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UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION 6

REGIONAL HEARING CLERK  
EPA REGION VI

\_\_\_\_\_  
IN THE MATTER OF: )

San Mateo Creek Basin Groundwater )  
Site: Central Study Area )

Homestake Mining Company of )  
California, )

Rio Algom Mining, LLC, )  
United Nuclear Corporation, )

Respondents )

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

CERCLA Docket No. 06-01-20

**ADMINISTRATIVE SETTLEMENT  
AGREEMENT AND ORDER ON  
CONSENT FOR REMEDIAL  
INVESTIGATION/FEASIBILITY  
STUDY**

**ADMINISTRATIVE SETTLEMENT AGREEMENT  
AND ORDER ON CONSENT FOR  
REMEDIAL INVESTIGATION / FEASIBILITY STUDY**



## **I. JURISDICTION AND GENERAL PROVISIONS**

1. This Administrative Settlement Agreement and Order on Consent (“Settlement”) is entered into voluntarily by the United States Environmental Protection Agency (“EPA”) and Homestake Mining Company of California, Rio Algom Mining, LLC, and United Nuclear Corporation, (“Respondents”). This Settlement provides for the performance of a remedial investigation and feasibility study (“RI/FS”) described in the Statement of Work and attached to this Settlement as Appendix C, in the Central Study Area (hereinafter “Study Area”) of the San Mateo Creek Basin Groundwater Site located in Cibola and McKinley Counties, New Mexico. This settlement also provides for the payment of certain response costs incurred by the United States at or in connection with the Study Area.

2. This Settlement 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 of 1980 (“CERCLA”), 42 U.S.C. §§ 9604, 9607 and 9622. This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2923 (Jan. 29, 1987), and further delegated to Regional Administrators by EPA Delegation Nos. 14-14C (Administrative Actions Through Consent Orders, Jan. 18, 2017) and 14-14D (Cost Recovery Non-Judicial Agreements and Administrative Consent Orders, Jan. 18, 2017). These authorities were further redelegated by the Regional Administrator of EPA Region 6 to the Director of the Superfund Division by Region 6 Delegation R6-14-14C.

3. EPA and Respondents recognize that this Settlement has been negotiated in good faith and that the actions undertaken by Respondents in accordance with this Settlement do not constitute an admission of any liability. Respondents do not admit any liability to EPA, the United States or any third party arising out of the transactions or occurrences that are alleged or could have been alleged in this Settlement or arising out of any conditions related to the Site. Respondents do not acknowledge that any release or threatened release of hazardous substances has occurred at or from the Site, or that any such claimed release or threatened release constitutes an imminent or substantial endangerment to the public health or welfare or the environment. Respondents do not admit or agree with the findings of fact in Section IV (EPA Finding of Fact) or the conclusions of law and determinations in Section V (EPA Conclusions of Law and Determinations) of this Settlement. Respondents retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement, the findings of facts, conclusions of law, and determinations in Section IV (EPA Findings of Fact) and V (EPA Conclusions of Law and Determinations) of this Settlement. Respondents agree to comply with and be bound by the terms of this Settlement and further agree that they will not contest the basis or validity of this Settlement or its terms.

## **II. PARTIES BOUND**

4. This Settlement 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.

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

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

7. Respondents shall provide a copy of this Settlement to each contractor hired to perform the Work required by this Settlement and to each person representing any Respondent with respect to the Study Area or the Work and shall condition all contracts entered into under this Settlement upon performance of the Work in conformity with the terms of this Settlement. Respondents or their contractors shall provide written notice of the Settlement to all subcontractors hired to perform any portion of the Work required by this Settlement. Respondents shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with the terms of this Settlement.

### **III. DEFINITIONS**

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

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

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

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

“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.

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

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



“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 deliverables submitted pursuant to this Settlement, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Settlement, including but not limited to, payroll costs, contractor costs, costs associated with state and/or tribal cooperative agreements, travel costs, laboratory costs, the costs incurred pursuant to Section XI (Property Requirements) (including, but not limited to, cost of attorney time and any monies paid to secure or enforce access or land, water, or other resource use restrictions, including, but not limited to, the amount of just compensation), Section XV (Emergency Response and Notification of Releases), Paragraph 83 (Work Takeover), Paragraph 108 (Access to Financial Assurance), and Section IV.C of the SOW (Community Involvement Plan) (including, but not limited to, the costs of any technical assistance under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e), Section XVIII (Dispute Resolution), and all litigation costs. Future Response Costs shall not include costs the United States incurs under Section XVIII (Dispute Resolution) or in litigation if Respondents prevail. Future Response Costs shall also include Agency for Toxic Substances and Disease Registry (ATSDR) costs regarding the Central Study Area of the Site.

“Institutional Controls” or “ICs” shall mean Proprietary Controls and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land, water, or other resource use to minimize the potential for human exposure to Waste Material at or in connection with the Site; (b) limit land, water, or other resource use to implement, ensure non-interference with, or ensure the protectiveness of the response action pursuant to this Settlement; and/or (c) provide information intended to modify or guide human behavior at or in connection with the Site.

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

“MMD” shall mean the Mining and Minerals Division of the New Mexico Energy, Minerals and Natural Resources Department and any successor departments or agencies of the State.

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

“NMED” shall mean the New Mexico Environment Department and any successor departments or agencies of the State.

“Paragraph” shall mean a portion of this Settlement identified by an Arabic numeral or an upper, or lower case letter.

“Parties” shall mean EPA and Respondents.

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

“Respondents” shall mean Homestake Mining Company of California, Rio Algom Mining, LLC, and United Nuclear Corporation

“Section” shall mean a portion of this Settlement identified by a Roman numeral.

“Settlement” shall mean this Administrative Settlement Agreement and Order on Consent and all appendices attached hereto (listed in Section XXXI (Integration/Appendices)). In the event of conflict between this Settlement and any appendix, this Settlement shall control.

“Site” shall mean the San Mateo Creek Basin Legacy Uranium Mines Site, located in Cibola and McKinley Counties, New Mexico, as depicted generally on the map attached at Appendix A.

“Special Account OU1” shall mean the special account within the EPA Hazardous Substance Superfund, established for the Central Study Area (SSID #A6K6 Operable Unit (OU)1) of the San Mateo Creek Basin Legacy Uranium Mines Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3).

“State” shall mean the State of New Mexico.

“Statement of Work” or “SOW” shall mean the document describing the activities Respondents must perform to complete the RI/FS for the San Mateo Creek Basin Legacy Uranium Mines Site, Central Study Area, as set forth in Appendix C to this Settlement. The Statement of Work is incorporated into this Settlement and is an enforceable part of this Settlement as are any modifications made thereto in accordance with this Settlement.

“Study Area” shall mean the Central Study Area of the Site, defined generally in Paragraph 9 of the Statement of Work and depicted on the map attached at Appendix B.

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

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

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



“Work” shall mean all activities and obligations Respondents are required to perform under this Settlement, except those required by Section XIII (Record Retention).

#### IV. EPA FINDINGS OF FACT

9. The San Mateo Creek Basin (“SMCB”) is located within the Grants Mining District in northwestern New Mexico, an area of uranium mineralization approximately 100 miles long and 25 miles wide. The San Mateo Creek Basin covers approximately 321 square miles within the Rio San Jose drainage basin in McKinley and Cibola Counties, New Mexico. Uranium mining and milling began in the area beginning in the 1950s, with most active mining and milling operations ending by the 1990s.

10. Ore bodies located more than one hundred feet below land surface were accessed by vertical shafts. Since most of the deeper ore bodies occur within and beneath saturated bedrock formations, dewatering was required to access the ore and prevent mine flooding. Water was pumped from within the mines and discharged to settling ponds and/or surface drainage channels (i.e., creeks and arroyos). The mine discharge water infiltrated channel fill sediments and saturated portions of the alluvium and underlying bedrock aquifers along the SMCB channels.

11. Uranium ore extracted from mines in the SMCB was transported to mills for processing. Several uranium mills located within the SMCB processed uranium ore extracted from the mines in the surrounding area. Conventional processing at the mills consisted of crushing and grinding the ore followed by a chemical leaching extraction process. The milling process resulted in the generation of solid and liquid wastes, including uranium mill tailings, which were discharged to tailings impoundments and subsequently infiltrated into the subsurface.

12. Analyses of ground water samples collected from some private water wells in the SMCB by the New Mexico Environment Department (“NMED”) in recent years show exceedances of New Mexico Water Quality Control Commission (“NMWQCC”) ground water standards for uranium, selenium, and other constituents. EPA residential sampling detected hazardous substances in some wells in excess of federal Maximum Contaminant Level drinking water standards in private, domestic use wells.

13. The NMED regulates and oversees assessment, abatement, and closure activities for legacy uranium mines holding state discharge permits. The MMD oversees surface reclamation of mines undergoing closure to state standards.

14. Residents within the SMCB rely primarily on community wells for residential-domestic, stock-watering, and agricultural uses. Some residents obtain water from private wells for such uses.

15. There are possible health effects associated with hazardous substances identified in the SMCB.

a. Radon 222 is a human carcinogen; the lungs are the primary target organ for radon-222 and its alpha ionizing radiation producing progeny. Inhalation exposure to radon-222 can occur in the gaseous phase, in fine particulate matter, or in surface soils.

b. Uranium is an alpha ionizing radiation emitter and in general, weakly radioactive. Exposure to excess levels of Uranium can cause human tissue damage, primarily to the kidneys. The primary risk from uranium is cancer caused by exposure to the progeny generated by its decay. Pathways for exposure include incidental ingestion of contaminants in the soil and dust, inhalation, and ingestion of ground water.

c. Gross Alpha particle concentrations are indicators used to screen for the chemical or compound emitting the gross alpha such as radium-226, radium-228, or thorium, which are hazardous substances.

d. Radium is a radioactive substance formed from the breakdown of uranium and thorium. Radium is a known human carcinogen. Pathways for exposure include incidental ingestion of contaminants in the soil and dust, inhalation, and ingestion of ground water.

e. Selenium is a trace mineral needed in small amounts for good health, but exposure to much higher levels can result in neurological effects. Pathways for exposure include incidental ingestion of contaminants in the soil and dust, inhalation, and ingestion of food and water.

16. Corporations including the following conducted activities related to uranium production in the SMCB:

a. Homestake Mining Company of California, incorporated in the State of California and a wholly owned indirect subsidiary of Barrick Gold Corporation.

b. Rio Algom Mining, LLC, incorporated in the State of Delaware.

c. United Nuclear Corporation, incorporated in the State of Delaware and wholly owned by GE Engine Services UNC Holding I, Inc., which is wholly owned by GE Engine Services – Miami, Inc., both of which entities are incorporated in the State of Delaware. General Electric Company is the ultimate parent company. General Electric Company was incorporated in the State of New York in 1892 as the result of a merger between Thomson-Houston and Edison General Electric.

17. Each of the corporations listed in Paragraph 16, and/or current or former partnerships, joint ventures or other business structures in which they participated, conducted operations at one or more underground uranium mines and/or mills within the San Mateo Creek Basin.

## **V. EPA CONCLUSIONS OF LAW AND DETERMINATIONS**

18. Based on the Findings of Fact set forth above, and the administrative record, EPA has determined that:



a. Each uranium mine and mill within the San Mateo Creek Basin Site is a “facility” as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The contamination found at the Site, as identified in the Findings of Fact above, includes “hazardous substances” as defined by Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

c. Each Respondent is a “person” as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. Each Respondent is a potentially responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). Respondents were the “owners” and/or “operators” of a facility at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2). Respondents also arranged for disposal or treatment of hazardous substances at one or more facilities within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

e. The conditions described in the Findings of Fact above constitute an actual and/or threatened “release” of a hazardous substance from one or more facilities as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

f. The actions required by this Settlement are necessary to protect the public health, welfare, or the environment, are in the public interest, 42 U.S.C. § 9622(a), are consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(a).

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

## **VI. SETTLEMENT AGREEMENT AND ORDER**

19. Based upon the Findings of Fact, Conclusions of Law and Determinations set forth above, and the administrative record, it is hereby Ordered and Agreed that Respondents shall comply with all provisions of this Settlement, including, but not limited to, all appendices to this Settlement and all documents incorporated by reference into this Settlement.

## **VII. DESIGNATION OF CONTRACTORS AND PROJECT COORDINATORS**

20. **Selection of Contractors, Personnel.** All Work performed under this Settlement shall be under the direction and supervision of qualified personnel. Within 30 days after the Effective Date, and before the Work outlined below begins, Respondents shall notify EPA in writing of the names, titles, addresses, telephone numbers, email addresses, and qualifications of the personnel, including contractors, subcontractors, consultants, and laboratories to be used in carrying out such Work. If, after the commencement of Work, Respondents retain additional



contractors or subcontractors, Respondents shall notify EPA of the names, titles, contact information, and qualifications of such contractors or subcontractors retained to perform the Work at least 14 days prior to commencement of Work by such additional contractors or subcontractors. EPA retains the right, at any time, to disapprove of any or all of the contractors and/or subcontractors retained by Respondents for good cause and, in the case of a contractor or subcontractor already retained, with reasonable notice to Respondents. If EPA disapproves of a selected contractor or subcontractor, Respondents shall retain a different contractor or subcontractor and shall notify EPA of that contractor's or subcontractor's name, title, contact information, and qualifications within 45 days after EPA's disapproval. With respect to any proposed contractor, Respondents shall demonstrate that the proposed contractor demonstrates compliance with ASQ/ANSI E4:2014 "Quality management systems for environmental information and technology programs – Requirements with guidance for use" (American Society for Quality, February 2014), 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 (Reissued May 2006) 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 based on objective assessment criteria (e.g., experience, capacity, technical expertise), including the absence of any conflict of interest with respect to the project.

21. Within 90 days after the Effective Date, Respondents shall designate a Project Coordinator who shall be responsible for administration of the Work required by this Settlement and shall submit to EPA the designated Project Coordinator's name, title, address, telephone number, email address, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on-site or readily available during the Work. EPA retains the right to disapprove of a designated Project Coordinator who does not meet the requirements of Paragraph 20 (Selection of Contractors, Personnel). If, based on good cause, EPA disapproves of the designated Project Coordinator, Respondents shall retain a different Project Coordinator and shall notify EPA of that person's name, title, contact information, and qualifications within 21 days following EPA's disapproval. Notice or communication relating to this Settlement from EPA to Respondents' Project Coordinator shall constitute notice or communication to all Respondents.

22. EPA has designated Mark Purcell, Remedial Project Manager, of the EPA Region 6 Superfund Division as its Project Coordinator. EPA will notify Respondents of a change of its designated Project Coordinator. Communications between Respondents and EPA, and all documents concerning the activities performed pursuant to this Settlement, shall be directed to the EPA Project Coordinator in accordance with Paragraph 30.a.

23. 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, conduct, or direct any Work required by this Settlement, or to direct any other response action when he/she determines that conditions at the Study Area constitute an emergency situation or may present a threat to public health or welfare or the environment. Absence of the EPA Project Coordinator

from the area under study pursuant to this Settlement shall not be cause for stoppage or delay of Work.

### **VIII. WORK TO BE PERFORMED**

24. Respondents shall conduct the RI/FS and prepare all plans in accordance with CERCLA and the NCP, and as described in the attached SOW and the EPA guidance referenced therein.

25. All written documents prepared by Respondents pursuant to this Settlement shall be submitted by Respondents in accordance with Section IX (Submission and Approval of Deliverables). With the exception of progress reports and the Health and Safety Plan, all such submittals will be reviewed and approved by EPA in accordance with Section IX (Submission and Approval of Deliverables). Respondents shall implement all EPA approved, conditionally-approved, or modified deliverables.

#### **26. Modification of the RI/FS Work Plan**

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 EPA's Project Coordinator within 21 days after identification. Within a target date of 30 days for planning purposes or other agreed timeframe, EPA in its discretion will determine whether any additional data will be collected by Respondents and/or incorporated into deliverables.

b. In the event of unanticipated or changed circumstances at the Central Study Area, Respondents shall notify EPA's Project Coordinator by telephone within 48 hours of discovery of the unanticipated or changed circumstances.

- i. If the unanticipated or changed circumstances can be addressed by a field change order pursuant to Paragraph 89 of the SOW, Respondents shall utilize the process required by Paragraph 89 of the SOW to make and implement the field change.
- ii. In the event that EPA determines that the unanticipated or changed circumstances require changes to the RI/FS Work Plan rather than a field change, after consultation with Respondents, EPA shall a) notify and direct Respondents in writing to propose such modifications consistent with Paragraph 24 and submit the modified RI/FS Work Plan (or RI/FS Work Plan supplement) to EPA for approval or b) modify the RI/FS Work Plan consistent with Paragraph 24. Respondents shall perform the RI/FS Work Plan as modified.



c. In the event that EPA determines that other Work in addition to the tasks defined in the approved RI/FS Work Plan consistent with Paragraph 24 and the SOW are necessary to accomplish the purpose of the RI/FS stated in 40 CFR § 300.430(a)(2), EPA shall consult with Respondents and consider any concerns or objections expressed by the Respondents before making a determination as to the necessary additional tasks. After such consultation, if EPA and Respondents still consider the additional Work necessary to accomplish the purpose of the RI/FS consistent with Paragraph 24 and the SOW, EPA will notify Respondents to submit for approval a modified RI/FS Work Plan describing the additional Work and a modified schedule.

d. Respondents shall confirm their willingness to perform the additional Work in writing to EPA and submit the modified RI/FS Work Plan and schedule within 21 days of the receipt of EPA's notification, or proceed as described in subparagraphs (e) or (f) below if in disagreement with the modifications required by EPA.

e. If Respondents and EPA cannot agree on a modification proposed by EPA pursuant to this Paragraph, Respondents may seek dispute resolution pursuant to Section XVIII (Dispute Resolution). The RI/FS Work Plan shall be modified in accordance with the final resolution of the dispute.

f. 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/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the work itself, to seek reimbursement from Respondents for the costs incurred in performing the work, and/or to seek any other appropriate relief.

