as the lead contractor and project coordinator. With respect to any proposed contractor, Respondents shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995, 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 or subsequently issued guidance) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for Respondents 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 Respondents' demonstration to EPA's satisfaction that Respondents are 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, Respondents shall notify EPA of the identity and qualifications of the replacements within 30 days of 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 Respondents. During the course of the RI/FS, Respondents 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.

33. EPA has designated Hoai Tran of the Superfund Division, Region 7, as its Project Coordinator. EPA will notify Respondents of a change of its designated Project Coordinator. Except as otherwise provided in this Settlement Agreement, Respondents shall direct all submissions required by this Settlement Agreement to the Project Coordinator at 11201 Renner Boulevard, Lenexa, Kansas 66219 by electronic and regular mail.

34. 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 Site 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.

35. 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. Section 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 Work Plan.

IX. WORK TO BE PERFORMED

36. Respondents shall conduct the RI/FS in accordance with the provisions of this Settlement Agreement, CERCLA, the 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), and guidance referenced therein, as may be amended or modified by EPA. Respondents shall conduct the RI in accordance with the RI Work Plan which has been approved by EPA and found to be consistent with the foregoing guidance prior to the execution of this Settlement Agreement and is attached as Appendix C. The RI shall consist of determining the nature and extent of the contamination at or from the Site, 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 based on the site risks what, if any, remedy is required and if required, 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 Site. 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 Respondents 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). Upon request by EPA, Respondents shall submit in electronic form all portions of any plan, report or other deliverable Respondents are required to submit pursuant to provisions of this Settlement Agreement.

37. Upon receipt of the draft FS report, EPA will evaluate, as necessary, the estimates of the risk to the 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 Work Plan or FS.

a. If at any time during the RI/FS process, Respondents identify a need for additional data, Respondents shall submit a memorandum documenting the need for additional data to the EPA Project Coordinator within 10 days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into plans, reports and other deliverables.

b. In the event of unanticipated or changed circumstances at the Site, Respondents 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 immediate threat or the unanticipated or changed circumstances warrant changes in the RI Work Plan or FS, EPA shall modify or amend the RI Work Plan or FS in writing accordingly. Respondents shall perform the RI Work Plan or FS as modified or amended.

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

d. Respondents shall confirm their willingness to perform the additional Work in writing to EPA within 7 days of receipt of the EPA request. If Respondents object to any modification determined by EPA to be necessary pursuant to this Paragraph, Respondents may seek dispute resolution pursuant to Section XV (Dispute Resolution). The RI Work Plan or FS shall be modified in accordance with the final resolution of the dispute.

e. Respondents 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 Work Plan or FS. EPA reserves the right to conduct the Work itself at any point, to seek reimbursement from Respondents, 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 at the Site.

39. Off-Site Shipment of Waste Material. Respondents shall, prior to any off-site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state and to EPA's Designated Project Coordinator. However, this notification requirement shall not apply to any off-site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

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

b. The identity of the receiving facility and state will be determined by Respondents following the award of the contract for the remedial investigation and feasibility

study. Respondents shall provide the information required by Subparagraph 39.a and 39.c as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

c. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondents shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondents shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

40. Meetings. Respondents 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, Respondents shall provide to EPA and the State monthly progress reports by the 10th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall (1) describe the actions which have been taken to comply with this Settlement Agreement during that month, (2) include all results of sampling and tests and all other data received by Respondents, (3) describe Work planned for the next two months with schedules relating such Work to the overall project schedule for RI/FS completion, and (4) 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 performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action. Respondents shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondents shall also immediately notify the EPA Project Coordinator or, in the event of his/her unavailability, the EPA Region 7 Spill Line at 913-289-0991, of the incident or Site conditions. In the event that Respondents fail to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondents 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 Site, Respondents shall immediately notify the EPA Project Coordinator, the EPA Region 7 Spill Line at 913-289-0991, and the National Response Center at (800) 424-8802. Respondents 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, EPA, after providing an opportunity for review and comment by the State, 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 Respondents modify the submission; or (e) any combination of the above. However, EPA shall not modify a submission without first providing Respondents at least one notice of deficiency and an opportunity to cure within 30 days, except where to do so would cause serious disruption to the Work or where a previous submission has been disapproved due to material defects.

44. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Subparagraph 43(a), (b), (c) or (e), Respondents shall proceed to take any action required by the plan, report or other deliverable, as approved or modified by EPA subject only to their 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, Respondents 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 Subparagraph 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, Respondents 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 30-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.

b. Notwithstanding the receipt of a notice of disapproval, Respondents 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 Respondents of any liability for stipulated penalties under Section XVI (Stipulated Penalties).

c. Respondents shall not proceed further with any subsequent activities or tasks until receiving EPA approval, approval on condition or modification of the following

deliverables: Draft RI Report and Draft FS Report. While awaiting EPA approval, approval on condition or modification of these deliverables, Respondents shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth under this Settlement Agreement.

d. For all remaining deliverables not listed above in subparagraph 45.c., Respondents shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondents 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 Respondents to correct the deficiencies. EPA shall also retain the right to modify or develop the plan, report or other deliverable. Respondents shall implement any such plan, report, or deliverable as corrected, modified or developed by EPA, subject only to Respondents' 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, Respondents shall be deemed to have failed to submit such plan, report, or other deliverable timely and adequately unless Respondents invoke 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) and Section XVI (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is not otherwise revoked, substantially modified or superseded as a result of a decision or agreement reached pursuant to the Dispute Resolution process set forth in Section XV, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XVI.

48. In the event that EPA takes over some of the tasks, but not the preparation of the RI Report or the FS Report, Respondents 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 Respondents' 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 Respondents' deliverables, Respondents are responsible for preparing deliverables acceptable to EPA.

XI. QUALITY ASSURANCE, SAMPLING, AND ACCESS TO INFORMATION

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

52. Sampling.

a. All results of sampling, tests, modeling or other data (including raw data) generated by Respondents, or on Respondents' behalf, if any, during the period that this Settlement Agreement is effective, shall be submitted to EPA and the State. EPA or the State will make available to Respondents validated data generated by EPA or the State unless it is exempt from disclosure by any federal or state law or regulation.

b. Respondents shall verbally notify EPA and the State at least 10 days prior to conducting significant field events, if any. At EPA or the State's verbal or written request, or the request of EPA's oversight assistant, Respondents shall allow split or duplicate samples to be taken by EPA or the State (and its authorized representatives) of any samples collected in implementing this Settlement Agreement. All split samples of Respondents shall be analyzed by the methods identified in the QAPP.

53. Access to Information.

a. Respondents shall provide to EPA, and the State, upon request, copies of all documents and information within their possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this 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. Respondents shall also make available to EPA, and the State, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

b. Respondents may assert business confidentiality claims covering part or all of the documents or information 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). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when it is submitted to EPA and the State, or if EPA has notified Respondents that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondents.

Respondents shall segregate and clearly identify all documents or information submitted under this Settlement Agreement for which Respondents assert business confidentiality claims.

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

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 documents or information evidencing conditions at or around the Site.

54. In entering into this Settlement Agreement, Respondents waive any objections to any data gathered, generated, or evaluated by EPA, the State or Respondents 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 the EPA-approved RI Work Plan. If Respondents object to any other data relating to the RI/FS, Respondents 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 of the monthly progress report containing the data.

XII. SITE ACCESS AND INSTITUTIONAL CONTROLS

55. If the Site, or any other property where access is needed to implement this Settlement Agreement, is owned or controlled by any of Respondents, such Respondents shall, commencing on the Effective Date, provide EPA, and the State, and their representatives, including contractors, with access at all reasonable times to the Site, or such other 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 Respondents, Respondents shall use their 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. Respondents shall immediately notify EPA if after using their 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. Respondents shall describe in writing their efforts to obtain access. If Respondents cannot obtain access agreements, EPA may either (i) obtain access for Respondents or assist Respondents in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as EPA deems appropriate; (ii) perform those tasks or activities with EPA contractors; or (iii) terminate the Settlement Agreement. Respondents shall

reimburse EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XVIII (Payment of Response Costs). If EPA performs those tasks or activities with EPA contractors and does not terminate the Settlement Agreement, Respondents shall perform all other tasks or activities not requiring access to that property, and shall reimburse EPA for all costs incurred in performing such tasks or activities. Respondents shall integrate the results of any such tasks or activities undertaken by EPA into its plans, reports and other deliverables.

57. Notwithstanding any provision of this Settlement Agreement, EPA and the State, retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XIII. COMPLIANCE WITH OTHER LAWS

58. Respondents shall comply with all applicable local, state and federal laws and regulations when performing the Work. 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, Respondents 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, each Respondent shall preserve and retain all non-identical copies of documents, records, and other information (including documents, records, or other information in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 10 years after commencement of construction of any remedial action, Respondents shall also instruct their contractors and agents to preserve all documents, records, and other information of whatever kind, nature or description relating to performance of the Work.

60. At the conclusion of this document retention period, Respondents shall notify EPA and the State at least 90 days prior to the destruction of any such documents, records or other information, and, upon request by EPA or the State, Respondents shall deliver any such documents, records, or other information to EPA or the State. Respondents may assert that certain documents, records, and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondents assert such a privilege, they shall provide EPA and the State with the following: 1) the title of the document, record, or other information; 2) the date of the document, record, or other information; 3) the name and title of the author of the document, record, or other information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or other

information; and 6) the privilege asserted by Respondents. However, no documents, records or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

61. Each Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by EPA or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to 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.

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 Respondents object to any EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, they shall notify EPA in writing of their objection(s) within 10 days of such action, unless the objection(s) has/have been resolved informally. EPA and Respondents shall have 30 days from EPA's receipt of Respondents' 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 verbally 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, the Director of the Superfund Division, EPA, Region 7, will issue a written decision. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement. Respondents' 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, Respondents 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 Respondents agree with the decision.