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

## **27. Off-Site Shipments**

a. Respondents may ship hazardous substances, pollutants, and contaminants from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondents will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondents obtain a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b).

b. Respondents may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, they provide written notice to the appropriate state environmental official in the receiving facility's state and to EPA's Project Coordinator. This notice requirement shall not apply to any off-Site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Respondents shall also notify the state environmental official referenced above and EPA's Project Coordinator of any major changes in the shipment plan,



such as a decision to ship the Waste Material to a different out-of-state facility. Respondents shall provide the written notice after the award of the contract for the RI/FS and before the Waste Material is shipped.

c. Respondents may ship Investigation Derived Waste (IDW) from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, EPA's "Guide to Management of Investigation Derived Waste," OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the SOW. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 C.F.R. § 261.4(e) shipped off-Site for treatability studies, are not subject to 40 C.F.R. § 300.440.

28. **Meetings.** Respondents shall make presentations at, and participate in, meetings at the request of EPA and upon reasonable notice during the course of the RI/FS. In addition to discussion of the technical aspects of the RI/FS, topics may include anticipated problems or new issues. Meetings will be scheduled at EPA's discretion, with reasonable notice and after efforts to identify a mutually agreeable date among all Parties.

29. **Progress Reports.** In addition to the deliverables set forth in this Settlement, Respondents shall submit written monthly progress reports to EPA by the 15th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall:

a. summarize the actions taken to comply with this Settlement during the preceding month;

b. include all results of sampling and tests and all other validated data received by Respondents;

c. describe Work planned for the next two months with schedules relating such Work to the overall project schedule for RI/FS completion;

d. describe all problems encountered in complying with the requirements of this Settlement and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays; and

e. report on coordination of investigations and activities in the Study Area with those in adjacent study areas within the Site, if any.

## **IX. SUBMISSION AND APPROVAL OF DELIVERABLES**

### **30. Submission of Deliverables**

#### **a. General Requirements for Deliverables**

(1) Except as otherwise provided in this Settlement, Respondents shall direct all submissions required by this Settlement to the EPA Project Coordinator at:

Mark Purcell, Remedial Project Manager  
U.S. EPA Region 6, SEDRL  
1201 Elm St., Suite 500  
Dallas, TX 75270  
<Purcell.Mark@epa.gov>

and to the State at:

Manager, Mining Environmental Compliance Section  
Groundwater Quality Bureau  
New Mexico Environment Department  
1190 St. Francis Drive, Room N2300  
Santa Fe, New Mexico 87505

Manager, MARP  
Mining and Minerals Division  
Energy Minerals and Natural Resources Department  
1220 South St. Francis Drive  
Santa Fe, NM 87505

Respondents shall submit all deliverables required by this Settlement, the attached SOW, or any approved work plan in accordance with the Settlement, the SOW, the work plan, and the schedules set forth therein.

(2) Respondents shall submit all deliverables in electronic form. Technical specifications for sampling and monitoring data and spatial data are addressed in Paragraph 30.b. All other deliverables shall be submitted in the electronic form specified by EPA's Project Coordinator. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5 x 11 inches, Respondents shall also provide paper copies of such exhibits.

b. **Technical Specifications for Deliverables** - Technical deliverables shall be provided in accordance with Section IV.A.3 of the SOW.

31. **Approval of Deliverables**

a. **Initial Submissions**



(1) After review of any deliverable that is required to be submitted for EPA approval under this Settlement or the attached SOW, EPA shall, within a target date of 45 days of the submission or other timeframe, in accordance with the schedule set forth in the SOW: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.

(2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

b. **Resubmissions.** Upon receipt of a notice of disapproval under Paragraph 31.a(1) (Initial Submissions), or if required by a notice of approval upon specified conditions under Paragraph 31.a(1), Respondents shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (a) approve, in whole or in part, the resubmission; (b) approve the resubmission upon specified conditions; (c) modify the resubmission; (d) disapprove, in whole or in part, the resubmission, requiring Respondents to correct the deficiencies; or (e) any combination of the foregoing.

c. **Implementation.** Upon approval, approval upon conditions, or modification by EPA under Paragraph 31.a (Initial Submissions) or Paragraph 31.b (Resubmissions), of any deliverable, or any portion thereof: (i) such deliverable, or portion thereof, will be incorporated into and enforceable under the Settlement; and (ii) Respondents shall take any action required by such deliverable, or portion thereof. Implementation of any non-deficient portion of a submission shall not relieve Respondents of any liability for penalties under Section XX (Stipulated Penalties) for violations of this Settlement. EPA in its unreviewable discretion may waive any portion of Stipulated Penalties accrued under this Settlement.

32. 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.

33. In the event that EPA takes over some of the tasks, but not the preparation of the Remedial Investigation Report ("RI Report") or the Feasibility Study Report ("FS Report"), Respondents shall incorporate and integrate information supplied by EPA into those reports.

34. Respondents shall not proceed with any activities or tasks dependent on the following deliverables until receiving EPA approval, approval on condition, or modification of such deliverables: RI/FS Work Plan; Sampling and Analysis Plan; Memorandum for Additional Study Area Characterization, if required; draft Human Health Risk Assessment Report; draft



Screening Level Ecological Risk Assessment Report; draft Baseline Ecological Risk Assessment Work Plan, if required; draft RI Report; Treatability Testing Work Plan; Treatability Testing Sampling and Analysis Plan; Technical Memorandum on Alternatives Development and Screening; 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 that may be conducted independently of these deliverables, in accordance with the schedule set forth under this Settlement.

35. For all remaining deliverables not listed in Paragraph 34, Respondents shall proceed with all subsequent tasks, activities, and deliverables without awaiting EPA approval of 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 Work for good cause.

36. **Material Defects.** If an initially submitted or resubmitted plan, report, or other deliverable contains a material defect, and the plan, report, or other deliverable is disapproved or modified by EPA under Paragraph 31.a (Initial Submissions) or 31.b (Resubmissions) due to such material defect, and the material defect has not been substantially corrected in the time allowed under Paragraph 31.b, Respondents shall be deemed in violation of this Settlement for failure to submit such plan, report, or other deliverable timely and adequately. Respondents may be subject to penalties for such violation as provided in Section XX (Stipulated Penalties).

37. 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.

## X. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

38. Respondents shall use quality assurance, quality control, and other technical activities and chain of custody procedures for all samples consistent with "EPA Requirements for Quality Assurance Project Plans (QA/R5)," EPA/240/B-01/003 (March 2001, reissued May 2006), "Guidance for Quality Assurance Project Plans (QA/G-5)," EPA/240/R-02/009 (December 2002), and "Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3, EPA/505/B-04/900A-900C (March 2005).

### 39. Laboratories

a. Respondents shall ensure that EPA and State personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Respondents pursuant to this Settlement. In addition, Respondents shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the Quality Assurance Project Plan (QAPP) for quality assurance, quality control, and technical activities that will satisfy the stated performance criteria as specified in the QAPP and that sampling and field activities are conducted in accordance with the Agency's "EPA QA Field Activities Procedure" CIO 2105-P-02.1 (9/23/2014), available at <https://www.epa.gov/irmpoli8/epa-qa-field-activities-procedures>. Respondents shall ensure that the laboratories they utilize for the analysis of samples



taken pursuant to this Settlement meet the competency requirements set forth in EPA's "Policy to Assure Competency of Laboratories, Field Sampling, and Other Organizations Generating Environmental Measurement Data under Agency-Funded Acquisitions," available at <https://www.epa.gov/measurements/documents-about-measurement-competency-under-acquisition-agreements>, and that the laboratories perform all analyses using EPA-accepted methods. Accepted EPA methods consist of, but are not limited to, methods that are documented in the EPA's Contract Laboratory Program (<https://www.epa.gov/superfund/programs/clp/>), SW 846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (<https://www.epa.gov/hw-sw846>), "Standard Methods for the Examination of Water and Wastewater" (<http://www.standardmethods.org/>), and 40 C.F.R. Part 136, "Air Toxics - Monitoring Methods" (<https://www.epa.gov/ttnamti1/airtox.html>).

b. Upon approval by EPA, after a reasonable opportunity for review and comment by the State, Respondents may use other appropriate analytical methods, as long as (i) quality assurance/quality control (QA/QC) criteria are contained in the methods and the methods are included in the QAPP, (ii) the analytical methods are at least as stringent as the methods listed above, and (iii) the methods have been approved for use by a nationally recognized organization responsible for verification and publication of analytical methods, e.g., EPA, ASTM, NIOSH, OSHA, etc.

c. Respondents shall ensure that all laboratories they use for analysis of samples taken pursuant to this Settlement have a documented Quality System that complies with ASQ/ANSI E4:2014 "Quality Management Systems for Environmental Information and Technology Programs – Requirements With Guidance for Use" (American Society for Quality, February 2014), and "EPA Requirements for Quality Management Plans (QA/R-2)" EPA/240/B-01/002 (March 2001, reissued May 2006), or equivalent documentation as determined by EPA. EPA may consider Environmental Response Laboratory Network (ERLN) laboratories, laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP), or laboratories that meet International Standardization Organization (ISO 17025) standards or other nationally recognized programs as meeting the Quality System requirements.

d. Respondents shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Settlement are conducted in accordance with the procedures set forth in the approved QAPP.

#### **40. Sampling**

a. Upon written request, Respondents shall provide split or duplicate samples to EPA or their authorized representatives. In addition, EPA shall have the right to take any additional samples that EPA or the State deem necessary. Upon written request, EPA shall provide to Respondents split or duplicate samples of any samples they take as part of EPA's oversight of Respondents' implementation of the Work, and any such samples shall be analyzed in accordance with the approved QAPP.

b. Respondents shall submit to EPA and the State, in the next monthly progress report as described in Paragraph 29 (Progress Reports) the results of all sampling and/or

tests or other data obtained or generated by or on behalf of Respondents with respect to the Site and/or the implementation of this Settlement.

c. Respondents waive any objections to any data gathered, generated, or evaluated by EPA, the State, or Respondents pursuant to this Settlement (Paragraphs 76-82 of the Statement of Work) that has been verified according to the quality assurance/quality control (QA/QC) procedures required by the Settlement. If Respondents object to any other data relating to the RI/FS, including data collected by EPA or the State, 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 after 1) the monthly progress report containing the data is submitted to EPA or 2) EPA or the State provide Respondents the data. Notwithstanding the foregoing waiver, Respondents are not waiving, and reserve the right to object to any data gathered by EPA prior to the Effective Date of the Agreement including but not limited to data gathered by EPA and its consultants in the preparation of the Phase 2 Ground Water Investigation Report for the San Mateo Creek Basin Legacy Uranium Mines Site, Cibola and McKinley Counties, New Mexico.

## **XI. PROPERTY REQUIREMENT**

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

42. Where any action under this Settlement 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 390 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; or (ii) perform those tasks or activities with EPA contractors. 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, 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.

43. Notwithstanding any provision of this Settlement, 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.



## XII. ACCESS TO INFORMATION

44. Respondents shall provide to EPA, and the State, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within Respondents' possession or control or that of their contractors or agents relating to the Work or to the implementation of this Settlement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. Upon reasonable notice, 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, subject to any recognized and applicable privilege asserted in accordance with Paragraph 45.

### 45. **Privileged and Protected Claims**

a. Respondents may assert that all or part of a Record requested by EPA or the State is privileged or protected as provided under federal law, in lieu of providing the Record, provided Respondents comply with Paragraph 45.b, and except as provided in Paragraph 45.c.

b. If Respondents assert a claim of privilege or protection, they shall provide EPA with the following information regarding such Record: its title; its date; the name, title, affiliation (e.g., company or firm), and address of the author, of each addressee, and of each recipient; a reasonable description of the Record's contents sufficient to assess the Respondents' claim of privilege or protection without revealing privileged or protected information; and the privilege or protection asserted. If a claim of privilege or protection applies only to a portion of a Record, Respondents shall provide the Record to EPA in redacted form to mask the privileged or protected portion only. Respondents shall retain all Records that they claim to be privileged or protected until EPA has had a reasonable opportunity to dispute the privilege or protection claim and any such dispute has been resolved in Respondents' favor.

c. Respondents may make no claim of privilege or protection regarding (1) any data regarding the Study Area, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, radiological, or engineering data, or the portion of any other Record that evidences conditions at or around the Study Area; (2) the portion of any Record that Respondents are required to create or generate pursuant to this Settlement; or (3) information or data that would not otherwise qualify for attorney-client privilege, work product, or other privilege or protection under applicable federal law.

46. **Business Confidential Claims.** Respondents may assert that all or part of a Record provided to EPA under this Section or Section XIII (Record Retention) is business confidential 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). Respondents shall segregate and clearly identify all Records or parts thereof submitted under this Settlement for which Respondents assert business confidentiality claims. Records claimed as confidential business information will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality

accompanies Records when they are submitted to EPA, or if EPA has notified Respondents that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Respondents.

47. Notwithstanding any provision of this Settlement, EPA and the State retain all of their information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

### **XIII. RECORD RETENTION**

48. Until 7 years after EPA provides Respondents with notice, pursuant to Section XXX (Notice of Completion of Work), that all Work has been fully performed in accordance with this Settlement, each Respondent shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control, or that come into its possession or control, that relate in any manner to its liability under CERCLA with regard to the Study Area or Site, provided, however, that Respondents who are potentially liable as owners or operators of the Study Area or Site must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect to the Study Area or Site. Each Respondent must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to the performance of the Work, provided, however, that each Respondent (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

49. At the conclusion of the document retention period, Respondents shall notify EPA at least 90 days prior to the destruction of any such Records, and, upon request by EPA or the State, and except as provided in Paragraph 45 (Privileged and Protected Claims), Respondents shall deliver any such Records to EPA or the State.

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

### **XIV. COMPLIANCE WITH OTHER LAWS**

51. Nothing in this Settlement limits Respondents' obligations to comply with the requirements of all applicable state and federal laws and regulations when performing the RI/FS. No local, state, or federal permit shall be required for any portion of the Work conducted entirely



on-site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work), 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 that is not on-site 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. Respondents may seek relief under the provisions of Section XIX (Force Majeure) for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval required for the Work, provided that they have submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals. This Settlement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

#### **XV. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES**

52. **Emergency Response.** If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the Site that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize such release or threat of release. Respondents shall take these actions in accordance with all applicable provisions of this Settlement, including, but not limited to, the Health and Safety Plan. Respondents shall also immediately notify EPA's Project Coordinator or, in the event of his/her unavailability, the Regional Duty Officer at (214) 665-3166 of the incident or Study Area 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 for all costs of such response action not inconsistent with the NCP pursuant to Section XVI (Payment of Response Costs).

53. **Release Reporting.** Upon the occurrence of any event during performance of the Work that Respondents are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004, Respondents shall immediately orally notify EPA's Project Coordinator or, in the event of his/her unavailability, the Regional Duty Officer at (214) 665-3166, and the National Response Center at (800) 424-8802. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004.

54. For any event covered under this Section, Respondents shall submit a written report to EPA within 7 days after the onset of such event, setting forth the action or event that occurred and the measures taken, and to be taken, to mitigate any release or threat of release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release or threat of release.



## XVI. PAYMENT OF RESPONSE COSTS

55. **Payments for Future Response Costs.** Respondents shall pay to EPA Future Response Costs as defined in Section III not inconsistent with the NCP for the San Mateo Creek Basin Legacy Uranium Mines Central Study Area.

a. **Prepayment of Future Response Costs.** Within thirty (30) days after the Effective Date, Respondents shall pay to EPA \$700,000 as an initial payment toward Future Response Costs for the San Mateo Creek Basin Legacy Uranium Mines Central Study Area. Payment shall be made in accordance with Paragraph 56. (Payment Instructions). The total amount paid shall be deposited by EPA in the Special Account OU1 as defined in Section III. Any amounts received under this subparagraph will be credited to Respondent in the final accounting pursuant to subparagraph (e).

b. **Initial Billing.** When the initial payment amount deposited in the Special Account OU1 in accordance with Paragraph 55.a. has fallen at or below \$200,000, EPA will send Respondents the first bill requiring payment that includes a Superfund Cost Recovery Package Imaging and On-Line System Report (“SCORPIOS”) Report, an unreconciled standard cost accounting report, which includes direct and indirect costs incurred by EPA, its contractors and subcontractors in connection with the San Mateo Creek Basin Legacy Uranium Mines Site Central Study Area, SSID #A6K6 Operable Unit No. 1. Respondents shall make all payments within thirty (30) days after Respondents’ receipt of the bill, in accordance with Paragraph 56 (Payment Instructions), except as otherwise provided in Paragraph 58 (Payment Disputes).

c. **Annual Billing.** On an annual basis after the first bill under Paragraph 55.b., EPA will send Respondents a bill requiring payment that includes a SCORPIOS Report, which includes direct and indirect costs incurred by EPA, its contractors and subcontractors for the San Mateo Creek Basin Legacy Uranium Mines Central Study Area. Respondents shall make all payments within 30 days after Respondents’ receipt of each bill requiring payment, in accordance with Paragraph 56. (Payment Instructions), except as otherwise provided in Paragraph 58 (Payment Disputes). Upon written request, EPA will provide additional SCORPIOS reports for the San Mateo Creek Basin Legacy Uranium Mines Central Study Area outside the annual billing schedule.

d. The total amounts paid by Respondents pursuant to Subparagraphs 55. a., b. and c. shall be deposited by EPA in the Special Account OU1, SSID #A6K6, within the Hazardous Substance Superfund. These funds shall be retained and used to conduct or finance response actions or finance Future Response Costs at or in connection with the Central Study Area of the Site.

e. **Unused Amount.** After EPA issues the Notice of Completion of Work pursuant to Paragraph 114 and EPA has performed a final accounting of the Future Response Costs, including crediting Respondents for any amounts received under Paragraphs 55.a., b., or c., EPA will: (1) offset the final Future Response Costs bill by the unused amount paid by Respondents pursuant to Paragraphs 55.a, b., or c.; or (2) remit and return to Respondents any unused amount of the funds paid by Respondents pursuant to Paragraphs 55.a, 55.b or 55.c. Any



amounts remaining thereafter in the Special Account shall be retained and used to conduct or finance response actions or finance Future Response Costs at or in connection with the Site, or transferred by EPA to the Hazardous Substance Superfund.

**56. Payment Instructions**

a. Payment shall be made to EPA by Fedwire Electronic Funds Transfer (“EFT”) to:

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

and shall reference Site/Spill ID Number A6K6 OU1 and the EPA docket number for this action.

b. At the time of payment, Respondents shall send notice that payment has been made:

i. By email to: [acctsreceivable.cinwd@epa.gov](mailto:acctsreceivable.cinwd@epa.gov),

ii. By mail to:  
Chief, Enforcement and Cost Recovery Section  
U.S. EPA Region 6  
1201 Elm Street, Suite 500 (SEDAE)  
Dallas, TX 75270-2102

iii. By mail to:  
EPA Cincinnati Finance Office  
26 W. Martin Luther King Drive  
Cincinnati, Ohio 45268

Such notice shall reference Site/Spill ID Number A6K6 OU1 and the EPA docket number for this action.

**57. Interest.** In the event that any payment for Future Response Costs is not made by the date required, Respondents shall pay Interest on the unpaid balance. The Interest on unpaid Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue through the date of payment. If EPA receives a partial payment, Interest shall accrue on any unpaid balance. Payments of Interest made under this Paragraph shall be in addition to such

other remedies or sanctions available to the United States by virtue of Respondents' failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XX (Stipulated Penalties). Respondents shall make all payments required by this Paragraph in the manner described in Paragraphs 55 and 56.

**58. Payment Disputes.**

a. Respondents may contest payment of any Future Response Costs billed under Paragraph 55 (Payments for Future Response Costs) if they determine that EPA has made a mathematical or accounting error or included a cost item that is not within the definition of Future Response Costs, or if they believe EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP.

b. Such objection shall be made in writing within thirty (30) days after receipt of the bill and must be sent to the EPA Project Coordinator. Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Respondents shall within the thirty (30) day period pay all uncontested Future Response Costs to EPA in the manner described in Paragraph 56.

c. Simultaneously to making the objection, Respondents shall (a) pay all uncontested Future Response Costs to EPA in the manner described in Paragraph 56, and (b) establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation (FDIC) and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Respondents shall send to EPA's Project Coordinator a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account.

d. Simultaneously with establishment of the escrow account, Respondents shall initiate the Dispute Resolution procedures in Section XVIII. If EPA prevails in the dispute, within 14 days after the resolution of the dispute, Respondents shall pay the sums due (with accrued interest) to EPA in the manner described in Paragraph 56. If Respondents prevail concerning any aspect of the contested costs, Respondents shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to EPA in the manner described in Paragraph 56. Respondents shall be disbursed any balance of the escrow account (including associated accrued interest), or at Respondents' election, maintain an escrow account balance to be used for payment of any subsequent bills for Future Response Costs or other costs of conducting response actions at or in connection with the Site. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XVIII (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Respondents' obligation to reimburse EPA for its Future Response Costs.



## XVII. NATURAL RESOURCE DAMAGES

59. For the purposes of Section 113(g)(1) of CERCLA, the Parties agree that, upon the Effective Date of this Settlement for performance of an RI/FS at the Central Study Area of the Site, remedial action under CERCLA shall be deemed to be scheduled and an action for damages (as defined in 42 U.S.C. § 9601(6)) must be commenced within 3 years after the completion of the remedial action for the last operable unit at the Site.

## XVIII. DISPUTE RESOLUTION

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

### 61. **Informal Dispute Resolution.**

a. If Respondents object to any EPA action taken pursuant to this Settlement, including billings for Future Response Costs, they shall send EPA a written Notice of Dispute describing the objection(s) within 60 days after such action. EPA and Respondents shall have 30 days from EPA's receipt of Respondents' Notice of Dispute to resolve the dispute through informal negotiations (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA. 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.

b. Initiation of ADR. At any time during the informal dispute resolution period, either Respondents or EPA may propose the use of a mediator to assist in resolving the dispute. In addition, upon the request of Respondents or EPA, a meeting shall take place between the parties to the dispute with the assistance of a mediator for the purpose of resolving the dispute and/or determining whether to undertake further mediated discussions. This initial meeting shall take place within ten business days of the party's request, unless Respondents and EPA agree to extend that period. Upon the written agreement of Respondents and EPA, the period for informal dispute resolution may be extended for the purpose of mediating the dispute. Formal dispute resolution, as governed by the procedures set forth in Paragraph 62, shall commence immediately upon the termination of the informal dispute resolution period.

c. Decision to Continue ADR. After the initial mediated meeting, the decision to continue the mediation shall be in the sole discretion of each party.

d. Costs of ADR. The Parties agree that they will share equitably the costs of mediation, subject to the availability of EPA funds for this purpose. EPA's ability to share the costs of mediation will be determined by EPA in its sole discretion and shall not be subject to dispute resolution or judicial review. If EPA determines that no mediation funding is available, Respondent shall have the option to cover all of the mediation costs or to request the services of



a trained mediator from EPA's in-house ADR program or any other dispute resolution professional whose services may be available to the Parties at no cost.

e. Mediator List. The Parties agree that they shall, after this Settlement is signed by Respondents, prepare a list of mediators agreeable to the Parties from which a mediator may be selected. This list shall not preclude any Party from proposing to add a mediator or mediators to the list or from proposing a different mediator for a specific dispute.

f. Confidentiality. The Parties agree that participants in mediated discussions pursuant to this Section shall execute a confidentiality agreement in the form attached as Appendix E to this Settlement.

g. In the event that the Parties cannot resolve a dispute by informal negotiations under this Paragraph 61, then the dispute shall proceed to Formal Dispute Resolution under Paragraph 62.

62. **Formal Dispute Resolution**. If the Parties are unable to reach an agreement within the Negotiation Period, Respondents shall, within 30 days after the end of the Negotiation Period, submit a statement of position to EPA's Project Coordinator. EPA may, within 30 days thereafter, submit a statement of position. Thereafter, an EPA management official at the Branch Chief level or higher will issue a written decision on the dispute to Respondents. EPA's decision shall be incorporated into and become an enforceable part of this Settlement. If Respondents disagree with the written decision of the EPA management official, they may seek appeal of the decision in the United States District Court for the District of New Mexico. If Respondents seek appeal to the United States District Court for the District of New Mexico, EPA may dispute jurisdiction. Respondents shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's or the United States District Court for the District of New Mexico's decision, whichever occurs.

63. Except as provided in Paragraph 58 (Payment Disputes) or as agreed by EPA, the invocation of formal dispute resolution procedures under this Section does not extend, postpone, or affect in any way any obligation of Respondents under this Settlement. Except as provided in Paragraph 73, stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Settlement. In the event that Respondents do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XX (Stipulated Penalties). EPA reserves the right to exercise enforcement discretion in the assessment of stipulated penalties.

## **XIX. FORCE MAJEURE**

64. Respondents agree to perform all Work within the time limits established pursuant to this Settlement, unless the performance is delayed by a force majeure. "Force Majeure" for purposes of this Settlement, is defined as any event arising from causes beyond the control of Respondents, of any entity controlled by Respondents, or of Respondents' contractors,



that delays or prevents the performance of any obligation under this Settlement despite Respondents' best efforts, to fulfill the obligation, including reasonable efforts following the potential force majeure such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the Work or increased cost of performance.

65. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement, Respondents shall notify EPA's Project Coordinator orally or, in his or her absence, the alternate EPA Project Coordinator, or, in the event both of EPA's designated representatives are unavailable, the Director of the Superfund Division, EPA Region 6, within seven (7) days of when Respondents first knew that the event might cause a delay. Within 10 days thereafter, Respondents shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondents' rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an endangerment to public health or welfare, or the environment. Failure to comply with the above requirements regarding an event shall preclude Respondents from asserting any claim of force majeure regarding that event, provided, however, that if EPA, despite the late or incomplete notice, is able to assess to its satisfaction whether the event is a force majeure under Paragraph 64 and whether Respondents have exercised their best efforts under Paragraph 64, EPA may, in its unreviewable discretion, excuse in writing Respondents' failure to submit timely or complete notices under this Paragraph.

66. If EPA agrees that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this Settlement that are affected by the force majeure will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure, EPA will notify Respondents in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify Respondents in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

67. If Respondents elect to invoke the dispute resolution procedures set forth in Section XVIII (Dispute Resolution), they shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, Respondents shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Respondents complied with the requirements of Paragraphs 64 and 65. If Respondents carry this burden, the delay at issue shall be deemed not to be a violation by Respondents of the affected obligation of this Settlement identified to EPA.

68. The failure by EPA to timely complete any obligation under the Settlement is not a violation of the Settlement, provided, however, that if such failure prevents Respondents from

meeting one or more deadlines under the Settlement, Respondents may seek relief under this Section.

## XX. STIPULATED PENALTIES

69. Respondents shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 70.a and 71 for failure to comply with the obligations specified in Paragraphs 70.b and 71, unless excused under Section XIX (Force Majeure). "Comply" as used in the previous sentence includes compliance by Respondents with all applicable requirements of this Settlement, within the deadlines established under this Settlement.

### 70. Stipulated Penalty Amounts: Payments, Financial Assurance, and Other Milestones

a. The following stipulated penalties shall accrue per violation per day for any noncompliance with any obligation identified in Paragraph 70.b:

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

### b. Obligations

(1) Payment of any amount due under Section XVI (Payment of Response Costs).

(2) Establishment and maintenance of financial assurance in accordance with Section XXVIII (Financial Assurance).

(3) Establishment of an escrow account to hold any disputed Future Response Costs under Paragraph 58 (Payment Disputes).

(4) Submission of the Final Remedial Investigation, Risk Assessment, or Feasibility Study Reports.

71. **Stipulated Penalty Amounts: Other Deliverables.** The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate deliverables required by this Settlement.

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



72. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 83 (Work Takeover), Respondents shall be liable for a stipulated penalty in the amount of \$100,000. Stipulated penalties under this Paragraph are in addition to the remedies available to EPA under Paragraphs 83 (Work Takeover) and 108 (Access to Financial Assurance).

73. 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. Penalties shall continue to accrue during any dispute resolution period, and shall be paid within 15 days after the agreement or the receipt of EPA's decision. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Section IX (Submission and Approval of Deliverables), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Respondents of any deficiency; and (b) with respect to a decision by the EPA Management Official at the Branch Chief level or higher, under Paragraph 62 (Formal Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that the EPA Management Official issues a final decision regarding such dispute. Nothing in this Settlement shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement.

74. Following EPA's determination that Respondents have failed to comply with a requirement of this Settlement, EPA may give Respondents written notification of the failure 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.

75. All penalties accruing under this Section shall be due and payable to EPA within 30 days after Respondents' receipt from EPA of a demand for payment of the penalties, unless Respondents invoke the Dispute Resolution procedures under Section XVIII (Dispute Resolution) within the 30-day period. All payments to EPA under this Section shall indicate that the payment is for stipulated penalties and shall be made in accordance with Paragraph 56 (Payment Instructions).

76. If Respondents fail to pay stipulated penalties when due, Respondents shall pay Interest on the unpaid stipulated penalties as follows: (a) if Respondents have timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are due pursuant to Paragraph 74 until the date of payment; and (b) if Respondents fail to timely invoke dispute resolution, Interest shall accrue from the date of demand under Paragraph 74 until the date of payment. If Respondents fail to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the penalties and Interest.

77. The payment of penalties and Interest, if any, shall not alter in any way Respondents' obligation to complete performance of the Work required under this Settlement.

78. Nothing in this Settlement 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 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 Section 122(*l*) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided in this Settlement, except in the case of willful violation of this Settlement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 83 (Work Takeover).

79. 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.

### **XXI. COVENANTS BY EPA**

80. Except as provided in Section XXII (Reservations of Rights by EPA), 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 and Future Response Costs as defined in Section III. These covenants shall take effect upon the Effective Date. These covenants are conditioned upon the complete and satisfactory performance by Respondents of their obligations under this Settlement. These covenants extend only to Respondents and do not extend to any other person.

### **XXII. RESERVATIONS OF RIGHTS BY EPA**

81. Except as specifically provided in this Settlement, nothing in this Settlement 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 in this Settlement shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement, 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 XXI (Covenants by EPA) above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement is without prejudice to, all rights against Respondents with respect to all other matters, including, but not limited to:

a. liability for failure by Respondents to meet a requirement of this Settlement;



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

### **83. Work Takeover**

- a. In the event EPA determines that Respondents: (1) have ceased implementation of any portion of the Work; (2) are seriously or repeatedly deficient or late in their performance of the Work; or (3) are implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice (“Work Takeover Notice”) to Respondents. Any Work Takeover Notice issued by EPA (which writing may be electronic) will specify the grounds upon which such notice was issued and will provide Respondents a period of 45 days within which to remedy the circumstances giving rise to EPA’s issuance of such notice.
- b. If, after expiration of the 45-day notice period specified in Paragraph 83.a., Respondents have not remedied to EPA’s satisfaction the circumstances giving rise to EPA’s issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portion(s) of the Work as EPA deems necessary (“Work Takeover”). EPA will notify Respondents in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this Paragraph 83.b. Funding of Work Takeover costs is addressed under Paragraph 108 (Access to Financial Assurance).
- c. Respondents may invoke the procedures set forth in Section XVIII (Dispute Resolution) to dispute EPA’s implementation of a Work Takeover under Paragraph 83.b. However, notwithstanding Respondents’ invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under Paragraph 83 until the earlier of (1) the date that Respondents remedy, to EPA’s satisfaction, the circumstances giving rise to EPA’s issuance of the relevant

Work Takeover Notice, or (2) the date that a written decision terminating such Work Takeover is rendered in accordance with Paragraph 62 (Formal Dispute Resolution).

d. Notwithstanding any other provision of this Settlement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

### **XXIII. COVENANTS 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, Future Response Costs, or this Settlement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund through 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 claims under Sections 107 and 113 of CERCLA, Section 7002(a) of RCRA, 42 U.S.C. § 6972(a), or state law regarding the Work, Future Response Costs, and this Settlement; or

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

d. Any direct or indirect claim for return of unused amounts from the San Mateo Creek Basin Legacy Uranium Mines Central Study Area Special Account, except for unused amounts that EPA determines shall be returned to Respondents in accordance with Paragraph 54.e. (Unused Amount).

85. Respondents reserve, and this Settlement is without prejudice to, claims that Respondents have or may have pursuant to Section 113(f) of CERCLA, 42 U.S.C. 9613(f), against the United States brought pursuant to Section 113(f) of CERCLA, 42 U.S.C. §9613(f), relating to the Work or Future Response Costs as defined in Section III, or this Settlement.

86. Nothing in this Settlement shall be deemed to compromise in any way or degree any claim by Respondents against the United States for any claims authorized by Title X of the Energy Policy Act of 1992, the Atomic Energy Act of 1954, or the Uranium Mill Tailings Radiation Control Act of 1978.

87. These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Section XXII (Reservations of Rights by EPA), other than in Paragraph 82.a (liability for failure to meet a requirement of the Settlement), 82.d (criminal liability), or 82.e. (liability for violations of federal or state law), 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.



88. 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).

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

#### **XXIV. OTHER CLAIMS**

90. By issuance of this Settlement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. The United States or EPA shall not be deemed a party to any contract entered into by Respondents or their directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement.