XVI. STIPULATED PENALTIES

65. Respondents 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 XVII (Force Majeure). "Compliance" by Respondents shall include completion of the Work under this Settlement Agreement or any activities contemplated under the RI Work Plan, the FS, 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.

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

Penalty Per Violation Per Day	Period of Noncompliance
$ 1,500	1st through 14th day
$ 1,750	15th through 30th day
$ 2,000	31st day and beyond

b. Compliance Milestones

1. Completion of draft and final RI Report
2. Completion of the draft and final Ecological Risk Assessment
3. Completion of draft and final FS Report

67. Stipulated Penalty Amounts - Reports.

a. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other written documents pursuant to Paragraphs 38 and 41 and the RI Work Plan:

Penalty Per Violation Per Day	Period of Noncompliance
$ 750	1st through 14th day
$ 1,000	15th through 30th day
$ 1,500	31st day and beyond

68. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 83 of Section XX (Reservation of Rights by EPA), 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: (1) 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 Respondents of any deficiency; and (2) with respect to a decision by the Director of the Superfund Division, EPA, Region 7, designated in Paragraph 64 of Section XV (Dispute Resolution), during the period, if any, beginning on the 30th day after the Negotiation Period begins until the date that the Director of the Superfund Division, EPA, Region 7, issues a final decision regarding such dispute. Nothing herein shall

prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

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

71. All penalties accruing under this Section shall be due and payable to EPA within 30 days of Respondents' receipt from EPA of a demand for payment of the penalties, unless Respondents invoke the dispute resolution procedures in accordance with Section XV (Dispute Resolution). All payments to EPA under this Section shall be made to EPA by Electronic Funds Transfer ("EFT") in accordance with current EFT procedures to be provided to Respondents by EPA Region 7, shall indicate that the payment is for stipulated penalties, and shall be accompanied by a statement identifying the name and address of the party(ies) making payment, the Site name, the EPA Region and Site/Spill ID Number 076R, and the EPA docket number for this action. Notice of any payment made pursuant to this Section, and any accompanying transmittal information shall be sent to EPA as provided in Paragraph 33, and to the Regional Financial Officer, U.S. EPA, Region 7, 11201 Renner Boulevard, Lenexa, Kansas 66219.

72. The payment of penalties shall not alter in any way Respondents' 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 Respondents fail to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondents shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 70.

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 Respondents' 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 herein, 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 83. 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. Respondents agree 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 Respondents or of any entity controlled by Respondents, including but not limited to their contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondents' 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, Respondents shall notify EPA orally within two (2) days of when Respondents first knew that the event might cause a delay. Within two (2) days thereafter, Respondents 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; Respondents' rationale for attributing such delay to a *force majeure* event if they intend to assert such a claim; and a statement as to whether, in the opinion of Respondents, 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 Respondents 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 Respondents in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondents 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. In consideration that Respondents have deferred requests for mixed funding, payments by Federal Defendants and payments from the Special Account until the record of decision for OU3 is complete, EPA shall accrue Future Response Costs but this order does not require the payment of Future Response Costs.

XIX. COVENANT NOT TO SUE BY EPA

80. In consideration of the actions that will be performed and the payments that will be made by Respondents 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 administrative action against Respondents pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work performed under this Settlement Agreement. This covenant not to sue shall take effect upon the Effective Date and is conditioned upon the complete and satisfactory performance by Respondents of all obligations under this Order. This covenant not to sue extends only to Respondents and does not extend to any other person.

XX. RESERVATIONS OF RIGHTS BY EPA

81. Except as specifically provided in this Settlement Agreement, nothing herein 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 Site. Further, nothing herein 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 Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

82. 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 Respondents with respect to all other matters, including, but not limited to:

a. claims based on a failure by Respondents to meet a requirement of this Settlement Agreement;

b. liability for costs not included within the definition of Future Response Costs;

c. liability for performance of response action other than the Work;

d. criminal liability;

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

f. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and

g. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site.

83. Work Takeover. In the event EPA determines that Respondents have ceased implementation of any portion of the Work, are seriously or repeatedly deficient or late in their performance of the Work, or are implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary. Respondents 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. Costs incurred by EPA in performing the Work pursuant to this Paragraph shall be considered Future Response Costs. 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 RESPONDENTS

84. Respondents covenant 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 or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the 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 Missouri Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Work or payment of Future Response Costs.

85. These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an Administrative Order pursuant to the reservations set forth in Paragraphs 82 (b), (c), and (e) - (g), but only to the extent that Respondents' claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

86. 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).

87. Respondents agree not to assert any claims and to waive all claims or causes of action that they may have for all matters relating to the Site, including for contribution, against any person that has entered into a final *de minimis* settlement under Section 122(g) of CERCLA, 42 U.S.C. § 9622(g), with EPA with respect to the Site as of the Effective Date. This waiver shall not apply with respect to any defense, claim, or cause of action that a Respondent may have against any person if such person asserts a claim or cause of action relating to the Site against such Respondent.

88. This Section XXI shall not apply to the Federal Defendants.

XXII. OTHER CLAIMS

89. 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 Respondents.

90. Except as expressly provided in Section XXI, Paragraph 87 (De Minimis Waivers), and Section XIX (Covenant Not to Sue by EPA), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondents or 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.

91. 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. CONTRIBUTION

92. a. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Respondents are 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, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), or as may be otherwise provided by law, for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work and Future Response Costs.

b. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which Respondents have, as of the Effective Date, resolved their liability to the United States for the Work and Future Response Costs.

c. Except as provided in Section XXI (Covenant Not to Sue by Respondents), and Paragraph 87 of this Settlement Agreement (De Minimis Waivers), nothing in this Settlement Agreement precludes the United States or Respondents from asserting any claims, causes of action, or demands for indemnification, contribution, or cost recovery against any person not parties to this Settlement Agreement. Nothing herein diminishes the right of the United States, pursuant to Sections 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).

XXIV. INDEMNIFICATION

93. Respondents 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

Respondents, their officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondents agree 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 Respondents, their officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondents in carrying out activities pursuant to this Settlement Agreement. Neither Respondents nor any such contractor shall be considered an agent of the United States.

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

95. Respondents waive 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 any one or more of Respondents and any person for performance of Work on or relating to the Site. In addition, Respondents 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 any one or more of Respondents and any person for performance of Work on or relating to the Site.

XXV. INSURANCE

96. At least 30 days prior to commencing any On-Site Work under this Settlement Agreement, Respondents shall secure, and shall maintain for the duration of this Settlement Agreement, comprehensive general liability insurance and automobile insurance with limits of two (2) million dollars, combined single limit, naming the EPA as an additional insured. Within the same period, Respondents shall provide EPA with certificates of such insurance and a copy of each insurance policy. Respondents 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, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondents in furtherance of this Settlement Agreement. If Respondents demonstrate 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 Respondents need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVI. FINANCIAL ASSURANCE

97. Within 30 days of the Effective Date, Respondents shall establish and maintain financial security for the benefit of EPA through the existing Missouri Electric Works Site Trust

Fund (the "Trust Fund") to secure the full and final completion of Work by Respondents. Within thirty (30) days of the Effective Date of this Consent Decree, Settling Defendants shall certify that the Trust contains $300,000 for this Order on Consent.

98. Money paid into the Trust Fund shall be used solely to pay proper and necessary expenses pursuant to this Settlement Agreement, including expenses of administering the Trust Fund; provided, however, the Respondents may finance mutually beneficial activities out of the Trust Fund, including litigation and payment of stipulated penalties, so long as all transactions for funding, and paying the expenses connected with, such activities are accounted for separately.

99. Notwithstanding anything in the Trust Agreement, Respondents shall be jointly and severally liable for compliance with this Settlement Agreement. The Respondents shall provide EPA and the State with written notice at least thirty (30) days in advance of any proposed change in the Trust Agreement or of any Trustee.

100. The Trust Agreement shall provide that the Trustee will, within one year after their appointment and every one year thereafter, submit to the Respondents, EPA, and the State financial reports that include cash flow projections showing the level of funds that will be necessary to pay for the obligations of the Respondents under this Settlement Agreement for the next two years and the amount of money currently in the Trust Fund. If the amount of money in the Trust Fund is less than the amount projected in the Trustee's report to be needed for the next two years, the Respondents shall, within forty-five (45) days after issuance of the Trustee's report, deposit into the Trust Fund amounts sufficient to bring the level of the Trust Fund up to that projected amount. Respondents shall in any event make payments to the Trust Fund when and to the extent necessary to ensure uninterrupted progress and timely completion of the Work.

XXVII. INTEGRATION/APPENDICES

101. 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" is the list of Donors to the MEW Site Trust ("Respondents").
"Appendix B" is a map of the Site.
"Appendix C" is the RI Work Plan.

XXVIII. ADMINISTRATIVE RECORD

102. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondents 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, Respondents 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, Respondents 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 Respondents and state, local or other federal authorities concerning selection of the response action. At EPA's discretion, Respondents shall establish a community information repository at or near the Site, to house one copy of the administrative record.

XXIX. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

103. This Settlement Agreement shall be effective 5 days after the Settlement Agreement is signed by the Director of the Superfund Division, EPA, Region 7.

104. This Settlement Agreement may be amended by mutual agreement of EPA and Respondents. 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.

105. 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 Respondents shall relieve Respondents of their 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.

XXX. NOTICE OF COMPLETION OF WORK

106. 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 Respondents. If EPA determines that any such Work has not been completed in accordance with this Settlement Agreement, EPA will notify Respondents, provide a list of the deficiencies, and require that Respondents modify the RI Work Plan or FS if appropriate to correct such deficiencies, in accordance with Paragraph 38 (Modification of the RI Work Plan or FS). Failure by Respondents to implement the approved modified RI Work Plan shall be a violation of this Settlement Agreement.