91. Except as expressly provided in Section XXI (Covenants by EPA), nothing in this Settlement constitutes a satisfaction of or release from any claim or cause of action against Respondents or any person not a party to this Settlement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages, and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

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

93. Based on the facts and circumstances known to EPA at the time of entry into this Agreement, EPA believes it appropriate to use the Superfund Alternative Approach at the San Mateo Creek Basin Groundwater Site, in which sites eligible for placement on the National Priorities List (NPL) are addressed by potentially responsible parties willing to enter into CERCLA agreements to perform site response with EPA oversight without NPL listing. As long as the Respondents are performing satisfactorily under this agreement, EPA intends to defer considering the Site for listing on the NPL. Should EPA determine that the Respondents are not performing satisfactorily under this agreement, or that Site circumstances no longer meet the threshold for using the Superfund Alternative Approach (as described in the updated 2012 guidance, OSWER Dir. No. 9200.2-125), EPA in its unreviewable discretion may engage in rulemaking to propose the Site for listing or to place the Site on the NPL.

## XXV. EFFECT OF SETTLEMENT/CONTRIBUTION

94. Nothing in this Settlement shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Settlement. Except as provided in Section XXIII (Covenants by Respondents), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Settlement diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2). In its sole discretion, EPA may elect to notify Respondents in advance of entry into any such settlements.

95. The Parties agree that this Settlement constitutes an administrative settlement pursuant to which each Respondent has, as of the Effective Date, resolved liability to the United States within the meaning of Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), and is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, or as may be otherwise provided by law, for the “matters addressed” in this Settlement. The “matters addressed” in this Settlement are the Work, including those matters described in the SOW, and Future Response Costs for the Central Study Area of the San Mateo Creek Basin Legacy Uranium Mines Site.

96. The Parties further agree that this Settlement constitutes an administrative settlement pursuant to which each Respondent has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B) for “matters addressed” in this Settlement.

97. Each Respondent shall, with respect to any suit or claim brought by it for matters related to this Settlement, notify EPA in writing no later than 60 days prior to the initiation of such suit or claim. Each Respondent also shall, with respect to any suit or claim brought against it for matters related to this Settlement, notify EPA in writing within 10 days after service of the complaint or claim upon it. In addition, each Respondent shall notify EPA within 10 days after service or receipt of any Motion for Summary Judgment and within 10 days after receipt of any order from a court setting a case for trial, for matters related to this Settlement. EPA in its unreviewable discretion may notify Respondents in advance of initiating or concluding other settlements in connection with this Site.

98. In any subsequent administrative or judicial proceeding initiated by EPA, or by the United States on behalf of EPA, for injunctive relief, recovery of response costs, or other relief relating to the Central Study Area of the Site, Respondents shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case;



provided, however, that nothing in this Paragraph affects the enforceability of the covenant by EPA set forth in Section XXI (Covenants By EPA).

## **XXVI. INDEMNIFICATION**

99. The United States does not assume any liability by entering into this Settlement or by virtue of any designation of Respondents as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), and 40 C.F.R. § 300.400(d)(3). Respondents shall indemnify, save, and hold harmless the United States, its officials, agents, employees, contractors, subcontractors, and representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondents, their officers, directors, employees, agents, contractors, or subcontractors, and any persons acting on Respondents' behalf or under their control, in carrying out activities pursuant to this Settlement. Further, Respondents agree to pay the United States all costs it incurs, 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. 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. Neither Respondents nor any such contractor shall be considered an agent of the United States.

100. 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.

101. Respondents covenant not to sue and agree not to assert any claims or causes of action 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 Central Study Area of the Site, including, but not limited to, claims on account of construction delays not unreasonably caused by EPA. 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 Central Study Area of the Site, including, but not limited to, claims on account of construction delays not unreasonably caused by EPA.

## **XXVII. INSURANCE**

102. No later than 30 days before commencing any on-site Work, Respondents shall secure, and shall maintain until the first anniversary after issuance of Notice of Completion of Work pursuant to Section XXX (Notice of Completion of Work), commercial general liability insurance with limits of liability of \$1 million per occurrence, automobile liability insurance with limits of liability of \$1 million per accident, and umbrella liability insurance with limits of

liability of \$5 million in excess of the required commercial general liability and automobile liability limits, naming EPA as an additional insured with respect to all liability arising out of the activities performed by or on behalf of Respondents pursuant to this Settlement. In addition, for the duration of the Settlement, Respondents shall provide EPA with certificates of such insurance and a copy of each insurance policy. Respondents shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of the Settlement, 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 Work on behalf of Respondents in furtherance of this Settlement. 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 a lesser amount, then, with respect to the contractor or subcontractor, Respondents need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor. Respondents shall ensure that all submittals to EPA under this Paragraph identify the San Mateo Creek Basin Legacy Uranium Mines Central Study Area Special Account, SSID #A6K6 Operable Unit (OU)1 and the EPA docket number for this action.

## **XXVIII. FINANCIAL ASSURANCE**

103. In order to ensure completion of the Work, Respondents shall secure financial assurance, initially in the amount of \$15 million ("Estimated Cost of the Work"), for the benefit of EPA and the State. The financial assurance must be one or more of the mechanisms listed below, in a form substantially identical to the relevant sample documents available from EPA or under the "Financial Assurance - Settlements" category on the Cleanup Enforcement Model Language and Sample Documents Database at <https://cfpub.epa.gov/compliance/models/>, and satisfactory to EPA. Respondents may use multiple mechanisms if they are limited to surety bonds guaranteeing payment, letters of credit, trust funds, and/or insurance policies.

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

b. One or more irrevocable letters of credit, payable to or at the direction of EPA, that is issued by an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency;

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

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



e. A demonstration by a Respondent that it meets the financial test criteria of Paragraph 105, accompanied by a standby funding commitment, which obligates the affected Respondent to pay funds to or at the direction of EPA, up to the amount financially assured through the use of this demonstration in the event of a Work Takeover; or

f. A guarantee to fund or perform the Work executed in favor of EPA by a company: (1) that is a direct or indirect parent company of a Respondent or has a “substantial business relationship” (as defined in 40 C.F.R. § 264.141(h)) with a Respondent; and (2) can demonstrate to EPA’s satisfaction that it meets the financial test criteria of Paragraph 105.

104. Respondents shall, within 21 days of the Effective Date, obtain EPA’s approval of the form of Respondents’ financial assurance. Within 30 days of such approval, Respondents shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the EPA-approved form of financial assurance and shall submit such mechanisms and documents to the Chief, Enforcement Assessment Section, Superfund Division, EPA Region 6, 1445 Ross Avenue, Suite 1200 (6SF-TE), Dallas, TX 75202-2733

105. Respondents seeking to provide financial assurance by means of a demonstration or guarantee under Paragraph 103.e or 103.f, must, within 30 days of the Effective Date:

a. Demonstrate that:

(1) the affected Respondent or guarantor has:

- i. Two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and
- ii. Net working capital and tangible net worth each at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and
- iii. Tangible net worth of at least \$10 million; and
- iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; or

(2) The affected Respondent or guarantor has:

- i. A current rating for its senior unsecured debt of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's; and
- ii. Tangible net worth at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and
- iii. Tangible net worth of at least \$10 million; and
- iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

b. Submit to EPA for the affected Respondent or guarantor: (1) a copy of an independent certified public accountant's report of the entity's financial statements for the latest completed fiscal year, which must not express an adverse opinion or disclaimer of opinion; and (2) a letter from its chief financial officer and a report from an independent certified public accountant substantially identical to the sample letter and reports available from EPA or under the "Financial Assurance-Settlements" subject list category on the Cleanup Enforcement Model Language and Sample Documents Database at <https://cfpub.epa.gov/compliance/models/>.

106. Respondents providing financial assurance by means of a demonstration or guarantee under Paragraph 103.e or 103.f must also:

- a. Annually resubmit the documents described in Paragraph 105.b within 90 days after the close of the affected Respondent's or guarantor's fiscal year;
- b. Notify EPA within 30 days after the affected Respondent or guarantor determines that it no longer satisfies the relevant financial test criteria and requirements set forth in this Section; and
- c. Provide to EPA, within 30 days of EPA's request, reports of the financial condition of the affected Respondent or guarantor in addition to those specified in Paragraph 105.b; EPA may make such a request at any time based on a belief that the affected Respondent or guarantor may no longer meet the financial test requirements of this Section.

107. Respondents shall diligently monitor the adequacy of the financial assurance. If any Respondent becomes aware of any information indicating that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, such Respondent shall notify EPA of such information within 7 days. If EPA determines that the financial assurance provided under this Section is inadequate or otherwise no longer



satisfies the requirements of this Section, EPA will notify the affected Respondent of such determination. Respondents shall, within 60 days after notifying EPA or receiving notice from EPA under this Paragraph, secure and submit to EPA for approval a proposal for a revised or alternative financial assurance mechanism that satisfies the requirements of this Section. EPA may extend this deadline for such time as is reasonably necessary for the affected Respondent, in the exercise of due diligence, to secure and submit to EPA a proposal for a revised or alternative financial assurance mechanism, not to exceed 90 days. Respondents shall follow the procedures of Paragraph 109 (Modification of Amount, Form, or Terms of Financial Assurance) in seeking approval of, and submitting documentation for, the revised or alternative financial assurance mechanism. Respondents' inability to secure financial assurance in accordance with this Section does not excuse performance of any other obligation under this Settlement.

**108. Access to Financial Assurance**

a. If EPA issues a notice of implementation of a Work Takeover under Paragraph 83.b, then, in accordance with any applicable financial assurance mechanism, EPA is entitled to: (1) the performance of the Work; and/or (2) require that any funds guaranteed be paid in accordance with Paragraph 108.d.

b. If EPA is notified by the issuer of a financial assurance mechanism that it intends to cancel the mechanism, and the affected Respondent fails to provide an alternative financial assurance mechanism in accordance with this Section at least 30 days prior to the cancellation date, the funds guaranteed under such mechanism must be paid prior to cancellation in accordance with Paragraph 108.d.

c. If, upon issuance of a notice of implementation of a Work Takeover under Paragraph 83.b, EPA is unable for any reason to promptly secure the resources guaranteed under any applicable financial assurance mechanism, whether in cash or in kind, to continue and complete the Work; then EPA is entitled to demand an amount, as determined by EPA, sufficient to cover the cost of the remaining Work to be performed. Respondents shall, within 14 days of such demand, pay the amount demanded as directed by EPA.

d. Any amounts required to be paid under this Paragraph 108 shall be, as directed by EPA: (i) paid to EPA in order to facilitate the completion of the Work by EPA or by another person; or (ii) deposited into an interest-bearing account, established at a duly chartered bank or trust company that is insured by the FDIC, in order to facilitate the completion of the Work by another person. If payment is made to EPA, EPA may deposit the payment into the EPA Hazardous Substance Superfund or into the Central Study Area of the San Mateo Creek Basin Legacy Uranium Mines Central Study Area Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Central Study Area of the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

e. All EPA Work Takeover costs not paid under this Paragraph 108 must be reimbursed as Future Response Costs under Section XVI (Payment of Response Costs).



**109. Modification of Amount, Form, or Terms of Financial Assurance.**

Respondents may submit, on any anniversary of the Effective Date or at any other time agreed to by the Parties, a request to reduce the amount, or change the form or terms, of the financial assurance mechanism. Any such request must be submitted to EPA in accordance with Paragraph 104 and must include an estimate of the cost of the remaining Work, an explanation of the bases for the cost calculation, and a description of the proposed changes, if any, to the form or terms of the financial assurance. EPA will notify Respondents of its decision to approve or disapprove a requested reduction or change pursuant to this Paragraph. Respondents may reduce the amount of the financial assurance mechanism only in accordance with: (a) EPA's approval; or (b) if there is a dispute, the agreement or written decision resolving such dispute under Section XVIII (Dispute Resolution). Respondents may change the form or terms of the financial assurance mechanism only in accordance with EPA's approval. Any decision made by EPA on a request submitted under this Paragraph to change the form or terms of a financial assurance mechanism shall not be subject to challenge by Respondents pursuant to the dispute resolution provisions of this Settlement or in any other forum. Within 30 days after receipt of EPA's approval of, or the agreement or decision resolving a dispute relating to, the requested modifications pursuant to this Paragraph, Respondents shall submit to EPA documentation of the reduced, revised, or alternative financial assurance mechanism in accordance with Paragraph 104.

**110. Release, Cancellation, or Discontinuation of Financial Assurance.**

Respondents may release, cancel, or discontinue any financial assurance provided under this Section only: (a) if EPA issues a Notice of Completion of Work under Section XXX (Notice of Completion of Work); (b) in accordance with EPA's approval of such release, cancellation, or discontinuation; or (c) if there is a dispute regarding the release, cancellation or discontinuance of any financial assurance, in accordance with the agreement or final decision resolving such dispute under Section XVIII (Dispute Resolution).

**XXIX. MODIFICATION**

111. EPA's Project Coordinator may make non-material modifications to any plan or schedule or the SOW in writing or by oral direction, but may not make material modifications to the SOW. Material modifications are defined as: expansion of the geographic boundaries of the Study Area; expansion of investigation to environmental media other than groundwater; requirements to perform Work outside of the Study Area and requirements to investigate historical sources of contamination (i.e., those that are not presently sources of contamination). Any oral modification will be memorialized in writing by EPA promptly, but shall have as its effective date the date of EPA's Project Coordinator's oral direction. Any other requirements of this Settlement may be modified in writing by mutual agreement of the parties.

112. If Respondents seek permission to deviate from any approved work plan or schedule or the SOW, Respondents' Project Coordinator shall submit a written request to EPA for approval outlining the proposed modification and its basis. Respondents may not proceed with the requested deviation until receiving oral or written approval from EPA's Project Coordinator pursuant to Paragraph 111.



113. No informal advice, guidance, suggestion, or comment by EPA's Project Coordinator or other EPA representatives regarding any deliverable submitted by Respondents shall relieve Respondents of their obligation to obtain any formal approval required by this Settlement, or to comply with all requirements of this Settlement, unless it is formally modified.

### **XXX. NOTICE OF COMPLETION OF WORK**

114. When EPA determines that all Work has been fully performed in accordance with this Settlement, with the exception of any continuing obligations required by this Settlement, including land, water, or other resource use restrictions and Record Retention, EPA will provide written notice to Respondents. If EPA determines that any Work has not been completed in accordance with this Settlement, EPA will notify Respondents, provide a list of the deficiencies, and require that Respondents modify the RI/FS Work Plan, if appropriate, in order to correct such deficiencies. Respondents shall implement the modified and approved RI/FS Work Plan and shall submit a modified draft RI Report and/or FS Report in accordance with the EPA notice. Failure by Respondents to implement the approved modified RI/FS Work Plan shall be a violation of this Settlement.

### **XXXI. INTEGRATION/APPENDICES**

115. This Settlement and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement. The parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Settlement. The following appendices are attached to and incorporated into this Settlement:

- a. "Appendix A" is the Map of the San Mateo Creek Basin.
- b. "Appendix B" is the Map of the Central Study Area.
- c. "Appendix C" is the Statement of Work (SOW).
- d. "Appendix D" is the provision for Technical Assistance.
- e. "Appendix E" is the Confidentiality Agreement for Alternative Dispute

Resolution

### **XXXII. ADMINISTRATIVE RECORD**

116. EPA will determine the contents of and maintain 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 remedial 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 that may relate to selection of the

remedial action, and all communications between Respondents and state, local, or other federal authorities concerning selection of the remedial action.

**XXXIII. EFFECTIVE DATE**

117. This Settlement shall be effective five (5) days after the Settlement is signed by the Director, Superfund Division, U.S. Environmental Protection Agency Region 6.

IT IS SO AGREED AND ORDERED:

**U.S. ENVIRONMENTAL PROTECTION AGENCY:**

November 7, 2019  
Dated



\_\_\_\_\_

Wren Stenger, Director  
Superfund and Emergency Management Division  
U.S. Environmental Protection Agency, Region 6



Signature Page for Settlement Regarding the Central Study Area of the San Mateo Creek Basin  
Superfund Site

FOR RIO ALGOM MINING, LLC:

November 4<sup>th</sup>, 2019 . M. Reakes  
Dated

Marny Reakes  
President  
Rio Algom Mining, LLC  
1500 Post Oak Blvd.  
Houston, Texas 77056





Signature Page for Settlement Regarding the Central Study Area of the San Mateo Creek Basin  
Superfund Site

**FOR Homestake Mining Company of California:**

10/30/19  
Dated

A handwritten signature in blue ink, appearing to read 'Patrick Malone', is written over a horizontal line. The signature is stylized with a large, sweeping initial 'P'.

Patrick Malone  
President  
Homestake Mining Company of California  
2270 Corporate Circle, Suite 100  
Henderson, NV 89074





Signature Page for Settlement Regarding the Central Study Area of the San Mateo Creek Basin  
Superfund Site

**FOR UNITED NUCLEAR CORPORATION**

10.30.19

Dated



\_\_\_\_\_  
Randall McAlister  
President-United Nuclear Corporation  
c/o Angelica Todd  
General Electric Company  
Bldg. 5, 7<sup>th</sup> Floor  
Schenectady, NY 12345-6000

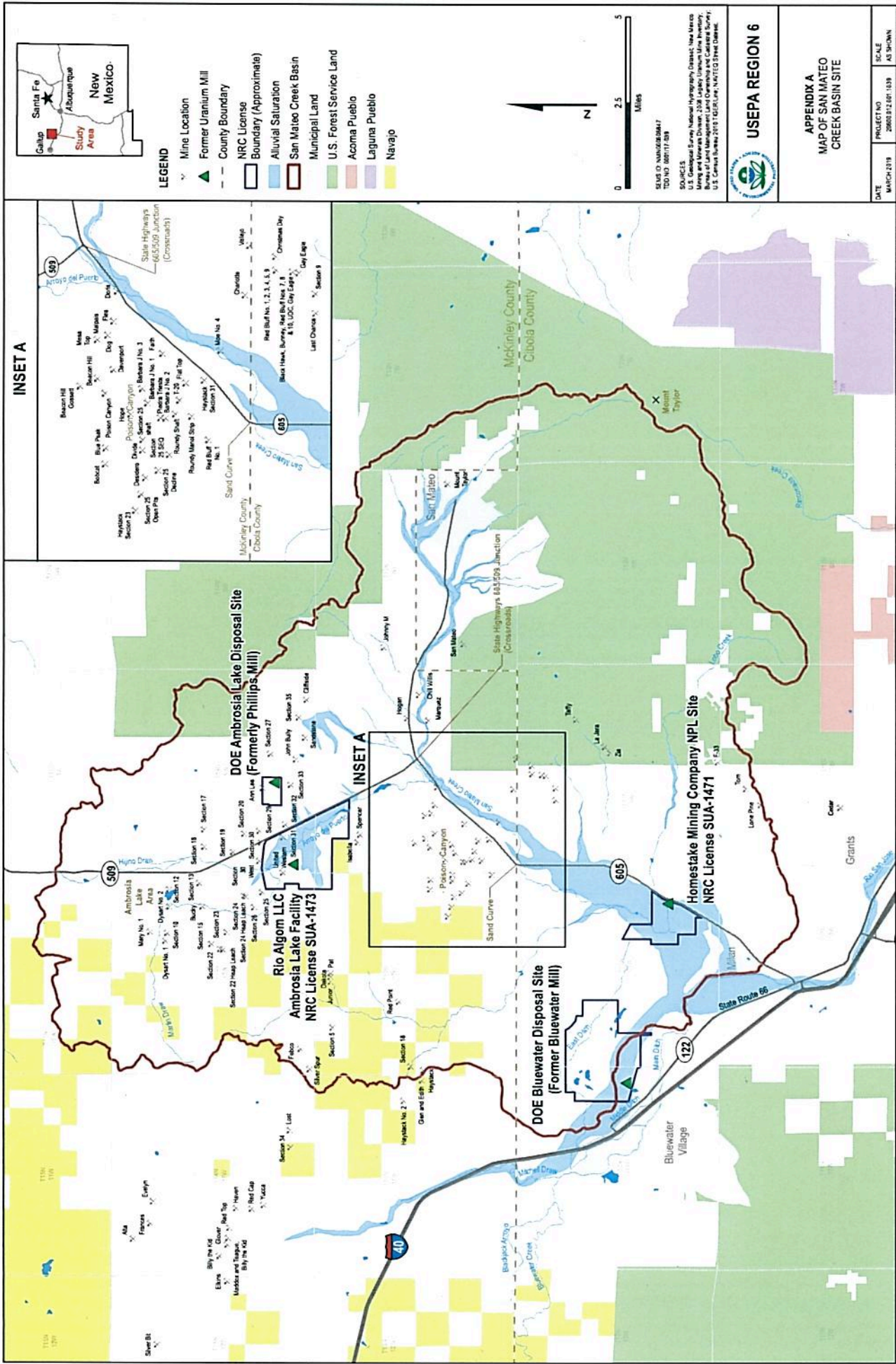




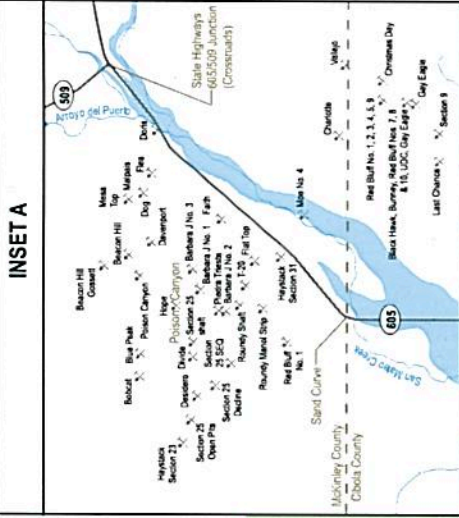




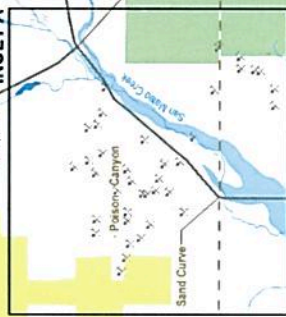




**INSET A**

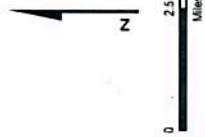


**INSET A**



**LEGEND**

- ✓ Mine Location
- ▲ Former Uranium Mill
- - - County Boundary
- NRC License
- Boundary (Approximate)
- Alluvial Saturation
- San Mateo Creek Basin
- Municipal Land
- U.S. Forest Service Land
- Acoma Pueblo
- Laguna Pueblo
- Navajo



STATE OF NEW MEXICO  
 TDNO 000117-001  
 SOURCES  
 U.S. Geological Survey, National Hydrographic Catalog, New Mexico Mining and Minerals Database, 2008 Laramie Uranium Mine Property, Bureau of Land Management, Land Ownership and Cultural Survey, U.S. Census Bureau 2010 GUR/LUP, NAD83 UTM Zone 13N



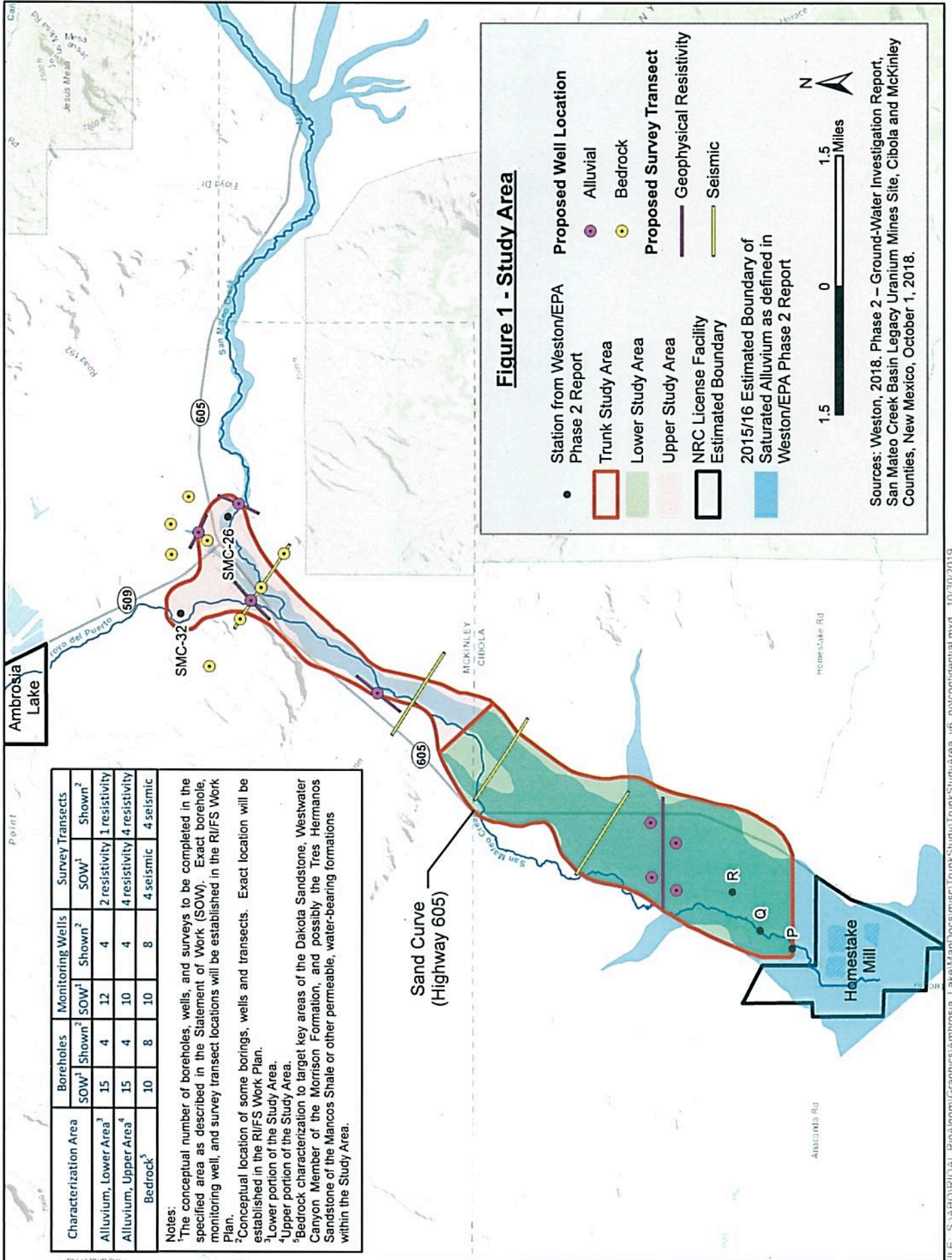
**USEPA REGION 6**

**APPENDIX A  
 MAP OF SAN MATEO  
 CREEK BASIN SITE**

DATE	PROJECT NO.	SCALE
MARCH 2019	20002.012.001.1039	AS SHOWN







**Figure 1 - Study Area**

- Station from Weston/EPA Phase 2 Report
- Trunk Study Area
- Lower Study Area
- Upper Study Area
- NRC License Facility Estimated Boundary
- 2015/16 Estimated Boundary of Saturated Alluvium as defined in Weston/EPA Phase 2 Report
- Proposed Well Location
  - Alluvial
  - Bedrock
- Proposed Survey Transect
  - Geophysical Resistivity
  - Seismic



Sources: Weston, 2018, Phase 2 – Ground-Water Investigation Report, San Mateo Creek Basin Legacy Uranium Mines Site, Cibola and McKinley Counties, New Mexico, October 1, 2018.

Characterization Area	Boreholes		Monitoring Wells		Survey Transects	
	Shown <sup>1</sup>	SOW <sup>2</sup>	Shown <sup>1</sup>	SOW <sup>2</sup>	Shown <sup>1</sup>	SOW <sup>2</sup>
Alluvium, Lower Area <sup>3</sup>	15	4	12	4	2 resistivity	1 resistivity
Alluvium, Upper Area <sup>4</sup>	15	4	10	4	4 resistivity	4 resistivity
Bedrock <sup>5</sup>	10	8	10	8	4 seismic	4 seismic

Notes:  
<sup>1</sup>The conceptual number of boreholes, wells, and surveys to be completed in the specified area as described in the Statement of Work (SOW). Exact borehole, monitoring well, and survey transect locations will be established in the RIFS Work Plan.  
<sup>2</sup>Conceptual location of some borings, wells and transects. Exact location will be established in the RIFS Work Plan.  
<sup>3</sup>Lower portion of the Study Area.  
<sup>4</sup>Bedrock characterization to target key areas of the Dakota Sandstone, Westwater Canyon Member of the Morrison Formation, and possibly the Tres Hermanos Sandstone of the Mancos Shale or other permeable, water-bearing formations within the Study Area.











FEBRUARY 26, 2019

**ATTACHMENT**

**STATEMENT OF WORK**

**REMEDIAL INVESTIGATION AND FEASIBILITY STUDY**

**SAN MATEO CREEK BASIN GROUNDWATER SITE**

**LOWER/CENTRAL STUDY AREA**

**Cibola and McKinley Counties, New Mexico**

**CERCLIS ID No. NMN000606847**

**U.S. Environmental Protection Agency**

**Region 6**

**February 2019**

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## **ATTACHMENT 1**

### **STATEMENT OF WORK REMEDIAL INVESTIGATION AND FEASIBILITY STUDY**

#### **SAN MATEO CREEK BASIN GROUNDWATER SITE CENTRAL STUDY AREA**

#### **I. INTRODUCTION**

1. This Statement of Work (“SOW”) sets forth the procedures and requirements for implementing the Work for a Remedial Investigation and Feasibility Study (“RI/FS”) under the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”), for the Central Study Area (hereinafter “Study Area”) of the San Mateo Creek Basin Groundwater Site (the “Site”). This SOW is both consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (“NCP”) at 40 C.F.R. Part 300.

2. This SOW is attached to the U.S. Environmental Protection Agency (“EPA”) Administrative Order on Consent for RI/FS (CERCLA Docket No. 06-04-19) (the “Order”). Any discrepancies between the Order and this SOW are unintended, and whenever necessary, the Order will control in any interpretive disputes.

3. Homestake Mining Company, Rio Algom Mining LLC, and United Nuclear Corporation (“Respondents”) shall perform the RI/FS by implementing the Work set forth in this SOW, consistent with the Order, until EPA provides written notice of completion of the Work in accordance with Section XXX (Notice of Completion of Work) of the Order.

#### **A. Definitions**

4. Unless otherwise expressly provided in this SOW, terms used in this SOW that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Wherever terms listed in Section III of the Order are used in this SOW, the definitions set forth in Section III of the Order shall apply if not contrary to CERCLA.

#### **B. Description of the Region, the Site, and the Study Area**

5. The Site is located within the Grants Mining District (GMD), which is an area of uranium mineralization occurrence approximately 100 miles long and 25 miles wide

encompassing portions of McKinley, Cibola, Sandoval, and Bernalillo counties and including the Ambrosia Lake Mining Sub-district. Main access into the Site is provided via New Mexico State Roads 605 and 509.

6. Uranium ore was discovered in the Jurassic Todilto Limestone Formation at Haystack Butte in 1950, and production began prior to mill construction in the area by surface mining. Uranium was discovered in the Jurassic Westwater Canyon Member of the Morrison Formation at Ambrosia Lake in 1955. Down-dip drilling from the initial surface discoveries delineated ore bodies in the Todilto and Westwater Canyon Member within the Ambrosia Lake Mining Sub-district. The discovery of large subsurface uranium deposits within the Westwater Canyon Member resulted in the establishment of two-thirds of the active uranium mines in New Mexico within the Ambrosia Lake Mining Sub-district by 1980; most of these mines were underground room-and-pillar operations at depths averaging 900 feet.

7. EPA has conducted Removal Actions under its CERCLA authority to install point-of-use treatment systems at several residential taps and wellheads to prevent exposure to residents from contaminated groundwater (elevated levels of metals and radionuclides) in private wells being used as a drinking water supply.

8. EPA has conducted Site assessments under its CERCLA authority, including a Preliminary Assessment (2008), a Site Inspection (2010), and an Expanded Site Inspection – Phase 1 (2016) and Phase 2 (2018) groundwater investigation.

9. The Study Area is defined to include the San Mateo Creek (“SMC”) alluvial groundwater and Bedrock Aquifers, as described below and depicted on Figure 1:

- a. Groundwater within SMC alluvium from the area north of the Homestake Mining Company National Priorities List (NPL) site, beginning at Well P shown on Figure 1, and continuing upgradient within the SMC alluvium to the Northern Alluvial Boundary Wells (Figure 1);
- b. Groundwater within those bedrock aquifers that are permeable water-bearing formations in direct contact with the SMC and Arroyo del Puerto alluvium within the Study Area and along or near the San Mateo fault zone (“Bedrock Aquifers”). Bedrock Aquifers identified to date are the Morrison Formation Westwater Canyon Member, the Dakota Sandstone, and potentially the Tres Hermanos Sandstone members of the Mancos Shale. Figure 1 depicts the approximate locations of proposed bedrock wells that will support characterization of the Bedrock Aquifers within the Study Area; and
- c. The Study Area is bounded on the northwest by the Upper/Western Study Area and on the northeast by the Upper/Eastern Study Area. To the south, Homestake Mining



Company is currently investigating the area south of Well P (as shown on Figure 1) and north of the Homestake Mining Company NPL Site to understand the lithological and hydraulic heterogeneity and their correlation with uranium concentrations in soil and groundwater. Consistent with paragraph 9(a) and paragraph 77, it is not currently anticipated that the Study Area will extend south of Well P. If additional study of the area south of Well P is required, in no event will the southern boundary of the Study Area extend further south than the northern boundary of the Homestake Mining Company NPL Site.

10. The SOW Remedial Investigation (“RI”) for the Study Area shall be performed to characterize groundwater present within the Study Area in accordance with Section IV.D.1 (Study Area Characterization). This groundwater characterization shall include, at a minimum, the following activities: an investigation of the potential for ongoing loading of contaminants of potential concern (COPC’s) at the Northern Alluvial Boundary Wells that will be sampled to identify potential mass loading to the Study Area; an investigation of the potential for ongoing loading from vadose zone sediments within the SMC and Arroyo del Puerto alluvium in the Study Area; and the characterization of the Bedrock Aquifers.