Agreed this 22nd day of September, 2016

MISSOURI ELECTRIC WORKS SITE TRUST DONORS EXECUTIVE COMMITTEE

By: Ellen S. Goldman

Ellen Goldman
Chairperson

ARMSTRONG TEASDALE LLP

By:_____

George von Stamwitz
Attorney for the MEWSTD Executive Committee

Agreed this 22nd day of September, 2016

MISSOURI ELECTRIC WORKS SITE TRUST DONORS EXECUTIVE COMMITTEE

By:_____
Ellen Goldman
Chairperson

ARMSTRONG TEASDALE LLP

By:_____
George von Stamwitz
Attorney for the MEWSTD Executive Committee

It is so ORDERED AND AGREED this 26 day of Sept, 2016.

Mary P. Peterson
Director, Superfund Division
United States Environmental Protection Agency
Region 7

Steven L. Sanders
Senior Counsel
United States Environmental Protection Agency
Region 7

EFFECTIVE DATE: October 3, 2016

APPENDIX A

List of Donors

Jackson, City of
Richards Electric Motor Co
Sikeston Board of Municipal Utilities
DuPont
Hancock County REMC
New-Mac Electric Cooperative
Fredericktown City Light & Power
Sachs Electric
Menard Electric Co-op
Mississippi Lime Co
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Florida Power/Progress Energy
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Marathon Petroleum Co
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Freeman United Coal Mining Co
Kagmo Electric
National Grid/ (Formerly New England Power)
Salton/Toastmaster
The Pittsburgh & Midway Coal Mining Co

APPENDIX B

Wetland Area

APPENDIX C

Remedial Investigation Work Plan
Missouri Electric Works (OU-3)
Cape Girardeau, Missouri

August 18, 2016

Prepared for:

MISSOURI ELECTRIC WORKS
SITE TRUST FUND DONORS

Prepared by:

PSC Industrial Outsourcing, LP
210 West Sand Bank Road
Columbia, Illinois 62236

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LIST OF ABBREVIATIONS & ACRONYMS

Acronym	Reference
ABD	Absolute Difference
USACE	United States Army Corps of Engineers
ASTM	American Society for Testing and Materials
bgs	below ground surface
Burnside	Burnside Environmental Group
COPEC	chemicals of potential ecological concern
DQO	data quality objectives
ENVIRON	ENVIRON International Corporation
EERSE	Expanded Ecological Risk Screening Evaluation
EISB	enhanced in-situ bioremediation
ESD	explanation of signification differences
FS	Feasibility Study
ICs	institutional controls
Komex	Komex H_2O Science Inc.
LCS	Laboratory Control Samples
MCLs	maximum contaminant levels
MDNR	Missouri Department of Natural Resources
MEW	Missouri Electric Works
MEWSC	Missouri Electric Works Steering Committee
mg/kg	milligrams per kilogram
MNA	monitored natural attenuation
MS	matrix spike
MSD	matrix spike duplicate
NPL	National Priorities List
OU-1	Operable Unit 1 – MEW Property at 824 South Kingshighway, Cape Girardeau, Missouri
OU-2	Operable Unit 2 – Groundwater beneath MEW Property and surrounding area
OU-3	Operable Unit 3 – Off-Property Area to south and east of MEW Property
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCB	polychlorinated biphenyl
ppm	parts per million
PRPs	potentially responsible parties
PSC	PSC Industrial Outsourcing, LP
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision

RPD	relative percent (%) differences
SAP	Sampling and Analysis Plan
Seagull	Seagull Environmental Technologies, Inc.
S&ME	Soil & Material Engineers
SOW	scope of work
STFD	Site Trust Fund Donors
TI	technical impracticability
TRVs	toxicity reference values
USEPA	United States Environmental Protection Agency
Work Plan	Remedial Investigation Work Plan

EXECUTIVE SUMMARY

The Missouri Electric Works (MEW) site covers approximately 6.4 acres of land in a primarily commercial/industrial area located in Cape Girardeau, Missouri. Between 1954 and 1992, electrical equipment containing dielectric fluids were serviced, repaired, reconditioned, salvaged, and re-sold at the facility. Commercial operations ceased at the MEW property in 1992.

Previous studies conducted on behalf of the United States Environmental Protection Agency (USEPA) and the Missouri Department of Natural Resources (MDNR) detected the presence of polychlorinated biphenyl (PCB) Aroclor-1260 and other chemicals on the MEW property and adjacent properties. It is believed that the presence of these chemicals is associated with the historical operations at the MEW property, which included the handling and storage of electrical equipment containing PCBs.

The MEW site is divided into three operable units (OUs). OU-1 addresses the soils on the former MEW property. OU-2 addresses the groundwater. OU-3 addresses the Off-Property Area located adjacent to and down gradient of the MEW site.

OU-1 MEW Site

The remedy for the soils on the former MEW site selected in the 1990 Record of Decision (ROD) for OU-1 included the excavation, processing, and on-site thermal treatment of PCB contaminated soils. After treatment and analysis confirmed that cleanup standards had been met, the treated soil was used to backfill the excavated area, which was capped with contaminant free soil. The upper one foot of soil had organics added to support vegetation growth.

The remedial activities were completed in September 2000, which effectively eliminated the migration of the PCBs from the soils at the MEW property. However, historical migration of pre-remediated PCB-containing soils through drainage features could have contributed to observed impacts in sediment and soil in the down-gradient United States Army Corp of Engineers (USACE) channel, retention pond, Wilson Road and drainage pathways, wet meadow, and wetlands (collectively referred to as the Off-Property Area).

OU-2 Groundwater

The groundwater portion of the remedy at the site was designated OU-2. A focused remedial investigation/feasibility study (RI/FS) for groundwater was conducted for the site. The RI identified two groundwater aquifers, one in the alluvium and one in the fractured bedrock that were impacted by the MEW site. The EPA issued a second ROD in 2005 for OU-2. For the fractured bedrock aquifer, the remedy consisted of three components: wellhead treatment, groundwater monitoring, and institutional controls (ICs). A technical

impracticability (TI) waiver for meeting the groundwater cleanup levels (maximum contaminant levels (MCLs)) was granted due to the highly variable and fractured nature of the bedrock. For the alluvium aquifer groundwater monitoring, ICs, wellhead treatment, long-term monitoring, and enhanced in situ bioremediation (EISB) were the selected components of the remedy. In addition, a contingent remedy included monitored natural attenuation (MNA) instead of EISB as an option if future data demonstrated that MNA was occurring. In 2012/2013, MNA data was collected which demonstrated MNA was occurring. Later in 2013, an explanation of significant differences (ESD) was signed which formally selected the contingent MNA remedy for the OU-2 alluvial aquifer.

As stated in the Third Five-Year Review Report, July 2014, there are no current human exposures to contaminated groundwater.

OU-3 Off-Property Area

OU-3 addresses the Off-Property Area located adjacent to and down gradient of OU-1, which consists of the following:

- Wilson Road right-of-way associated with drainage from the east side of MEW;
- The existing retention pond;
- The wetland area;
- The USACE channel; and,
- Wet Meadow.

Investigation activities were performed within the OU-3 area in 2005, 2006, 2009, 2011, 2012, and 2014 to evaluate the extent of PCB contamination. In total, approximately 165 soil samples (all depths), 100 surface soil samples (<1 foot), 10 sediment samples, and 15 fish samples were collected. OU-3 is well characterized from these multiple investigations. Not all of the data collected as part of the investigations of OU-3 were submitted to the USEPA. Some of the data were collected for litigation purposes. However, these data are of high quality and are suitable for use in the RI of OU-3. This RI Work Plan briefly describes the investigations and the available data that will be used in the OU-3 RI.

Ecological risk assessment (ERA) activities were conducted for OU-3 in 2005, 2006, 2012, and 2014. The initial ERA activities (2005, 2006) were done in coordination with the USEPA. These reports were the Ecological Risk Screening Evaluation (ERSE) and the Expanded Ecological Risk Screening Evaluation (EERSE). The EERSE expanded upon the ERSE with site-specific fish tissue data and an expanded evaluation of food web pathways. The EERSE indicated that PCBs were the only chemicals of potential ecological concern (COPEC) that warranted an additional evaluation; and, PCBs were not present at concentrations that pose unacceptable risks to wildlife populations. The COPEC analysis from the EERSE will be presented in the ERA. These results were discussed during a meeting with USEPA in October 2005 and the EERSE Report was submitted to USEPA in

June 2006. Since 2006, there were litigation efforts that resulted in additional consideration of potential ecological risks at OU-3. These additional ERA efforts also concluded that PCBs were not present at concentrations that pose unacceptable risks to wildlife populations. The ERA updates (2012, 2014) were developed as litigation reports and were not intended to be formal ERA reports for the USEPA. However, ERA calculations were done in a manner consistent with the USEPA Guidelines for ERA and the ERA calculations considered all relevant data from the investigations of OU-3 that occurred after the 2006 EERSE was submitted. The ERA efforts associated with the litigation were not submitted to the USEPA. All ERA efforts were discussed with USEPA on June 21, 2016, including the litigation efforts. It was agreed that the RI for OU-3 should include an updated ERA using all available, relevant information from all investigation efforts at OU-3 from 2005 to present. In addition, during the June 21 discussion, the USEPA's ecological risk assessor expressed preferences for wildlife that should be considered in the OU-3 ERA and PCB toxicity reference values that should be used in the OU-3 ERA. Therefore, the ERA approach proposed herein identifies the PCB data for the sediment, surface soils, and fish tissue in the OU-3 area that will be used to develop the OU-3 ERA. In addition, the ecological receptors and the toxicity reference values that will be used in the ERA are identified.

This RI Work Plan describes the activities to evaluate historical sediment, surficial soil, and fish tissue data to assess ecological risks that may be associated with the OU-3 area and to document that the data collected for the litigation efforts also conforms to USEPA quality requirements for usability in the RI/FS process. The result of implementing this Work Plan will be the generation of the RI Report and subsequent Feasibility Study (FS). It is anticipated that no additional field sampling or laboratory analysis will be necessary given the robust data set that already exists. Therefore, this RI Work Plan does not include discussions of collection of additional field data or additional laboratory analysis. However, if the review of the data indicates deficiencies or gaps exist, then sampling work plans will be prepared to address those needs. The sampling work plans will be submitted to USEPA for review and comment.