11. Upon completion of the characterization work described above, a Baseline Risk Assessment of the Study Area shall be performed as part of the RI. Upon completion of the Study Area Characterization and Baseline Risk Assessment as required pursuant to this SOW and the Order, the SOW Feasibility Study (“FS”), including treatability studies, shall be performed to develop, screen, and analyze remedial alternatives for the Study Area.

## **II. ROLE OF EPA**

12. As specified in Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1), EPA will oversee Respondents’ activities throughout implementation of the Work required under the Order and this SOW. Respondents shall support and cooperate with EPA’s initiation and conduct of activities related to implementation of oversight activities. This will include review of and comment upon deliverables such as work plans, reports, and other required submittals as well as the collection of split samples for independent analysis if so requested by EPA. EPA’s approval of deliverables is administrative in nature and allows Respondents to proceed to the next steps in implementing the Work. EPA’s approval does not imply any warranty of performance, nor does it imply that the RI/FS, when completed, will be ultimately accepted by EPA. EPA retains the right to disapprove deliverables and require revision to meet EPA requirements, subject to Section IX of the Order

13. As described in Section IX (Submission and Approval of Deliverables) of the Order, after review of any deliverable that is required to be submitted to EPA for approval under



this SOW, EPA shall: 1) approve, in whole or in part, the submission; 2) approve the submission upon specified conditions; 3) disapprove, in whole or in part, the submission, requiring Respondents to correct the deficiencies; or 4) any combination of the foregoing.

14. EPA also may modify the initial submission to cure deficiencies in the submission if: 1) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or 2) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

15. EPA will ensure that the State of New Mexico and any other federal or tribal agency, if appropriate, will have an opportunity to comment on all deliverables before they are approved by EPA.

### **III. RESPONDENTS' KEY PERSONNEL**

#### **A. PROJECT COORDINATOR**

16. Within ninety (90) calendar days after the Effective Date of the Order, Respondents shall designate a Project Coordinator who shall be responsible for administration of the Work required by the Order and shall submit to EPA the designated Project Coordinator's name, title, address, telephone number, email address, and qualifications. To the greatest extent possible, the Project Coordinator shall be readily available during the Work. Project Coordinators shall be approved pursuant to Section XII of the Order.

17. When necessary, as determined by EPA, EPA will meet with Respondents and discuss the performance and capabilities of Respondents' Project Coordinator. When Project Coordinator performance is not satisfactory, in the reasonable judgment of EPA based on the criteria set forth in the Order, Respondents shall take action, as requested by EPA, to correct the deficiency. If, at any time, EPA determines that the Project Coordinator is unacceptable for any reason relative to the Work, Respondents, at EPA's request, shall bar the Project Coordinator from any work under the Order, and, pursuant to the provisions of Paragraph 20 of the Order, give notice of Respondents' selected new Project Coordinator to EPA.

#### **B. QUALITY ASSURANCE OFFICIAL**

18. Within ninety (90) calendar days after the Effective Date of the Order, Respondents shall designate a Quality Assurance Manager (QA Manager) to the project and notify EPA of such designation. Oversight by Respondents' QA Manager will be used to

provide confirmation and assurance to Respondents and EPA that Respondents are performing the RI/FS in a manner that will meet the requirements of the Order and this SOW. The QA Manager shall ensure that the Work performed by Respondents meets the standards set forth in the quality assurance documents required for conducting an RI/FS, including activities described in this SOW. The QA Manager shall selectively test and inspect the Work performed by Respondents.

#### **IV. WORK TO BE PERFORMED**

19. Respondents shall perform the Work activities described below in accordance with the Order and this SOW. Respondents shall also perform the Work in accordance with the “Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA” (U.S. EPA, Office of Emergency and Remedial Response, 1988d; hereinafter “the RI/FS Guidance”), Guidance on Systematic Planning Using the Data Quality Objectives (DQO) Process (EPA QA/G-4, 2006), and other EPA guidance as applicable to the Work. RI/FS Guidance sections and subsections are identified in parentheses for key sections of this SOW. EPA guidance documents are listed in Appendix A.

##### **A. GENERAL REQUIREMENTS**

20. The general requirements described below shall be met by Respondents when performing the Work.

###### **1. Deliverables**

21. All plans, reports and other deliverables required by the Order or this SOW shall be submitted to EPA in accordance with the Order, including Section VIII (Work to be Performed) of the Order. Respondents shall simultaneously submit copies of all deliverables to the New Mexico Environment Department (NMED) and the New Mexico Energy, Minerals and Natural Resources Department's Mining and Minerals Division (MMD), and to other federal, state, and tribal regulatory agencies or other parties if so directed by EPA.

22. Whenever possible, deliverables being submitted for mutually agreeable meeting dates shall be submitted five (5) working days in advance of the meeting to EPA and other invited parties as appropriate, to allow for review prior to the meeting. A table of all the deliverables specified in this SOW, along with due dates and estimated EPA review times is attached (Appendix B).

###### **2. Document Distribution**



23. Respondents shall submit two electronic copies of all plans, reports, and other major deliverables to the EPA Remedial Project Manager (RPM), EPA Oversight Contractor, and the NMED and MMD project coordinators. Respondents shall also submit two electronic copies of such documents to any other federal, state, and tribal regulatory agency if so directed by EPA. The electronic copies shall be submitted in both MS Office® (Word®, Excel®, Project®, etc.) and Adobe Acrobat® in the format provided by EPA or as specified herein. The number of actual copies required by EPA, NMED, MMD and other regulatory agencies as identified by EPA will continually be reassessed throughout the RI/FS process by the RPM, and Respondents shall be notified if additional or fewer copies are needed. Respondents shall also be notified by the RPM if EPA, NMED or MMD requires hard copies. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5” by 11”, Respondents shall also provide EPA, NMED, MMD and the other EPA-authorized parties with full-color paper copies of such exhibits. Respondents shall provide additional hard and/or electronic copies to Community Advisory Groups, Technical Assistance Grant recipients or any other entities as directed by the RPM.

### **3. Technical Specifications for Data Management and Deliverables**

24. A Study Area-specific data management plan shall be submitted to EPA as part of the RI/FS Work Plan described in Section IV.B.2(a) of this SOW. The plan shall describe the method for managing the sampling, monitoring, and other data collected within the Study Area, including validated data and respective data elements. The plan also shall define the roles and responsibilities of the personnel involved in the management of the Study Area data.

25. The sample and monitoring data should be delivered to EPA in standard regional Electronic Data Deliverable “EDD” format. The data should also be delivered in a Scribe-formatted deliverable. Scribe software is a tool developed by EPA to assist in the process of managing environmental data. Consult <http://www.epaosc.org/Scribe> for the current version of Scribe or any additional information on Scribe software. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.

26. Spatial data, including spatially-referenced data and geospatial data, shall be submitted: (1) in the ESRI File Geodatabase format ESRI shapefile (.dbf, .shp, .shx, .prj, .xml), or tabular Excel/txt/csv/Access format); and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions shall include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data shall be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (“FGDC”) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for

ESRI software, the EPA Metadata Editor (“EME”), complies with these FGDC and EPA metadata requirements and is available at <https://edg.epa.gov/EME/>.

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

28. Spatial data submitted by Respondents do not, and are not, intended to define the boundaries of the Study Area.

#### **4. Personnel, Materials and Services**

29. Respondents shall furnish all necessary personnel, materials, and services needed, for performing the RI/FS Work, except as otherwise specified in the Order.

30. In accordance with Section VII (Designation of Contractors and Project Coordinators) of the Order, Respondents shall, within ninety (90) calendar days after the Effective Date of the Order, notify EPA in writing of the names, titles, addresses, telephone numbers, email addresses, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories to be used in carrying out the Work. If any additional contractors or subcontractors are retained after commencement of the Work or in the event EPA disapproves of any contractor or subcontractor, pursuant to Section VII of the Order, Respondents shall notify EPA of such information in accordance with Section VII of the Order.

#### **5. Meetings**

31. Respondents’ Project Coordinator shall attend meetings, set at mutually agreeable times, with EPA, NMED, MMD, and other EPA-authorized parties periodically, as requested by EPA, throughout the RI/FS process as Study Area activities progress. The meetings shall be used to discuss project planning needs, Study Area activities and RI/FS results to keep all parties informed of Work progress. Respondents shall prepare documentation of all meeting discussions such as meeting notes and any follow-up action items and submit the documentation to EPA within seven (7) calendar days following the meeting. Meeting notes are subject to EPA review and approval. Respondents shall make any revisions within seven (7) calendar days after receipt of EPA comments and resubmit the meeting notes to EPA.

#### **6. Monthly Progress Reports**

32. Respondents shall prepare and send to EPA’s RPM monthly progress reports documenting the status of the Work by the 15th day of the following month, beginning in the month following the Effective Date of the Order and ending with the month following EPA’s



notification to Respondents that all activities required under this SOW have been performed by Respondents to the satisfaction of EPA (*see* Notice of Completion of Work, Section XXX of the Order). The progress reports shall contain the information described in Section VIII of the Order (Work to Be Performed.)

**B. SCOPING (RI/FS Guidance, Chapter 2)**

33. Scoping shall begin within ninety (90) calendar days of the Effective Date of the Order. Scoping is the initial planning phase of the RI/FS process and shall be performed, in part, as detailed in Chapter 2 of the RI/FS Guidance. Scoping activities to be performed by Respondents shall begin with the collection and assessment of existing data from previous investigations and other work performed at the Study Area to identify COPCs, including radionuclides of potential concern, and primary receptors and exposure pathways. Data to be collected from previous investigations may include, but are not limited to, EPA’s Preliminary Assessment (2008), Site Inspection (2010), and the Expanded Site Inspection – Phase 1 (2016) and Phase 2 (2018) groundwater investigations; the U.S. Geological Survey’s (USGS’s) Homestake Mining Company NPL site study (to be published as two journal papers in 2019); the Homestake Mining Company’s 2018 white paper entitled “Evaluation of Water Quality in Regard to Site Background Standards at the Grants Reclamation Project” (prepared by Arcadis U.S., Inc.), and EPA and New Mexico early studies of the mid-1970s and 1980s on water quality impacts of uranium mining and milling activities in the Grants Mining District. Numerous studies have also been completed on groundwater conditions in the SMC Basin by the uranium industry since the early 1960s to the present. Respondents shall present this assessment of existing data to EPA, NMED, MMD and any other federal, New Mexico, and/or tribal agencies (as specified by EPA) during the early stages of planning.

34. The activities described below shall be performed by Respondents as part of scoping.

**1. Project Planning**

35. Project planning shall consist of scoping meetings, a Study Area visit, an evaluation of existing data, the identification of data needs and the preparation of key planning documents. Respondents shall utilize existing Study Area data and reports to aid in document preparation.

(a) Conduct Scoping Meetings

36. Respondents shall conduct an initial scoping meeting with EPA representatives within fourteen (14) calendar days after the Designation of Project Coordinator. The purpose of this meeting will be to discuss plans for scoping the RI/FS and any special concerns associated with the Study Area. It will allow Respondents to present preliminary work flow strategies to EPA and any supporting agencies (as specified by EPA) for feedback and direction on the RI/FS path forward. It will also allow key personnel to become involved in the initial planning decisions. Additional attendees may include representatives of NMED, MMD, other federal and state regulatory agencies, contractor personnel who will be conducting the RI/FS and performing the Baseline Risk Assessment, and EPA's oversight contractor.

37. Respondents' Project Coordinator shall meet with EPA periodically throughout the RI/FS process as Study Area activities progress or, as requested by EPA, to discuss the project planning needs and Study Area activities to keep all parties informed of Work progress. Meeting dates and locations will be mutually agreed upon by EPA and Respondents. Other federal, state and/or tribal agencies as specified by EPA may participate in the meetings.

(b) Conduct Study Area Visit

38. Respondents shall conduct a Study Area visit with EPA and other supporting agencies if needed during the scoping phase to assist in developing a conceptual understanding of how the RI/FS for groundwater within the Study Area will be accomplished. Such understanding shall include potential sources and areas of contamination at the Study Area as well as potential exposure pathways and receptors at the Study Area. Information gathered during the visit shall be used to better scope the Work and to help determine the extent of additional data needs.

39. Respondents shall conduct additional Study Area visits with representatives of EPA, NMED, MMD and other authorized parties as needed throughout the RI/FS process as Study Area activities progress or as requested by EPA.

40. After each Study Area visit, Respondents shall provide documentation of the Study Area visit that identifies (1) all persons who participate in the Study Area visit, (2) all decisions made during the visit, (3) any action items assigned, including the party responsible to complete the assigned action item, (4) any unusual occurrences during the visit, and (5) any portions of the Study Area that were not accessible during the visit and the effect of this on project planning. The documentation shall be submitted to EPA within seven (7) calendar days after each Study Area visit. A health and safety plan must be prepared and submitted to EPA before any Study Area visits are conducted (*see* Section IV.B.2.(f) of this SOW).

(c) Evaluate Existing Groundwater Information



41. Respondents shall compile and review all relevant and readily available existing data and other information concerning groundwater and vadose zone conditions at the Study Area. In compiling the data, Respondents shall review all the data collection information sources in Table 2-1 (Data Collection Information Sources) of the RI/FS Guidance. Respondents shall compile all readily available, existing information regarding the following:

- Current sources of groundwater COPCs, migration pathways, and potential human and environmental receptors;
- The physical, radiological and chemical characteristics of the groundwater and soil COPCs, and their distribution to the extent necessary to evaluate COPC migration pathways at the Study Area;
- Any previous sampling events conducted within the Study Area;
- Previous responses conducted at the Study Area by federal, state, tribal or private parties;
- Geology, hydrogeology, hydrology, geochemistry, including isotope geochemistry, and meteorology of the Study Area;
- Environmental characterization of the Study Area;
- Background groundwater and sediment characteristics;
- Demographics and land use;
- Residential, municipal, agricultural, and industrial wells at the Study Area; and
- Groundwater uses for areas surrounding the Study Area.

(d) Identify Data Needs

42. Respondents, in consultation with EPA, NMED and MMD, shall use the data and information compiled and reviewed to identify the RI/FS data needs for characterizing the Study Area, identifying potential applicable or relevant and appropriate requirements (ARARs), and developing a preliminary conceptual Study Area model, including human and ecological receptors and exposure pathway analysis. This preliminary conceptual Study Area model will also allow for an evaluation of potential remedial alternatives that may be suitable and applicable to address Study Area risks.

43. Respondents shall perform a Study Area data gap analysis to determine what additional data are needed to define source areas of groundwater contamination, the pathways of COPC migration, and the potential receptors and associated exposure pathways to the extent

necessary to: 1) determine whether or to what extent a threat to human health or the environment exists and 2) develop and evaluate remedial alternatives (including the no action alternative).

## **2. Preparation of Project Plans**

44. Within one hundred and twenty (120) calendar days after Designation of Project Coordinator or as otherwise specified in this SOW, Respondents shall prepare and submit, for EPA review and approval, the following written documents based on the scoping activities described in this section:

- RI/FS Work Plan;
- Preliminary Conceptual Study Area Model;
- Sampling and Analysis Plan, including a Field Sampling Plan and Quality Assurance Project Plan;
- Study Area Health and Safety Plan;
- Identification of Candidate Technologies Memorandum for Treatability Studies; and
- Cultural Awareness and Protection Plan.

(a) Remedial Investigation/Feasibility Study (RI/FS) Work Plan

45. Respondents shall prepare and submit a draft RI/FS Work Plan to EPA for review and approval. Respondents shall use information from the RI/FS Guidance and other appropriate EPA guidance, and the technical direction provided by the EPA RPM, to develop the draft RI/FS Work Plan in conjunction with the draft Sampling and Analysis Plan (“SAP”) and the draft Study Area Health and Safety Plan (“HASP”) (*see* Sections IV.B.2(c) and IV.B.2(f) of this SOW). Each plan may be submitted to EPA under separate cover. The draft RI/FS Work Plan shall include a comprehensive description of the Work to be performed, the methodologies to be utilized, and a corresponding project schedule for completion of the Work. The project schedule shall incorporate all the schedules or time periods for performing the Work specified in this SOW. Responsibility and authority of all organizations and key personnel to be involved with the Work shall be provided in the draft RI/FS Work Plan, including an organizational chart.

46. The draft RI/FS Work Plan shall present a statement of the problem(s) and potential problem(s) posed by the Study Area, the objectives of the RI/FS, and the data needed to address the problem(s). These components will support development of the rationale for performing the required activities.



47. The draft RI/FS Work Plan shall include a description of the Study Area management strategy developed during scoping and a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives.

48. The draft RI/FS Work Plan shall include a detailed description of the tasks to be performed and information needed for each task, including those for performing the Baseline Risk Assessment (in accordance with Section IV.D.7 of this SOW). The draft RI/FS Work Plan shall include information to be produced during and at the conclusion of each task and a description of the work products and deliverables that Respondents shall submit to EPA. This includes the deliverables set forth in the remainder of this SOW. The draft RI/FS Work Plan shall also include a project management plan, including a data management plan (*e.g.*, requirements for project management systems and software, minimum data requirements, data format and backup data management). Respondents shall refer to the RI/FS Guidance which describes the RI/FS Work Plan suggested format and content.

49. EPA will provide comments on the RI/FS Work Plan to Respondents within a target of sixty (60) calendar days after receipt of the draft RI/FS Work Plan. Such comments will identify any deficiencies of the RI/FS Work Plan that would impact the completion of the Work and objectives set forth in the Order and the SOW. Respondents shall revise the RI/FS Work Plan to address all EPA comments. The revised RI/FS Work Plan shall be submitted to EPA for review and approval within sixty (60) calendar days after receipt of EPA comments or within the time determined by the EPA RPM.

50. Upon approval of the RI/FS Work Plan by EPA, Respondents shall complete the Work according to the Order, this SOW, and the EPA-approved plans and project schedule in the RI/FS Work Plan. If EPA approves portions of the RI/FS Work Plan prior to approving the entire plan, Respondents shall perform the Work described in those EPA-approved portions according to the project schedule in the RI/FS Work Plan.

(b) Preliminary Conceptual Study Area Model

51. Respondents shall develop and submit a preliminary conceptual Study Area model to EPA for review and approval. Respondents shall use the data compiled and reviewed to develop the preliminary conceptual Study Area model, as described in the RI/FS Guidance at Section 2.2.2.2 and Figure 2-2. This model shall include:

- Known and suspected sources of groundwater COPCs;
- Known and potential routes of migration of COPCs); and
- Known and potential human and environmental receptors of groundwater COPCs.

52. Respondents shall develop a preliminary Study Area hydrogeological model, including geochemical characterization, based on the conceptual Study Area model, as a tool to better understand how COPCs within Study Area groundwater are expected to migrate through the alluvial aquifer and into the underlying Bedrock Aquifers. The preliminary Study Area hydrogeological model will include:

- Assessment of potential current loading sources;
- Evaluation of known groundwater flow paths, seepage velocities, and historic and projected travel times along flow paths to determine current and projected COPCs distribution using graphical, analytical or numerical methods;
- Development of a water balance for the Study Area;
- Evaluation of vertical migration potential from alluvium to bedrock;
- Evaluation of current COPCs distributions; and
- Assessment of COPCs distributions over time.

The preliminary Study Area hydrogeological model will use appropriate methods to synthesize and quantify the items listed above. The preliminary Study Area hydrogeological model will be submitted to EPA for review and approval with the preliminary conceptual Study Area model.

53. Respondents shall conduct a data gap analysis as part of the preliminary conceptual Study Area model. The data gap analysis shall identify the data needed to complete the hydrogeological model and define the nature and extent of groundwater contamination in the Study Area. Respondents shall include in the analysis the methodology used to identify the data gaps and a description of the geochemical and hydrogeological data and methods that could address the data gaps. Respondents shall document the results of the analysis in a data gap analysis report and submit the report for EPA review and approval with the preliminary conceptual Study Area model and preliminary Study Area hydrogeological model.

54. Respondents shall revise the preliminary conceptual Study Area model, including the preliminary Study Area hydrogeological model and data gap analysis report, to address all EPA comments. The revised model and report shall be submitted to EPA for review and approval within sixty (60) calendar days after receipt of EPA comments or within the time determined by the EPA RPM.

55. Respondents shall refine the preliminary conceptual Study Area model and hydrogeological model if more information is collected during the RI process.



56. The development of the preliminary conceptual Study Area model and preliminary hydrogeological model will allow Respondents, in consultation with EPA and any supporting agencies (as specified by EPA), to identify potential remedial action objectives for COPC-impacted groundwater during the scoping phase of the project. Based on these potential remedial action objectives, Respondents shall provide a list of preliminary remedial action alternatives for the Study Area (*see* Section IV.D.3, below).

(c) Sampling and Analysis Plan (2.3.2)

57. Respondents shall prepare and submit to EPA for review and approval a draft SAP. Respondents shall design the SAP in a manner that ensures that sample collection and analytical activities are conducted in accordance with technically acceptable protocols, as determined by EPA, and that the data meet data quality objectives (DQOs). The SAP shall identify the sampling requirements, including: specific sampling designs; sampling methods; sample numbers, types and locations; and the level of sampling quality control. A conceptual program for data collection is presented in Section IV.D.1 (Study Area Characterization) of this SOW. The conceptual data collection program shall be refined during preparation of the SAP (and the RI/FS Work Plan described above). A description of the methods to be used in analyzing data obtained during the Work shall be included in the SAP. The SAP shall provide a mechanism for planning field activities and shall consist of a Field Sampling Plan (“FSP”) and Quality Assurance Project Plan (“QAPP”), as described below. In writing the SAP, Respondents will follow the format described in Table 2-4 [Suggested Format for SAP (field sampling plan (FSP) and quality assurance project plan (QAPP))] of the RI/FS Guidance. The SAP shall be updated as needed for other Work described in this SOW such as the Baseline Risk Assessment and Treatability Studies.

58. Respondents shall revise the SAP to address all EPA comments. The revised SAP shall be submitted to EPA for review and approval within sixty (60) calendar days after receipt of EPA comments or within the time determined by the EPA RPM.

(d) Field Sampling Plan

59. Respondents shall prepare and submit a draft FSP to EPA for review and approval as part of the SAP deliverable. The FSP shall define in detail the sampling and data gathering methods that will be used for the project. The FSP shall be designed to obtain data for defining the nature and extent of COPCs in groundwater and alluvial sediment in the Study Area and for use in completing the human health and baseline ecological risk assessment (*see* Section IV.D.7., Baseline Risk Assessment). The FSP shall include, but not be limited to, sampling objectives, sample location and frequency (and the basis for such locations and frequency), sampling equipment and procedures, and sample handling and analysis.

60. Respondents may consider the data from previous studies and investigations by EPA and others when developing the sampling designs if such data satisfy the EPA-approved QAPP and DQOs prepared under this SOW. Respondents may attempt to avoid unnecessary redundancy in data collection, to the extent possible, by planning to obtain the necessary data that would address data gaps identified as part of any data gap analysis approved by EPA (see Section IV.B.1(b) of this SOW). Such strategy for designing the FSP must allow for the collection of data to define the nature and extent of contamination.

61. The FSP shall contain a completed Sample Design Collection Worksheet and a Method Selection Worksheet. These Worksheet templates can be found in EPA's guidance document titled "*Guidance for Data Usability in Risk Assessment*" (EPA, 1992b). Respondents shall refer to additional guidance specific to characterization of radioactive-impacted groundwater sites which provide technical information on final status surveys of radioactive-impacted groundwater sites. Respondents shall provide a strategy that includes both biased sampling and random sampling. The baseline human health and ecological risk assessments require that the sampling be conducted to demonstrate that the data are statistically representative of the Study Area.

62. Respondents shall refer to the EPA's presumptive remedy guidance (EPA 540-R-97-029) for help in focusing sampling to assess extent of COPCs in groundwater at the Study Area and potentially support selection of presumptive remedies.

63. Respondents shall provide in the FSP a strategy for characterizing background conditions at the Study Area. Respondents shall propose the approach to evaluate background (pre-mining, baseline groundwater quality). The approach will take into consideration work presented in the Phase 2 Ground Water Investigation Report for the San Mateo Creek Basin Legacy Uranium Mines Site (EPA, October 2018) and the complex hydrogeologic regime of the Study Area.

64. At a minimum, the FSP shall include analyses for all identifiable gamma emitting radioisotopes<sup>1</sup>, stable isotopes, and target analyte list metals plus total uranium, molybdenum, and other parameters necessary to characterize the Study Area conditions with respect to presence of COPCs and transport via groundwater (e.g., geochemical parameters, pH, etc.). Respondents shall also confirm that the detection limits for all laboratories are in accordance within the goals stated in EPA's risk assessment guidance. The FSP shall be written so that a field sampling team unfamiliar with the Study Area would be able to gather the samples and field

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<sup>1</sup> The gamma emitting radioisotopes shall specifically include the decay products of uranium-238, radium-226, thorium-232 and potassium-40. The requested analytical procedure for radium-226 shall be a quantification of bismuth-214 after an in-growth period of at least 21 days.



information required. Respondents shall refer to EPA's RI/FS Guidance which describes the FSP suggested format and content.

65. Respondents shall revise the FSP to address all EPA comments. The revised FSP shall be submitted to EPA for review and approval within sixty (60) calendar days after receipt of EPA comments or within the time frame determined by the EPA RPM.

(e) Quality Assurance Project Plan

66. Respondents shall prepare and submit to EPA for review and approval a draft QAPP. The QAPP shall describe the project objectives and organization, functional activities, and QA/QC protocols that will be used to achieve the desired DQOs. The QAPP shall be consistent with the NCP and demonstrate compliance with EPA quality assurance guidance, including, but not limited to, "Guidance for Quality Assurance Project Plans (QA/G-5)," "EPA Requirements for Quality Assurance Project Plans (QA/R-5)", and "Uniform Federal Policy for Quality Assurance Project Plans," Parts 1-3, EPA/505/B-04/900A-900C (March 2005). Respondents shall refer to additional guidance on the application of the DQO process at radiation sites in the EPA Soil Screening Guidance for Radionuclides and the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The DQOs shall at a minimum reflect use of analytical methods for identifying groundwater with COPCs and remediating groundwater with COPCs above preliminary remediation goals ("PRGs") established for remedial action objectives identified in the NCP. The QAPP shall address sampling procedures, sample custody, analytical procedures, data reduction, data validation, data reporting, and personnel qualifications. In addition, the comparison values (*e.g.*, EPA Maximum Contaminant Levels, New Mexico Water Quality Control Commission regulations, Regional Screening Levels) that will be used to evaluate the sampling results shall be detailed with rationale for selection and usage.

67. Respondents shall demonstrate in advance, to EPA's satisfaction, that each analytical laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the COPCs in the groundwater within detection and quantification limits consistent with both QA/QC procedures and the DQOs approved in the QAPP for the Study Area by EPA. The laboratory must have, and follow, an approved QA program. If a laboratory not in the Contract Laboratory Program ("CLP") is selected, methods consistent with CLP methods shall be used where appropriate. Any methods not consistent with CLP methods must be approved by EPA prior to use. If a laboratory not in the CLP program is selected, a laboratory QA program must be submitted to EPA for review and approval. EPA may require Respondents to submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel and qualifications, equipment, and material specifications. In addition, Respondents shall describe how the quality and validity



of the laboratory data compiled during Study Area Characterization shall be consistently documented. Respondents shall ensure that all laboratories it uses for analysis of samples taken pursuant to this Order have a documented Quality System that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006), or equivalent documentation as determined by EPA.

(f) Study Area Health and Safety Plan

68. Respondents shall prepare a Study Area Health and Safety Plan (HASP) and submit it to EPA for review. The HASP describes all activities to be performed to protect onsite personnel and area residents from physical, chemical, radiological, and all other hazards posed by the Work. Respondents shall develop the HASP in compliance with applicable Occupational Safety and Health Administration ("OSHA") and EPA requirements, including, but not limited to, 29 CFR §§ 1910 and 1926, and any other applicable federal safety requirements. The HASP shall cover RI/FS activities and must be in place prior to any on-site activities, including Study Area visits. EPA will review, but not approve, the HASP to ensure that all necessary elements are included and that the Plan provides for the protection of human health. EPA may require a revised HASP to be submitted for review if the RI/FS Work Plan is changed or amended (*e.g.*, such as in the performance of pilot studies which may result in the airborne emissions of hazardous substances from the Study Area). Respondents shall refer to the RI/FS Guidance which describes the HASP-suggested format and content.

(g) Identification of Candidate Technologies Memorandum for Treatability Studies

69. If remedial alternatives involving treatment are preliminarily identified by Respondents or EPA during the scoping phase, treatability studies will be required unless Respondents can demonstrate to EPA's satisfaction that they are not needed. Respondents may have completed or are conducting treatability studies or equivalent studies under the direction of other federal or state regulatory authorities. Where treatability studies are needed, initial treatability testing activities (such as research and study design) specified in Section IV.E (Treatability Studies) of this SOW shall be planned to occur concurrently with Study Area Characterization activities described in Section IV.D of this SOW. Respondents shall prepare and submit to EPA for review and approval a memorandum identifying candidate technologies for a treatability studies program and those studies completed or currently ongoing for other regulatory authorities. The list of candidate technologies shall cover the range of technologies required for the detailed analysis of alternatives (*see* Section IV.F, Feasibility Study).

(h) Cultural Awareness and Protection Plan



70. If needed, as determined by EPA, Respondents shall develop and submit to EPA for review and approval a Cultural Awareness and Protection Plan that will include a cultural resource investigation to fulfill the requirements of Section 106 of the National Historic Preservation Act of 1966. The cultural resource investigation will identify and collect information about the historic properties within this area and whether they are listed or eligible for the National Register, and then assess the potential for the Work to impact these properties. This shall be done in coordination with EPA and the New Mexico State Historic Preservation Office (SHPO) or the appropriate Tribal Historic Preservation Officer(s).

### **C. COMMUNITY RELATIONS**

71. The development and implementation of community relations activities, including conducting community interviews and developing a community involvement plan, are the responsibility of EPA. If requested by EPA, Respondents shall participate in community involvement activities, including participation in (1) the preparation of information regarding the Work for dissemination to the public, with consideration given to including mass media and/or Internet notification, and (2) public meetings that may be held or sponsored by EPA to explain activities at or relating to the Study Area. Respondents' support of EPA's community involvement activities may include providing online access to initial submissions and updates of deliverables to the following:

- Any community advisory groups;
- Any Technical Assistance Grant recipients and their advisors; and
- Other entities to provide them with a reasonable opportunity for review and comment.

72. EPA may describe in its community involvement plan Respondents' responsibilities for community involvement activities. All community involvement activities conducted by the Respondents at EPA's request are subject to EPA's oversight. Upon EPA's request, Respondents shall make all deliverables available on a website that is accessible to the public. Upon EPA's request, Respondents shall establish a community information repository at or near the Study Area to house a copy of the administrative record.

73. As requested by EPA, Respondents shall, within fifteen (15) calendar days of EPA's request, designate and notify EPA of Respondents' Community Involvement Coordinator (CIC). Respondents may hire a contractor for this purpose. Respondents' notice must include the name, title, and qualifications of the Respondents' CIC. Respondents' CIC is responsible for providing support regarding EPA's community involvement activities, including coordination with EPA's CIC regarding responses to the public's inquiries about the Study Area.

74. Within sixty (60) calendar days after a request by EPA, Respondents shall provide EPA with a Technical Assistance Plan (TAP) for arranging (at Respondents' own expense up to \$50,000) for a qualified community group to (1) receive services from [an] independent technical advisor[s] who can help members understand Study Area cleanup issues, and (2) share this information with others in the community during the Work conducted pursuant to the Order. The TAP shall state that Respondents will provide and arrange for any additional assistance needed if the selected community group demonstrates such a need prior to EPA's issuance of the ROD contemplated by the Order. If EPA disapproves of or requires revision to Respondents' draft TAP, in whole or in part, then Respondents shall amend and submit to EPA a revised TAP that is responsive to EPA's comments, within 21 days after receiving EPA's comments.

75. Before the public comment period on the proposed plan begins, EPA will place an electronic copy of the administrative record in the community information repository that Respondents established near the Study Area. In addition to the administrative record, EPA may at any time place documents in the information repository for public review. If requested by EPA, Respondents shall provide EPA one additional electronic copy and/or one additional hard copy of Study Area documents for this purpose.

## **D. REMEDIAL INVESTIGATION**

### **1. Study Area Characterization (RI/FS Guidance, Chapter 3)**

76. Respondents shall perform Study Area Characterization by investigating the extent of migration of groundwater COPCs in the Study Area, as well as the potential for mass loading to the Study Area and any changes in the physical, radiological, or chemical characteristics resulting from the fate and transport of groundwater COPCs within the Study Area to provide for a comprehensive understanding of the nature and extent of groundwater impacts within the Study Area. A conceptual data collection program has been designed for the Study Area Characterization and includes geophysical seismic and resistivity surveying, borehole drilling, coring and sampling, geological logging, monitoring well construction, and groundwater sampling. The conceptual data collection program is described further below as an initial characterization and is intended to provide most, if not all, of the data needed for characterization of the Study Area. The conceptual data collection program shall be refined during preparation of the RI/FS Work Plan, SAP, and preliminary conceptual Study Area model (including the preliminary hydrogeological model and data gap analysis report) as part of RI/FS Scoping. Additional data collection for Study Area Characterization is also described below and is intended to fill in core data gaps to complete the characterization.