The scope of work (SOW) for this Work Plan is to gather, compile, organize, and evaluate existing data in order to prepare a comprehensive RI Report and update the risk assessment for the OU-3 area. This SOW is pursuant to the June 21, 2016 meeting that was held between the USEPA, PSC, RAMBOLL ENVIRON, and members of the STFD. The presentation to USEPA included a preliminary summary of the data and ecological risk assessment that exist for OU-3. In part, this SOW includes conducting a focused quality assurance validation of the existing data obtained for OU-3. The data to be validated will be obtained from several historical reports.

1 INTRODUCTION

PSC Industrial Outsourcing, LP (PSC) has prepared this Remedial Investigation (RI) Work Plan (Work Plan) for the Missouri Electric Works (MEW) Site Trust Fund Donors (STFD).

The MEW site is divided into three operable units (OU). OU-1 addressed the soils on the former MEW property. OU-2 addresses the groundwater. OU-3 addresses the Off-Property Area located adjacent to and down gradient of the MEW site. The location of the OU-1 MEW site and OU-3 Off-Property Area are shown on Figure 1-1.

OU-3 consists of the following areas:

- Wilson Road right-of-way associated with drainage from the east side of MEW;
- The existing retention pond;
- The wetland area;
- The USACE channel; and,
- Wet Meadow.

On June 21, 2016, a meeting was held between the USEPA, PSC, RAMBOLL ENVIRON, and members of the STFD. The presentation included a preliminary summary of the OU-3 investigation data and ERA efforts conducted to date for OU-3. The key points discussed included the following items:

- additional characterization data for OU-3 from site investigations reports that had not been presented previously to USEPA (see Section 4); and,
- the methods and procedures used to perform ERA efforts to date, including those already submitted to the USEPA and those that were not yet submitted to the USEPA.

After discussion of technical details about data quality and ERA procedures, it was agreed that:

- sufficient sediment, soil and fish data are available for OU-3 with the provisions that the data meets USEPA quality objectives;
- the ERA that will be provided as part of the RI will include small home range ecological receptors and a range of toxicity reference values (TRVs), including the use of the more conservative TRVs for PCBs;
- no additional field sampling or laboratory analysis is considered necessary at this time given the amount of data available. The amount of data collected appears to be sufficient to conduct the ERA. This will be confirmed when the data is submitted to USEPA; and,
- the path forward was to submit a Work Plan, compile relevant data, perform a quality review of the data, submit a comprehensive RI with an ecological risk assessment as an addendum (human health will be addressed by briefly summarizing the baseline

risk assessment performed to assess the risks posed to human health in the OU – 1 Main Site Record of Decision (9/28/1990) and the remedy documented in the Remedial Action Report (approved by USEPA on September 29, 2000)), and submit a Feasibility Study (FS).

The activities presented in this Work Plan describe the steps to be used to evaluate historical sediment, surficial soil, and fish tissue data and provide the documentation to show that the data conforms to USEPA quality requirements. As was agreed upon during the June 21 meeting, it is anticipated that no additional field sampling or laboratory analysis will be necessary given the robust data set that already exists. This RI Work Plan does not include discussions of collection of additional field data or additional laboratory analysis. A Sampling and Analysis Plan (SAP) will not be developed since no field sampling is anticipated. A Quality Assurance Project Plan (QAPP) will be prepared later and submitted under separate cover to USEPA for review and comment. The existing data, previously collected from the OU-3 area, will be evaluated under this Work Plan.

2 SITE HISTORY

The MEW property (Figure 1-1), located at 824 South Kings Highway (U.S. Highway 61) in Cape Girardeau, covered approximately 6.4 acres of land in a primarily commercial/industrial area on land within the city limits of Cape Girardeau. MEW Inc. acquired the property in 1952. Prior to MEW's purchase of the property in 1952, the land use was believed to have been agricultural. Between 1954 and 1992, electrical equipment containing dielectric fluids were serviced, repaired, reconditioned, salvaged, and re-sold at the facility. Approximately 90 percent of the oil from salvaged equipment was recycled, and the estimated amount that was not recycled was approximately 28,000 gallons (Komex, 2003).

The site is located in the hills just above the Mississippi River flood plain. Channels come from the north, south, and east boundaries of the Site and drain into Cape LaCroix Creek, which flows into the Mississippi River. The MEW property is primarily in a commercial and industrial setting, bounded in all directions by development. To the immediate east is a ravine that flows to the south, it is bound immediately to the west by South Kingshighway, with commercial properties further west across the road. To the north and south are other commercial and industrial developments.

Impact to the soil was discovered at the MEW site in 1984 during an inspection by the MDNR. Through various subsequent investigations, impact to soil from PCBs was identified on the MEW property, in addition to offsite migration of PCB impacted soils along drainage pathways.

OU-1 MEW Site

The site was proposed for inclusion on the National Priorities List (NPL) on June 24, 1988. This same month, former customers of MEW were alerted of their potential liability. A steering committee of former customers known as the Missouri Electric Works Steering Committee (MEWSC) was formed and performed a RI/FS during 1989 and 1990. The 1990 OU-1 Record of Decision (ROD) selected thermal desorption of PCB-contaminated soils as the preferred remedy. This remedy was implemented in 1999-2000. Inclusion on the NPL was finalized on February 21, 1990.

The 1990 OU-1 ROD included the excavation, processing, and treatment of PCB contaminated soils using thermal desorption technology. The source remedy selected included the excavation and on-site thermal treatment of all soils with PCB concentrations in excess of 10 parts-per-million (ppm) to a depth of four feet below ground surface (bgs) and 100 ppm at depths greater than four feet bgs. The potentially responsible parties (PRPs) subsequently agreed to treat soils to 10 ppm at all depths, and this was accomplished (Sverdrup, 2001). After treatment and analysis confirmed that treatment standards had been met, the treated soil was used to backfill the excavated areas. The entire area was capped with a contaminant-free soil. The upper one foot of the cap had organics added to

support vegetation. The soil remedy was completed upon acceptance by the USEPA of the Soil Remedial Action Report dated September 2000 (USEPA, 2014).

OU-2 Groundwater

The groundwater portion of the remedy at the site was designated OU-2. A focused RI/FS for groundwater was conducted for the site. The RI identified two groundwater aquifers, one in the alluvium and one in the fractured bedrock that were impacted by the MEW site. The EPA issued a second record of decision in 2005 for OU-2. For the fractured bedrock aquifer, the remedy consisted of three components: wellhead treatment, groundwater monitoring, and ICs. A TI waiver for meeting the groundwater cleanup levels was granted due to the highly variable and fractured nature of the bedrock. For the alluvium aquifer groundwater monitoring, ICs, wellhead treatment, long-term monitoring, and EISB were the selected components of the remedy. In addition, a contingent remedy included MNA instead of EISB as an option if future data demonstrated that MNA was occurring. In 2012 /2013, MNA data was collected which demonstrated MNA was occurring. Later in 2013, an explanation of significant differences ESD was signed which formally selected the contingent MNA remedy for the OU-2 alluvial aquifer.

As stated in the Third Five-Year Review Report, July 2014, there are no current human exposures to contaminated groundwater.

OU-3 Off-Property Area

Investigation activities have been performed within the OU-3 area in 2005, 2006, 2009, 2011, 2012, and 2014 to evaluate the extent of PCB contamination. In total, approximately 165 soil samples (all depths), 100 surface soil samples (<1 foot), 10 sediment samples, and 15 fish samples were collected. OU-3 is well characterized from these multiple investigations. Figure 2-1 illustrates the sample locations and surface water flow directions for OU-3.

3 WORK PLAN OBJECTIVES AND RATIONALE

The Work Plan objectives are pursuant to the June 21, 2016 meeting that was held between the USEPA, PSC, RAMBOLL ENVIRON, and members of the STFD. The presentation to USEPA included a preliminary summary of the data and ecological risk assessment that exist for OU-3.

The objective of the RI activities presented in this Work Plan is to evaluate the existing data regarding PCB contamination in the OU-3 area from soils that may have migrated from the former MEW site. The data generated from this evaluation will be used to assess the ecological risks and present this evaluation in a comprehensive RI Report. It is anticipated that no additional field sampling or laboratory analysis will be necessary given the robust data set that already exists. This RI Work Plan does not include discussions of collection of additional field data or additional laboratory analysis. A SAP will not be developed since no field sampling is anticipated. A QAPP will be prepared later and submitted under separate cover to USEPA for review and comment.

3.1 Historical Data Evaluation

The activities proposed in the Work Plan are to evaluate the existing data found in the historical reports that contain soil, sediment, and fish data. Because OU-3 is well characterized from these multiple previous investigations, no field sampling is anticipated. This will be confirmed when the data is validated, analyzed and submitted to USEPA as part of the RI. Section 4 of this Work Plan presents the associated reports that will be evaluated, compiled, and validated.

3.2 Constituents of Concern

The constituents of concern as applicable to this Work Plan are PCBs. The EERSE conducted for the MEW Site demonstrated that PCBs were the chemicals that warranted further evaluation for OU-3. The COPEC analysis from the EERSE will be presented in the ERA. According to the EERSE completed by ENVIRON in 2006 and subsequent updates in 2012 and 2014, the maximum detected chemical concentrations from the OU-3 area were screened against conservative screening benchmarks. The initial screening indicated that PCBs were the only COPEC that warranted additional evaluation. The EERSE and additional ERA activities are discussed further in Sections 3.4 and 4 of this Work Plan. The ERA approach planned for the RI is discussed in Section 3.4.

3.3 Human Health Risk Assessment

Human health will be addressed by briefly summarizing the baseline risk assessment performed to assess the risks posed to human health in the OU-1 Main Site Record of Decision (9/28/1990) and the remedy documented in the Remedial Action Report (approved

by USEPA on September 29, 2000); and supported by analysis from the 2014 FYR Report. The OU-1 remedy involved the remediation of OU-1 soils at all depths with PCB concentrations exceeding 10 mg/kg. The remediation of soils for OU-1 has limited the migration of PCB contaminated soils to OU-3. The extensive sampling of the OU-3 soils has shown that the maximum concentration of PCBs in surface soils (i.e., the upper 6 inches of soil) from OU-3 is approximately 1.8 mg/kg and average concentrations are less than 1 mg/kg[1].

These maximum and average concentrations are well below the remedial goal used for OU-1 and current USEPA screening thresholds for human health risk. The USEPA Regional Screening Level (RSL) table (2016) provides an industrial soil screening level for Aroclor-1260 of 0.99 mg/kg based on a target cancer risk of 1×10^{-6}. The USEPA target cancer risk range of 1×10^{-6} to 1×10^{-4} (typically 1×10^{-6} is used for residential receptors. 1×10^{-5} and 1×10^{-4} are used for industrial receptors). OU-3 is located in an area designated as commercial-industrial land use. Therefore, applicable industrial soil screening levels for Aroclor-1260 are:

- 0.99 mg/kg for a target cancer risk of 1×10^{-6}
- 9.9 mg/kg for a target cancer risk of 1×10^{-5}
- 99 mg/kg for a target cancer risk of 1×10^{-4}

As is discussed in more detail in Section 4 of this Work Plan, the RI will involve the compilation and tabulation of all data from multiple investigations of OU-3. Summary statistics for the final soil data set, when compiled, will include the identification of maximum concentrations among the surface soil, subsurface soil, and sediment. In addition, central tendency estimates will be calculated (i.e., the upper 95 percent confidence limit (UCL) on the mean). The UCLs will be calculated using USEPA's ProUCL. The RI will present this information along with a comparison to the USEPA RSLs identified above to document in the RI the reason why no HHRA is required to make risk management decisions for OU-3.

3.4 Ecological Risk Assessment

ERA activities were conducted for OU-3 from 2005 to 2014 (ENVIRON 2005, 2006, 2012, 2014). The initial ERA activities were done in coordination with the USEPA. These reports were the ERSE and the EERSE (ENVIRON 2005, 2006). The EERSE expanded upon the ERSE with site-specific fish tissue data and an expanded evaluation of food web pathways. The EERSE indicated that PCBs were the only COPEC that warranted additional evaluation and that the PCBs were not present at concentrations that pose unacceptable risks to

[1]The EERSE results indicated the maximum PCB surface soil detection was 1.8 mg/k (ENVIRON 2006). An ecological evaluation of the S&ME (2011) and Burnside (2012) studies showed the maximum PCB surface soil concentration of 1.5 mg/kg (ENVIRON 2012). The ecological evaluation showed the average concentrations of PCBs in surface soil from S&ME (2011) and Burnside (2012) studies was approximately 0.2 mg/kg (ENVIRON 2012).

wildlife populations. These results were discussed during a meeting with USEPA in 2006 and the EERSE Report was submitted to USEPA.

Since 2006, there were litigation efforts that resulted in additional consideration of potential ecological risks at OU-3 (ENVIRON 2012, 2014). The ERA efforts associated with the litigation were not submitted to the USEPA. These additional ERA efforts included the use of soil investigation data from studies conducted as part of the litigation of the OU-3 property (S&ME 2011 and Burnside 2012). The additional ERA efforts also included consideration of fish tissue data from samples collected by the Missouri Department of Natural Resources for the pond of OU-3 (MDNR 2006, 2009). Finally, the 2014 ERA efforts included consideration of the data collected by the USEPA in 2014 as part of the Third Five-Year Review of the MEW Site (USEPA 2014). These additional considerations of ecological risks for OU-3 were developed as litigation reports and were not intended to be formal ERA reports for the USEPA. While ERA calculations were done in a manner consistent with the USEPA Guidelines for ERA, the reports themselves do not include all of the typical information included in an ERA Report. The conclusion of the additional ERA efforts performed in 2012 and 2014 was that PCBs were not present at concentrations that pose unacceptable risks to wildlife populations.

ERA efforts for OU-3 to date were discussed with USEPA on June 21, 2016, including the litigation efforts. It was agreed that the RI for OU-3 should include an updated ERA using all available, relevant information from all investigation efforts at OU-3 from 2005 to present. In addition, during the June 21 discussion, the USEPA's ecological risk assessor expressed preferences for wildlife that should be considered in the OU-3 ERA and PCB toxicity reference values that should be used in the OU-3 ERA. Therefore, the ERA approach proposed herein identifies the PCB data for the sediment, surface soils, and fish tissue in the OU-3 area that will be used to develop the OU-3 ERA. In addition, the ecological receptors and the toxicity reference values that will be used are identified.

The ERA will be conducted consistent with United States Environmental Protection Agency (USEPA) ERA guidance (e.g., USEPA 1997;1998) and will include steps of the USEPA eight-step ERA process, as necessary, to reach risk management decisions for OU-3. Steps 1 and 2 comprise the screening-level ecological risk assessment (SLERA), while Step 3a is the initial step of the baseline ecological risk assessment (BERA) (USEPA 1997). The SLERA will evaluate potential risk to ecological receptors exposed to PCBs at OU-3 using highly conservative risk estimates and incorporating uncertainty in a precautionary (i.e., conservative) manner. Step 3a will use refined exposure and effects assumptions to evaluate ecological risks in a more realistic manner. Specifically, the following will be included in the OU-3 ERA:

- Step 1: Screening-Level Problem Formulation and Ecological Effects Evaluation
- Step 2: Screening-Level Preliminary Exposure Estimate and Risk Calculation

- Step 3: Baseline ERA Problem Formulation (which may be divided into Step 3a and Step 3b), with Step 3a providing a refinement of the screening exposure and effects estimates. It is expected that the ERA will proceed through Step 3a in the RI because the EERSE showed that Step 3a was necessary based on preliminary ERA evaluations.

The ERA portion of the RI will include the following:

- Preliminary Problem Formulation
- Methodologies for Characterizing Exposure
- Methodologies for Characterizing Effects
- Methodologies for Ecological Risk Characterization
- Methodology for Uncertainty Analysis

The ERA will include consideration of PCB transfer through the food web for the following ecological receptors, as was agreed upon during the June 21 meeting:

- Belted kingfisher
- Great blue heron
- Red-tailed hawk
- Mink
- American robin
- Deer mouse
- Short-tailed shrew

The PCB TRVs were discussed during the June 21 meeting. The TRVs that will be used in the OU-3 RI are provided in Table 3-1. For the SLERA estimate of food web exposures and risks, the most conservative TRV will be used (0.18 milligrams per kilogram of body weight per day, Dahlgren et al. 1972). Dahlgren et al. (1972) will be used as a reference for TRVs for birds. For the refined evaluation of ecological risks in food web modeling, a range of TRVs will be considering, including those from Henning et al. (2003), used by USEPA on the Housatonic River.

The USEPA ERA process requires scientific management decision points (SMDPs) following the steps. A SMDP represents a critical step in the ERA process where multiple stakeholders input and decision-making can occur. The following types of decisions are typically considered at a SMDP and will be addressed in the ERA for the RI of OU-3:

- Whether the available information is adequate to conclude that the Site does not pose an unacceptable ecological risk, and, therefore, there is no need for further action on the basis of ecological risk.
- Whether the available information is not adequate to make a decision and the ERA process should continue.
- Whether the available information indicates a potential for an adverse ecological effect, and a more thorough assessment or remediation is warranted.

4 SCOPE OF WORK

The SOW for this Work Plan is to gather, compile, organize, and evaluate existing data in order to prepare a comprehensive RI Report and update risk assessment for the OU-3 area. During the June 21, 2016 meeting between the USEPA, PSC, RAMBOLL ENVIRON, and members of the STFD, it was agreed that sufficient sediment, soil and fish data have been collected and that there was no need for the collection of additional data. Thus, no additional data collection activities will be conducted.

Section 4.1 provides a brief discussion of reports or data that provide relevant information for consideration in the OU-3 RI. Much of these data are already available to the USEPA and the data quality is not in question for use in the RI. Section 4.1 identifies the focused data quality evaluation that will be provided as part of the RI Report.

- Expanded Ecological Risk Screening Evaluation (EERSE) completed by ENVIRON International Corporation (June 2006)
- Fish Tissue Data collected for MDNR (2006 and 2009)
- Second Five-Year Review Report by USEPA, Region 7 (August 2009)
- Limited Soil Investigation Report, Wilson Road Property by S&ME (April 2011)
- Limited Soil Investigation Report by Burnside Environmental Group (September 2012)
- Expert Report completed by ENVIRON International Corporation (December 2012)
- Third Five-Year Review Sampling Report completed by Seagull Environmental Technologies (May 8, 2014)
- Supplemental Expert Report by ENVIRON International Corporation (October 2014)

Section 4.2 provides a brief summary of the historical data available from the reports summarized in Section 4.1 for each of the OU-3 areas and Figure 2-1 shows the extent of characterization for OU-3.

4.1 Report Summaries

The soil, sediment, and fish tissue data from the reports discussed in this section will be compiled, tabulated, and discussed in the RI Report, as appropriate for OU-3. In addition, the data validation information associated with data not yet available to the USEPA will be included in the RI Report, as indicated in this section.

4.1.1 EERSE (ENVIRON, June 2006)

The EERSE was submitted to USEPA in 2006. The soil and sediment data presented in the EERSE was based on samples collected by Komex H_2O Science Inc. (Komex) in 2003. Quantitative benthic community assessment samples were also collected and included in the EERSE. The fish tissue presented in the EERSE was based on fish samples collected by ENVIRON in 2005.

The EERSE was conducted using the USEPA's 8-Step ERA Process, including the problem formulation, effects assessment, exposure assessment, ecological risk characterization, and uncertainty assessment. The EERSE evaluated the COPECs analyzed in sediment and soil though comparison with ecological screening values. The EERSE concludes that PCBs were the only chemicals for which food web modeling was appropriate. The EERSE included a food web evaluation for:

- Belted kingfisher
- Great blue heron
- Red-tailed hawk
- Mink

The EERSE concluded that no unacceptable risks were expected for wildlife populations. The soil, sediment, fish, and benthic community assessment data from this report will be included in the RI. No additional focused data validation for these data will be included as part of the RI because all reporting information for these data were collected as part of the Superfund investigation efforts associated with the MEW site and all data were previously submitted to the USEPA.

4.1.2 Fish Tissue Data (MDNR, 2006 and 2009)

During the litigations efforts in 2012, a review of publically available information was conducted. Fish tissue data collected from the MDNR was obtained from the Database of Water Quality Data (MDNR 2012). PCB data for fish were available for the pond associated with OU-3. The data were included in the ENVIRON 2012 Expert Report (described further in Section 4.1.6). The fish tissue data are relevant to the OU-3 ERA and therefore, will be included in the RI. Fish tissue data from the MDNR are used for establishing fish consumption advisories and other regulatory purposes, and therefore, the data are considered valid and appropriate for use in other regulatory applications, such as the ERA for OU-3. Full data summaries for the fish tissue data collected from MDNR will be included in the RI. No additional focused data validation is anticipated.

An additional query of the MDNR database will be conducted as part of the RI so that any new data since 2009 can be included in the RI, if available.

4.1.3 Second Five-Year Review (USEPA, August 2009)

Soil and sediment data available from the USEPA's Second Five-Year Review of the MEW Site will be included in the RI Report. These data will not require a focused data evaluation because they were collected by the USEPA.

4.1.4 Limited Soil Investigation Report (S&ME, April 2011)

The April 2011 Limited Soil Investigation Report was written by Soil and Materials Engineers (S&ME), Inc. and describes the limited soil investigation. During this investigation, soil samples were collected using direct push and hand auger borings. A total of 26 soil samples were collected and analyzed, along with three duplicates and three equipment and trip blanks. The data obtained for the S&ME investigation are considered valid and appropriate for use for the OU-3 RI, but have not yet been submitted to the USEPA because they were collected as part of litigation efforts. As agreed upon during the June 21 meeting, the RI will include a focused data validation of this report to document their validity for the RI. Specifically, the RI will review the sample collection activities as described within the S&ME report and will conduct a quality assurance validation of the laboratory sample analyses as described in Section 5. The focused validation includes evaluating the laboratory data against the laboratory method standard operating procedures for each analytical method completed and the reported laboratory control limits.

4.1.5 Limited Soil Investigation Report (Burnside, September 2012)

The September 2012 Limited Soil Investigation Report written by the Burnside Environmental Group, LLC (Burnside) describes the collection of shallow trench sampling and excavation samples. This sampling took place in the Wilson Road Area only with 38 samples collected at depths ranging from 0 to 15 inches deep. The data obtained for the Burnside investigation are considered valid and appropriate for use for the OU-3 RI, but have not yet been submitted to the USEPA because they were collected as part of litigation efforts. As agreed upon during the June 21 meeting, the RI will include a focused data validation of this report to document their validity for the RI. Specifically, the RI will review the sample collection activities as described within the Burnside report and will conduct a quality assurance validation of the laboratory sample analyses as described in Section 5. The focused validation includes evaluating the laboratory data against the laboratory method standard operating procedures for each analytical method completed and the reported laboratory control limits.

4.1.6 Expert Report (ENVIRON, December 2012)

The Expert Report was prepared for litigation purposes (ENVIRON 2012). No new investigation data were collected specifically for this report. Rather, this report relied

on existing data from other investigations of OU-3. The December 2012 Expert Report included previous data along with supplemental evaluation of potential ecological risks for OU-3, which included Wetlands Inventory Mapping, Threatened and Endangered Species Evaluation, Fish Tissue Data and a Food Web Modeling Evaluation. This report presented an update of ecological risk estimates using data from soil and fish characterization efforts that were available since the time of the 2006 EERSE. In 2012, the soil data from the S&ME (2011) and the Burnside (2012) investigations reflected a substantial dataset that was not available in 2006. In addition, a query of the MDNR website revealed 2006 and 2009 fish tissue data from the pond associated with OU-3. Finally, as part of the Expert Report, additional consideration was given to small home range ecological receptors that were not previously considered in the EERSE (i.e., the American robin and the deer mouse). While ecological risk calculations were performed in a manner consistent with the USEPA ERA Process, the report itself and the data presentation did not follow the USEPA 8-Step Process. The RI report will include the same ecological receptors and pathways as presented in this report, but the RI report will include the reporting documentation of the ERA 8-Step Process.

4.1.7 Third Five-Year Review (Seagull, May 2014)

The Third Five-Year Review Sampling Report described that a total of 86 soil samples were collected and analyzed as described in this report. The samples were collected from 29 locations. The samples were collected by Seagull Environmental Technologies, Inc. (Seagull) and the analyses were performed by ALS Laboratories of Houston, Texas. One fish tissue sample was collected and analysis was performed by ALS Laboratories of Kelso, Washington. The surface soil data associated with OU-3 available from the USEPA's Third Five-Year Review of the MEW Site will be included in the RI Report. In addition, the fish tissue sample collected from the pond associated with OU-3 will be included in the ERA portion of the RI. Data obtained from this report will not require a focused data evaluation because they were collected by the USEPA.

4.1.8 Supplemental Expert Report (ENVIRON, October 2014)

This Supplemental Expert Report was also prepared for litigation purposes (ENVIRON 2014). No new investigation data were collected specifically for this report. Rather, this report focused only on the new information for OU-3 since the time of the 2012 Expert Report. During that timeframe, the only new data was the USEPA's Third Five-Year Review. The data included information associated with fish and soil sample data discussed in the Third Five-Year Review Sampling Report.

4.2 Description of OU-3 Area Locations

A brief historical data collection summary for each of the OU-3 areas to be evaluated is presented in the following sections. The OU-3 areas are depicted on Figure 2-1.

4.2.1 Wilson Road and Drainage Pathways

Surface water runoff from the former MEW site flows south and collects in a drainage ditch that runs parallel to Wilson Road, herein referred to as the Wilson Road drainage ditch. The Wilson Road drainage ditch intersects two additional drainage pathways that flow south across the wet meadow and into the Army Corps of Engineers USACE channel. The direction of surface water flow is depicted with blue arrows on Figure 2-1.

Soil samples collected near Wilson Road by Komex in 2004, S&ME in 2010, Burnside in 2012, and by Seagull in 2014, with a few exceptions, the concentrations of PCBs were below 1.0 ppm. Two of the soil samples, ECO-E2 and RA-01, were located north of Wilson Road. Sample location RA-01 was located on the base of a ravine southeast of the MEW site that intersects the Wilson Road drainage ditch. The RA-01 sample was collected at 0.5 feet bgs and had a PCB concentration of 1.1 ppm. The ECO-E2 sample was located approximately 75 feet west of RA-01. The surface soil sample from ECO-E2 had a PCB concentration of 1.8 ppm, and a concentration of 4.0 ppm at a depth of 3.0 feet bgs.

Soil samples collected from B-03, B-04, B-05, and ECO-F that were collected from the drainage pathway along the south side of Wilson Road. They also had PCB concentrations above 1.0 ppm.

4.2.2 Retention Pond

The man-made retention pond that is located within the OU-3 area is approximately 1.4 acres in size and is approximately four feet deep. According to the *Missouri Electric Works (MEW) Expanded Ecological Risk Screening Evaluation* prepared by ENVIRON International Corporation in June 2006, a portion of the surface water runoff from the wet meadow appears to flow into the retention pond.

Soil samples collected from the wet meadow in 2004 and 2014 did not indicate the presence of PCBs above 1.0 ppm while fish tissue had slight detections.

4.2.3 Wetlands

Multiple soil samples were collected from the wetlands during previous investigations. Some of the soil samples had detectable concentrations of PCBs

below 1.0 ppm, and some of the soil samples did not have detectable concentrations of PCBs.

4.2.4 Army Corps Of Engineers Channel

The USACE channel is located south of the wet meadow and receives runoff from the Wilson Road drainage pathways. The USACE channel was originally a meandering stream and a tributary to the Cape LaCriox Creek, but later was channelized by the USACE for flood containment purposes (ENVIRON, 2006). Multiple soil samples were collected from the USACE channel during previous investigations. One soil sample, S-AC-1, collected from the USACE channel in 2010 had a PCB concentration of 1.5 ppm.

4.2.5 Wet Meadow

An area of possible fill material is located south of Wilson Road in the wet meadow. Four soil borings (SB-1 through SB-4) were completed in the area by S&ME in 2010 that identified fill material at depths ranging from 6.0 to 7.0 feet deep. On November 17, 2010, an S&ME subcontractor completed four investigative soil borings (SB-1 through SB-4) along the western property boundary of the meadowland area north of the USACE channel. Soil samples were collected for PCB analysis in the 0-2 foot interval, among other deeper intervals to 20 feet bgs. Aroclor-1260 was detected in the SB-1 (0-1) and SB-3 (0-1) samples, as well as deeper samples. PCB concentrations were detected in SB-1 (0-1) at a concentration of 0.11 mg/kg (milligrams per kilograms) and in SB-3 (0-1) at a concentration of 0.043 mg/kg, while PCB concentrations in SB-2 (0-1) and SB-4 (0-1) were found to be below reporting limits.

5 QUALITY ASSURANCE EVALUATION

This SOW includes conducting a focused quality assurance validation of existing analytical data obtained for OU-3 so that documentation of data validation is available for all of the data used in the RI. The analytical data validation that will be provided in the RI is focused on the following reports, as was described in Section 4:

- Limited Soil Investigation Report, Wilson Road Property by S&ME (April 2011).
- Limited Soil Investigation Report by Burnside Environmental Group (September 2012).

The focused quality assurance validation of the two historical analytical data reports listed above will be provided using the USEPA quality objectives listed in the subsequent sections. The USEPA quality objectives are intended to be a standard to measure the historical data to ensure that the validated data meets the objectives of this Work Plan. The focused validation efforts will provide the documentation of data quality that is typical of USEPA projects. A preliminary review has been performed on the analytical data of the two reports listed above and sufficient quality assurance/quality control (QA/QC) data is available to conclude that these additional reports are valid and usable.

As defined in previous sections of this Work Plan, the tasks completed as part of the previous RI field activities included the historical collection and analysis of sediment (0-6 inches), and surface soil (0-12 inches). The sampling locations were selected based upon areas that were the most logical areas of deposition, and based upon analytical data from previous investigations.

For this SOW, the QA validation will be conducted to ensure that only the data that is considered usable will be assessed for the RI Report. The procedures for conducting the QA validation will be in general accordance with the USEPA Model QA Project Plan (2014). The validation protocols are presented in the following subsections.

5.1 Data Quality Objectives for the Measurement of Data

The project data quality objectives (DQO) have been designed with the primary purpose of successfully meeting the goals of this project. The overlying DQO is to have data that will assist in resolving, with a minimum degree of uncertainty, whether PCBs are currently present in the sediment (0-6 inches), surface soils (0-12 inches), or fish tissue of the OU-3 area.

The overlying DQO relies on the goal that concentrations of PCBs reported in critical soil samples are representative of actual conditions. This in turn requires that the QC procedures for both field and laboratory work were adhered to in a satisfactory manner and that QA objectives were met.

The QA objectives are to ensure that the samples collected are representative and that measurements were analyzed in an accurate and precise manner providing results in a standard, comparable format.

This section describes the protocols in place to ensure the quality of the data. These protocols or data quality indicators consist of precision, accuracy, representativeness, completeness, and comparability (PARCC), as described in the following sub-sections. The goals for assessing precision and accuracy in laboratory measurements are consistent with the method-specific criteria.

5.1.1 Precision

Precision is defined as a measure of agreement among individual measurements of the same property. Sampling precision may be measured by collecting and analyzing co-located field duplicate samples.

Laboratory precision may be measured by analyzing duplicate samples (matrix spike (MS) /matrix spike duplicate (MSD) samples) or Laboratory Control Samples (LCS) and LCS replicate samples.

Comparison of duplicate samples is performed by calculating relative percent (%) differences (RPD)s between the sample results. RPDs up to 50% for field duplicate solid samples or as determined by laboratory method specific studies for matrix spike duplicate samples are considered acceptable. For primary or field duplicate sample concentrations in which the reported concentration is less than five times the reporting limit (or non-detect), precision is determined by the Absolute Difference (ABD), which should be within +/-3x the reporting limit for all solid samples. The acceptable percent recovery and/or RPD control limits for laboratory LCS and MS/MSD samples are determined by the laboratory periodic studies and should be presented on the historical laboratory reports.

5.1.2 Accuracy

Accuracy is defined as the degree of agreement of a measurement or average of measurements with an accepted or true value. Accuracy measures bias in the determination of values and is established by analysis of blanks, spikes, and continuing calibrations. Bias can result within sampling and/or analytical procedures. While laboratory, field, or equipment blanks may easily reveal a positive bias, a negative bias due to a loss of target analytes may be impossible to measure.

Comparison of accuracy for spiked samples and standards is performed by calculating percent recoveries of the sample or standard result with that of the known spike added. The acceptable percent recovery control limits are determined by the laboratory periodic studies and should be presented on the historical laboratory reports.

5.1.3 Representativeness

Representativeness is defined as an expression of the degree to which the data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness is a qualitative parameter that is most controlled by the proper design of the sampling program.

The sample collection design for each of the referenced historical reports is generally not available, however, the documentation that is available (e.g. custody records) will be evaluated to ensure that the samples collected are representative for the intent and purposes of this task. Representative field and/or laboratory data will be evaluated using consistent protocols for general field sample collection activities, preservation, transportation, and laboratory analysis. Deviations from this Work Plan may still be representative, based on the nature of the deviation. Representativeness can be assessed by the use of field duplicate samples, as well. Duplicate samples are collected so that they are equally representative of a given co-located sample. Therefore, they measure both precision and representativeness.

5.1.4 Completeness

Completeness is defined as a measure of the amount of valid data collected from a measurement system as compared with the amount that was expected to be collected. Completeness for techniques performed in the laboratory will be defined as 100% of the requested analyses are completed and usable, although some data may be qualified as having estimated values.

5.1.5 Comparability

Comparability is defined as an expression of the confidence with which one data set can be compared to another. Sample data should be comparable with other measurement data for similar samples and sample conditions and with data collected from previous investigations. Data units will be expressed uniformly for each parameter.

Comparability of data throughout the project will be attained by reviewing the recorded field and laboratory data in consistent units, as well as following general protocols for the collection and analysis of samples. The variability associated with the data in terms of precision, accuracy, and representativeness will be assessed.

5.2 Field Procedures

The applicable standards for this project are with regard to the field procedures for sample collection, handling, documentation, and custody procedures. The general American

Society for Testing and Materials (ASTM) and industry best practices will be followed for data evaluation.

5.2.1 Sample Collection

The historical reports will be evaluated to verify if sample collection was conducted in a manner consistent with the associated work plan and/or appropriate ASTM protocols (or equivalent). These documents may include daily activity reports, sampling logs, and custody documents.

5.2.2 Sample Handling

The historical reports (including laboratory reports) will be evaluated to verify if sample handling was conducted in a manner consistent with the associated work plan and/or appropriate ASTM and analytical method protocols (or equivalent). These documents may include daily activity reports, sampling logs, and custody documents.

5.2.3 Documentation and Custody Procedures

The historical reports will be evaluated to verify if documentation and custody procedures were conducted in a manner consistent with the associated work plan and/or appropriate ASTM and analytical method protocols (or equivalent). These documents may include daily activity reports, sampling logs, and custody documents.

5.2.4 Quality Control Samples

The historical reports will be evaluated to verify if quality control samples were collected in a manner consistent with the associated work plan and/or appropriate ASTM and analytical method protocols (or equivalent). Field quality control (QC) samples will be reviewed, when collected and available information is present to discern the definition of each QC sample and how it may affect the associated data. These documents may include daily activity reports, sampling logs, and custody documents.

5.3 Analytical Procedures

The analyses should adhere to the appropriate analytical method and supporting chapters as defined in USEPA Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, SW-846 (1986 and subsequent revisions). The laboratory report associated with each sample event, as identified in the historical reports, will be evaluated, as available. Information obtained (including miscellaneous correspondence) will be evaluated relative to the analytical method. Any data deficiencies will be qualified in general accordance with the

Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review (USEPA, 2014), relative to qualifier placement guidelines only.

5.3.1 Measurement / Data Acquisition

Since the evaluation will be conducted on historical data, the measurement and data acquisition will be relative to the laboratory data. The measurement and data acquisition evaluation process will be to review the field QC samples and the laboratory QC samples for deficiencies.

5.3.2 Data Assessment

Assessment of the laboratory data will be conducted in general accordance with the laboratory's quality assurance manual, the method specific requirements, and the Functional Guidelines.

5.3.3 Data Validation, Verification, and Usability

Laboratory QA/QC batch summary reports should include all applicable laboratory blanks, surrogate spikes, MS/MSDs, LCS spikes, and the corresponding laboratory control limits. Sample containers, preservation, and holding times should be in accordance with the associated analytical methods. Deviations will be evaluated against the method specific requirements. Deficiencies will be addressed through qualification of the data relative to the Functional Guidelines.

The available field and/or laboratory data will be reviewed for the PARCC parameters, when possible. The laboratory data deliverables will be reviewed to confirm that analytical data quality objectives of this Work Plan have been met. Raw data or "CLP-like" validation efforts will not be assessed in the review of the data packages. A verification of the deliverables will be performed to verify the usability of the data.

6 SCHEDULE

The proposed Work Plan activities for the OU-3 area are outlined as follows:

- within 21 days following execution of the Administrative Order of Consent, a QAPP will be prepared and submitted to the USEPA for review and comment;
- within 60 days following approval of the QAPP, a RI Report will be prepared and submitted to the USEPA for review and comment;
- within 30 days following approval of the RI Report, a FS Report will be submitted to the USEPA for review and comment."

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LIST OF TABLES

Table	Description
3-1	PCB Toxicity Reference Values

Table 3-1: PCB Toxicity Reference Values
Missouri Electric Works Superfund Site
Cape Girardeau, Missouri

Chemical Form	Test Species	Exposure Route	Exposure Duration (days)	Study Endpoint	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Reference	Source
Aroclor 1254	Mink	Oral	135	reproduction	0.14	0.69	Aulerich and Ringer 1977	Sample et al. 1996
Aroclor 1254	Rat	Oral	multi-generation	reproduction	0.32	1.5	Linder et al. 1974	
Aroclor 1254	Mouse	Oral		reproduction	NR	1.4	Linzey 1988	
Aroclor 1254	Mouse	Oral	365	reproduction	0.068	0.68	McCoy et al. 1995	Sample et al. 1996
Aroclor 1254	Mouse	Oral		reproduction	1.4	3.4	Voltura and French 2007	
Aroclor 1242	Mallard	Oral		reproduction	42	NR	Haseltine and Prouty 1980	
Aroclor 1248	Screech owl	Oral	360	reproduction	0.41	NR	McLane and Hughes 1980	Sample et al. 1996
Aroclor 1254	Mallard	Oral	30	reproduction	8.1	NR	Custer and Heinz 1980	
Aroclor 1254	Pheasants	Oral	112	egg hatchability	0.18	1.8	Dahlgren et al. 1972	Sample et al. 1996
Aroclor 1254	Mourning dove	Oral	42	courting and nesting behavior	NR	2.6	Tori and Peterle 1983	
Aroclors 1248, 1254, 1260 (1:1:1 mixture)	American kestrel	Oral	100	reproduction	NR	7	Fernie et al. 2001a,b	
Total PCBs	Robins	Oral	Breeding season	reproduction	7.8	NR	Henning et al. 2003	

Abbreviations:

LOAEL	Lowest observed apparent effects level.
mg/kg bw-day	Milligrams per kilogram of body weight per day.
NOAEL	No observed apparent effects level.
NR	Not reported.

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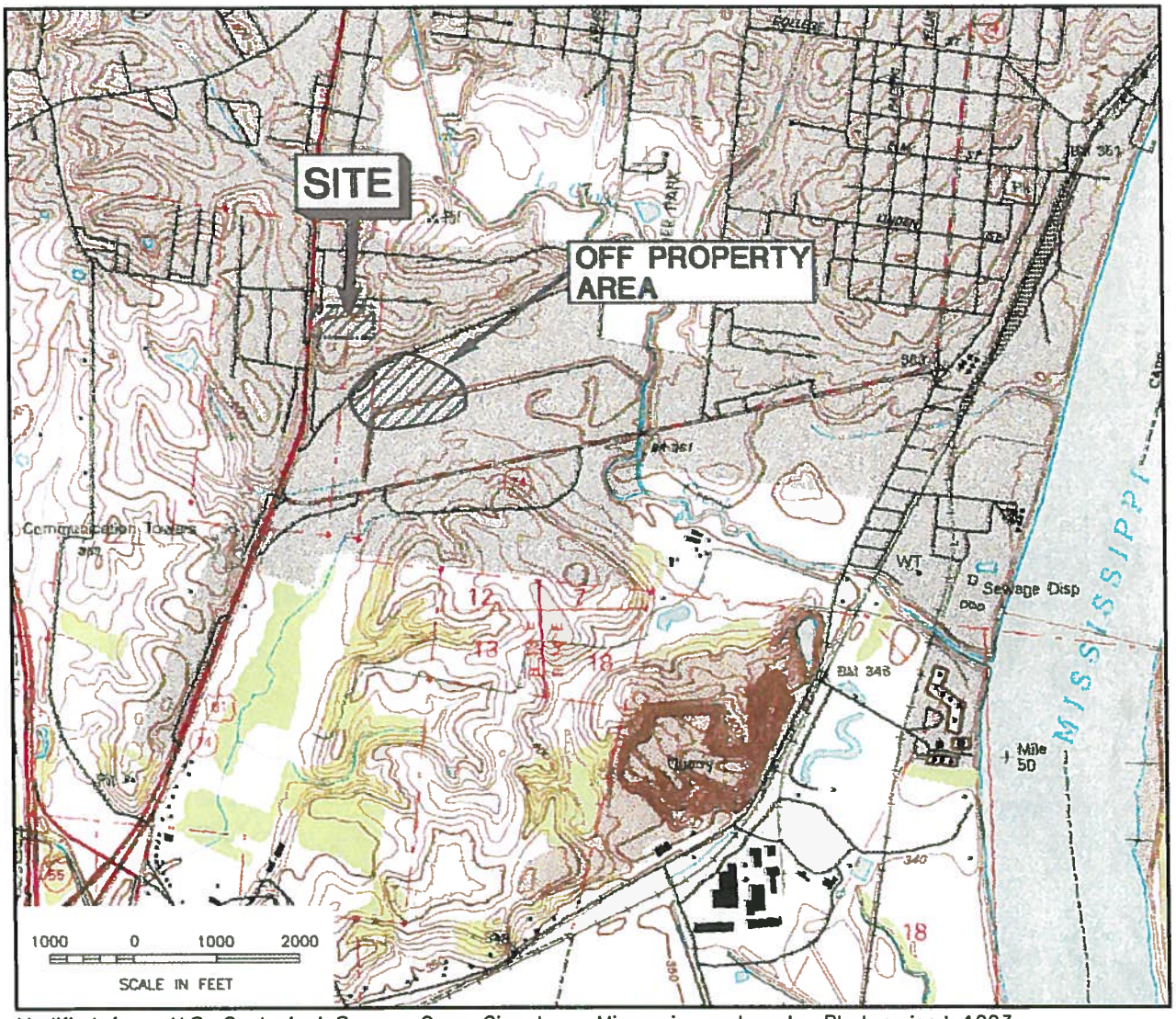
LIST OF FIGURES

Figure	Description
1-1	MEW Site and Off-Property Area Location Map
2-1	Previous Investigation PCB Sample Concentration Map

MISSOURI

CAPE GIRARDEAU COUNTY

AREA IN DETAIL

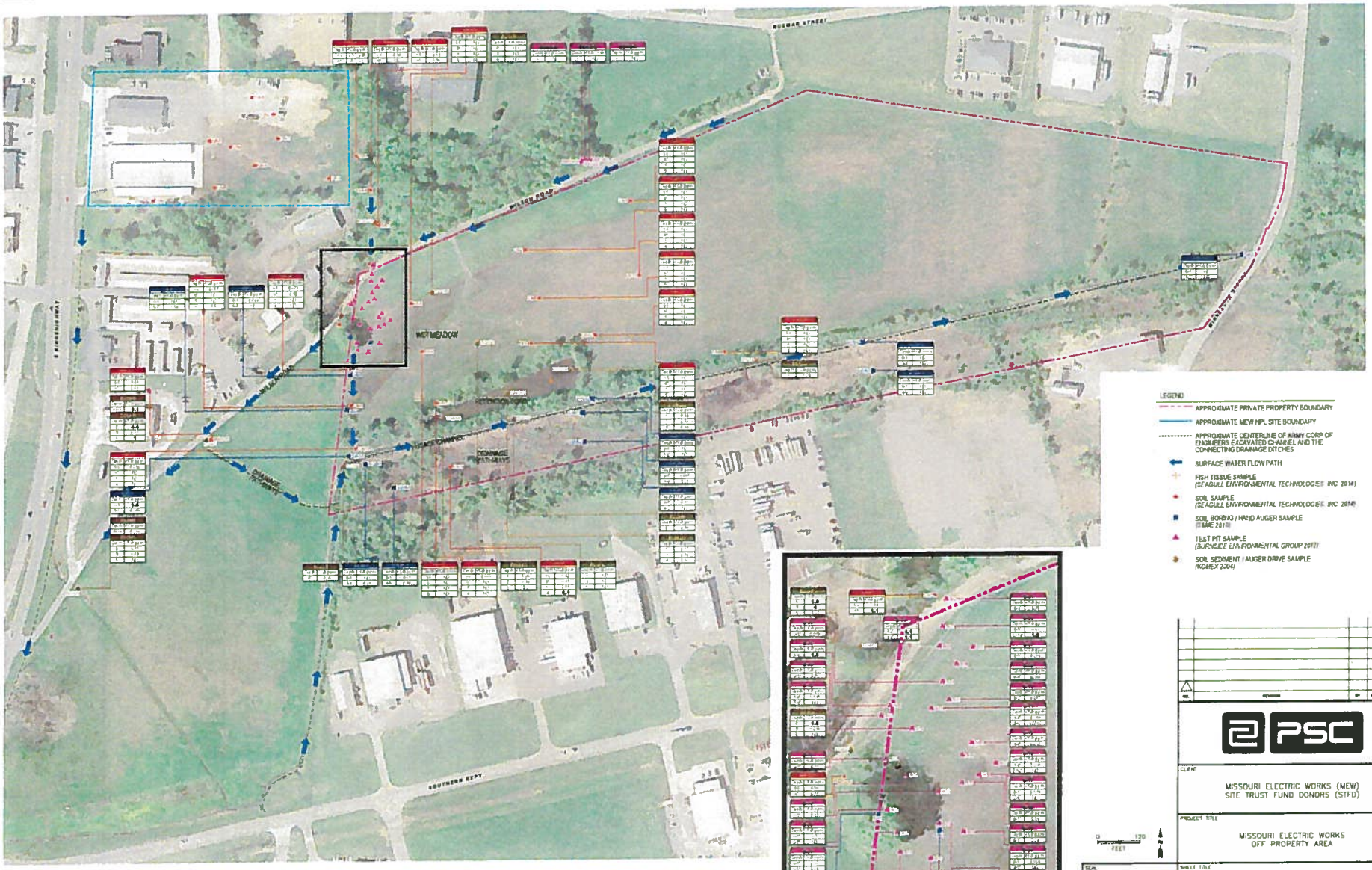


Modified from U.S. Geological Survey, Cape Girardeau, Missouri, quadrangle, Photorevised 1993.

SCALE IS VARIABLE

PSC	TITLE: MISSOURI ELECTRIC WORKS SITE AND OFF-PROPERTY AREA LOCATION MAP	DWN: TMM	DES.:	PROJECT NO.: 62409080090 MEW CAPE GIRARDEAU
		CHKD:	APPD:	
		DATE: 2/9/15	REV.:	FIGURE 1-1

COL. 62409\080090B-001



AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO

NO.	REVISION	BY	APPR.	DATE

PSC

CLIENT: MISSOURI ELECTRIC WORKS (MEW) SITE TRUST FUND DONORS (STFD)

PROJECT TITLE: MISSOURI ELECTRIC WORKS OFF PROPERTY AREA

SHEET TITLE: PREVIOUS INVESTIGATION PCB CONCENTRATION MAP

DRAWN BY TMM	DATE 7/29/16	SCALE 1"=120'	
DESIGNED BY SR			
CHECKED BY	PROJECT NUMBER 82409080090	DRAWING NO. FIGURE 2-1	
APPROVED BY			

SEAL

82409/080090A-004