77. The initial Study Area Characterization shall include drilling boreholes, constructing monitoring wells, and conducting geophysical resistivity and seismic surveys along transects approximately perpendicular to the long-axes of the SMC channel and tributary drainages and across the San Mateo Fault Zone. For the Lower Study Area alluvium from Well P and continuing to the northern boundary of the Lower Study Area (approximately one mile north of the bend in State Highway 605, known locally as “Sand Curve”), no more than fifteen (15) boreholes shall be drilled in the alluvium to collect stratigraphic information for delineating the geometry and depth of the alluvial paleo-channel(s). No more than twelve (12) monitoring wells shall be constructed at the alluvial boreholes when sufficient saturation is encountered for well development and sampling. All alluvial boreholes shall be drilled through the entire alluvial section to penetrate the top of bedrock. The monitoring wells shall be used for collecting eight consecutive quarters of groundwater samples to further delineate COPCs from Well P and continuing to the northern boundary of the Lower Study Area. Two geophysical resistivity survey transects shall be conducted to define the base of alluvium structure and the extent of saturation within the Lower Study Area.

78. For the Upper Study Area alluvium (beginning from approximately one mile north of the bend in State Highway 605, known locally as “Sand Curve” northward to the northern boundary of the Study Area), the initial Study Area Characterization shall consist of no more than four resistivity survey transects, fifteen (15) alluvial boreholes, and ten (10) monitoring wells for the same purposes as the Lower Study Area alluvium design described above. Eight consecutive quarters of groundwater sampling and analysis shall be performed. The resistivity survey transects, and monitoring wells shall also be used to determine the nature and volume of incoming groundwater flow from the upgradient SMC alluvium, the Arroyo del Puerto alluvium, the unnamed tributary alluvium north/northeast of the crossroads, and the Poison Canyon alluvium. All alluvial boreholes shall be drilled through the entire alluvial section to penetrate the top of bedrock.

79. For the Bedrock Aquifers, the initial Study Area Characterization will consist of no more than four seismic survey transects to be conducted to determine the nature of the faulting along the San Mateo Fault Zone and the potential for downward migration of groundwater COPCs along the faults. No more than ten (10) bedrock boreholes will be drilled to determine the extent of saturation of bedrock formations in direct contact with the alluvium. The boreholes shall be drilled through the entire section of the targeted formations. In the Upper Study Area, the targeted Bedrock Aquifers are the Dakota Sandstone, the Westwater Canyon Member of the Morrison Formation, and potentially the Tres Hermanos Sandstone members of the Mancos Shale. In the Lower Study Area, the bedrock boreholes shall be drilled to determine hydraulic properties of the San Mateo Fault Zone or otherwise evaluate the potential for the downward migration of alluvial groundwater along the Fault Zone. Where sufficient saturation

is encountered in the boreholes, monitoring wells shall be constructed and groundwater samples collected and analyzed for a minimum of eight consecutive quarters.

80. The attached Figure 1 shows the conceptual design of the approximate locations of the proposed boreholes, monitoring wells, and seismic and resistivity survey transects for the Study Area Characterization. The final locations of boreholes, monitoring wells, and seismic and resistivity survey transects shall be identified in the refined data collection program to be included in the EPA-approved RI/FS Work Plan and SAP.

81. Respondents shall continually review and interpret the physical and analytical data as it is collected during the initial Study Area Characterization to assess if additional characterization is necessary beyond the data collection program approved by EPA as part of the RI/FS Work Plan and SAP. If unanticipated complexities in the structural geology, stratigraphy or hydrogeology are encountered during drilling that prevent penetration of saturated alluvium, targeted bedrock formations and/or the targeted fault blocks at the locations selected, Respondents shall notify EPA. If Respondents determine, in consultation with EPA and the State of New Mexico, that additional geophysical surveys and/or boreholes and monitoring wells are necessary to meet the objectives of the EPA-approved data collection program set forth in the RI/FS Work Plan and SAP or fill in core data gaps to complete the Study Area Characterization, or if EPA directs Respondents to perform additional Study Area Characterization for such purposes, Respondents shall submit to EPA for review and approval an addendum to the RI/FS Work Plan and SAP describing the additional Study Area Characterization and a revised RI/FS schedule within thirty (30) calendar days upon notification by EPA that such Work is required. If EPA directs Respondents to conduct additional Study Area characterization, EPA and the State of New Mexico will discuss the required additional data, including any new seismic or resistivity surveys, soil borings, or monitoring wells, with Respondents and consider any concerns or objections expressed by the Respondents before making any final determination as to the necessity of the additional data. The additional Study Area Characterization shall be consistent with paragraphs 9, 10 and 11.

82. Respondents shall implement any additional Study Area characterization work in accordance with the approved RI/FS Work Plan and SAP addenda and revised RI/FS schedule.

83. Respondents shall estimate ranges of background concentrations and radiation levels of analytes and radionuclides in groundwater. More than one background (pre-mining, baseline) concentration may need to be determined for different Bedrock Aquifers as well as spatially within each aquifer. Factors affecting background may include regional geology, mineralogy, geochemistry, hydrogeology, and hydrology. Respondents shall establish and compare background concentrations and radiation levels of analytes and radionuclides to present concentrations and radiation levels of COPCs at the Study Area.



84. Respondents shall update the preliminary conceptual Study Area model for the Study Area based on data and other information collected during Study Area Characterization. The preliminary conceptual Study Area model will be reflected in the approved RI/FS Work Plan and SAP in support of the planned RI/FS activities, and this model shall be refined as additional data are gathered from the Study Area.

85. Respondents shall implement the approved RI/FS Work Plan and SAP during Study Area Characterization. Field data shall be collected and analyzed to provide the information required to accomplish the objectives of the study. Respondents shall notify EPA at least fourteen (14) calendar days in advance of the planned dates for field activities. Respondents shall demonstrate that the laboratory and type of laboratory analyses that will be utilized during Study Area Characterization meets the specific QA/QC requirements and the DQOs of the RI as specified in the approved SAP. Study Area characterization shall include the activities described in the subsections below.

(a) Implement Field Support Activities (3.2.1)

86. Respondents shall initiate field support activities upon approval of the RI/FS Work Plan and SAP. Field support activities may include obtaining access to the Study Area, and scheduling and procurement of equipment, office space, laboratory services, and/or contractors. Respondents shall notify EPA in writing upon completion of field support activities.

(b) Investigate Study Area Physical Characteristics (3.2.2)

87. Respondents shall collect data on the physical characteristics of the Study Area in order to define potential transport pathways and human and ecological receptor populations. The investigation will include collection of data on the following features as required by the RI/FS Guidance:

- Surface features;
- Geology;
- Soil/sediment in both vadose and saturated zones;
- Surface water hydrology;
- Groundwater hydrology;
- Geochemistry;
- Hydrogeology;
- Meteorology;
- Human populations and land use; and

▪ Ecology.

88. Respondents shall initiate the field investigation only after EPA approves the RI/FS Work Plan and SAP. Respondents shall conduct the field investigation in accordance with the EPA-approved RI/FS Work Plan and SAP, and the project schedule contained in the EPA-approved RI/FS Work Plan. Respondents shall notify EPA at least fourteen (14) calendar days prior to initiating any field investigative activities so that EPA may adequately schedule oversight activities.

89. During the implementation of a field investigation, Study Area conditions or circumstances sometimes necessitate a field change to approved work plans or sampling plans that may affect the investigation methods or outcomes. In such cases, Respondents shall notify EPA RPM within 48 hours of the conditions or circumstances and any recommended field change to the EPA-approved RI/FS Work Plan and/or SAP. If the EPA RPM approves the field change, either verbally or via a signed field change order form, Respondents shall proceed to implement the field change. All field change orders approved by the EPA RPM shall be documented in writing by Respondents.

(c) Define Contamination

90. Respondents shall collect data to identify COPCs in groundwater at the Study Area consistent with paragraphs 9 through 11, and 76 through 82. Respondents shall analyze the potential for release of COPCs (*e.g.*, long-term leaching from soil, sediment, mill or mine waste to groundwater, surface water runoff), mobility and persistence of COPCs, and characteristics important for evaluating remedial alternatives and information to assess treatment technologies.

91. Respondents shall collect the following information described in Table 3-10 (Summary of Source Information) of the RI/FS Guidance that is relevant to the Study Area Characterization for groundwater contamination, specifically: 1) the chemical, radiological, physical properties, and concentrations of COPCs within the Study Area; 2) any sources of on-going contaminant loading located within the Study Area; and 3) mapping and surveying information within the Study Area. Respondents shall provide EPA with all data obtained during the Work that indicates on-going contaminant loading from outside the Study Area. However, Respondents are not required to identify any particular source(s) from outside the Study Area.

(d) Determine the Nature and Extent of Contamination (3.2.4)

92. Consistent with paragraphs 9 through 11, and 76 through 82, as part of the field investigation, Respondents shall collect data to determine the nature and extent of COPCs in groundwater at the Study Area. Respondents shall use information gathered regarding Study



Area physical, chemical, and radiological characteristics and current (presently-existing) sources of groundwater contamination within the Study Area in making this determination.

93. Consistent with paragraphs 9 through 11, and 76 through 82, Respondents shall perform a Study Area-wide hydrogeological and geochemical investigation to aid in the determination of the nature and extent of COPC-impacted groundwater. The hydrogeological investigation shall include an evaluation of major structural geologic features that could affect groundwater movement, including the San Mateo Fault Zone, within the Study Area. The San Mateo Fault Zone is known to extend (in a north/south direction) across nearly the entire San Mateo Creek basin with fault displacements of several hundred feet in some places. The geochemical investigation shall include an evaluation of the alluvial aquifer and Bedrock Aquifers. Respondents shall analyze Study Area COPC fate and transport utilizing the Study Area physical characteristics, COPC characteristics, and extent of contamination analysis. The analysis shall include estimates of the rate of COPC migration in the transport pathway. Respondents shall refine the preliminary conceptual Study Area and hydrogeological models as part of this Work, including the assessment of the transport of COPCs in the alluvium and underlying Bedrock Aquifers at the Study Area.

(e) Data Management Procedures, Documentation of Field Activities (3.5)

94. Respondents shall consistently document the quality and validity of field and laboratory data compiled during the RI. Information gathered during the Study Area Characterization shall be consistently documented and adequately recorded by Respondents in well maintained field logs and laboratory reports. The method(s) of documentation shall be specified in the approved RI/FS Work Plan and/or the SAP but shall include the following requirements:

- Respondents shall produce written daily field logbooks as the primary record for Respondents' field investigation activities. Respondents shall utilize field logbooks to document observations, measurements, any EPA-approved field change orders, and significant events that have occurred during field activities.
- Respondents logbooks shall contain field measurements and observations as directly recorded in the field, and entries regarding field measurements, including but not limited to pH, temperature, conductivity, water flow, air quality parameters, soil characteristics, daily weather conditions, and instrument calibration data.
- Field change orders approved by EPA.
- Health and safety monitoring performed by Respondents pursuant to the health and safety plan.

- Written entries describing sampling locations, sampling techniques, and a general description of Respondents' daily activities, including any unusual occurrences or circumstances.

95. Respondents shall record data directly and legibly in field logbooks with entries signed and dated by Respondents or Respondents' contractors. Original written field logbook entries must be legible and clearly indicate when making changes in written logbook entries, and Respondents or Respondents' contractor shall sign and date any changes. Respondents shall use standard format information sheets for Respondents' written daily log entries. Respondents shall provide copies of the field logbooks to EPA upon request. In addition, Respondents shall take photo documentation of field activities when appropriate and directed by EPA and provide copies of such documentation to EPA upon request.

(f) Sample Management and Tracking (3.5.2, 3.5.3)

96. Respondents shall maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the risk assessments and the development and evaluation of remedial alternatives. Chemical and radiological analytical results developed under the RI/FS Work Plan shall not be included in any characterization reports of the Study Area unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, Respondents shall establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

(g) Evaluation of Study Area Characteristics

97. Respondents shall analyze and evaluate the data to describe the Study Area's physical, radiological, and chemical characteristics; describe the nature and extent of COPC-impacted groundwater within the Study Area; and describe fate and transport of COPCs within the Study Area. Results of the analyses of the Study Area physical characteristics, identification of potential sources, and extents of COPC-impacted groundwater are utilized in the analysis of COPCs fate and transport. The evaluation shall include assessment of the horizontal and vertical spread of COPCs in the Study Area as well as the mobility and persistence of COPCs.

98. Respondents shall analyze data pertaining to Study Area COPCs, including the general location of current (presently-existing) potential sources of loading into the Study Area, the type and integrity of any existing waste containment, and the types, quantities, radiological properties, chemical properties, physical properties, and concentrations of groundwater COPCs found at the Study Area. Respondents shall evaluate the magnitude of releases from current



(presently-existing) sources within the Study Area and the mobility and persistence of source COPCs within the Study Area.

99. All data and programming, including any proprietary programs, shall be made available to EPA and any supporting agencies, as specified by EPA. The RI data shall be presented in a format to facilitate Respondents' preparation of the Baseline Risk Assessment. All data shall be archived in a database in such a format that would be accessible to investigators as needed.

(h) Reuse Assessment of Study Area

100. If EPA, in its sole discretion, determines that a Reuse Assessment of the Study Area is necessary, Respondents shall perform the Reuse Assessment in accordance with this SOW, the approved RI/FS Work Plan, and applicable guidance. The Reuse Assessment should provide information to develop realistic assumptions of the reasonably anticipated future uses for the Study Area.

**2. Preliminary Study Area Characterization Summary (3.7.2)**

101. Within sixty (60) calendar days of receipt of the last sample results from the initial eight-consecutive quarters of groundwater sampling and analysis, Respondents shall prepare and submit a Preliminary Study Area Characterization Summary to EPA, NMED, MMD and other federal, state, and tribal agencies (as specified by EPA) for review. Respondents shall meet with EPA before submission of the Preliminary Study Area Characterization Summary to brief EPA regarding the findings that Respondents have made. The meeting may also be attended by NMED, MMD and other federal, state and tribal agencies (as specified by EPA). In the Preliminary Study Area Characterization Summary, Respondents shall briefly summarize the results from the field sampling and analysis and describe and display Study Area data documenting the location and characteristics of surface and subsurface features and groundwater contamination at the Study Area. In the Preliminary Study Area Characterization Summary, Respondents shall provide EPA with enough information to give EPA a preliminary reference for evaluating Respondents' Baseline Risk Assessment, development and screening of remedial alternatives, and refinement and identification of ARARs. If EPA or Respondents identify remedial actions involving treatment as remedial alternatives for the Study Area, Respondents shall, in the Preliminary Study Area Characterization Summary, provide EPA with the specific data requirements for treatability studies for those identified alternatives.

Respondents shall provide a copy of the Preliminary Study Area Characterization Summary to the Agency for Toxic Substances and Disease Registry ("ATSDR") at the same time it is submitted to EPA to assist ATSDR with its health assessment efforts.

### **3. Preliminary Remedial Action Alternatives**

102. At the same time the Preliminary Study Area Characterization Summary is submitted to EPA, Respondents shall submit to EPA for review and approval a list of preliminary remedial action alternatives and the rationale for each alternative. Respondents shall identify the preliminary alternatives based upon the preliminary remedial action objectives developed and discussed with EPA, NMED, MMD, and any other federal, state, or tribal agency and the initially identified potential routes of exposure (to groundwater COPCs) and associated receptors. The list shall consist of a range of broadly defined remedial action alternatives and associated technologies. This identification process is not meant to be a detailed investigation of alternatives. Rather, it is intended to be a more general classification of potential remedial actions and technologies. Respondents shall include with this range of alternatives, where appropriate, alternatives in which treatment that significantly reduces the toxicity, mobility, or volume of groundwater COPCs are used as a principal element; one or more alternatives that involve containment with little or no treatment, and a no-action alternative. Technologies that may be appropriate for treating or disposing of contaminated groundwater shall be identified along with sources of literature on the technologies' effectiveness, applications, and cost. Innovative technologies and resource recovery options shall also be included if they appear feasible. Respondents shall limit these alternatives to only those that are relevant and carry some significant potential for being implemented at the Study Area. The preliminary identification of remedial alternatives shall allow for an initial identification of potential ARARs and shall help focus subsequent data gathering efforts.

103. Respondents shall evaluate the appropriateness and applicability of presumptive remedies in developing preliminary remedial alternatives which address Study Area groundwater impacts and incorporate presumptive remedies if warranted. Respondents shall refer to EPA's guidance entitled "Implementing Presumptive Remedies" (EPA 1997d).

104. Respondents shall revise the list of preliminary remedial action alternatives to address all EPA comments. The revised list shall be submitted to EPA for review and approval within thirty (30) calendar days after receipt of EPA comments or within the time determined by the EPA RPM.

### **4. Preliminary Remedial Action Objectives**

105. At the same time the Preliminary Study Area Characterization Summary is submitted to EPA, Respondents shall develop and submit to EPA for review and approval a list of preliminary remedial action objectives.



106. Respondents shall revise the list of preliminary remedial action objectives to address all EPA comments. The revised list shall be submitted to EPA for review and approval within thirty (30) days after receipt of EPA comments or within the time determined by the EPA RPM

**5. Preliminary List of Potential Applicable or Relevant and Appropriate Requirements and To-Be-Considered Information**

107. At the same time the Preliminary Study Area Characterization Summary is submitted to EPA, Respondents shall submit to EPA for review and approval a preliminary list of potential federal, state, and tribal ARARs and to-be-considered (TBC) advisories, criteria or guidance, as defined in 40 C.F.R. § 300.400(g). The preliminary identification of these ARARs and TBCs shall assist in the refinement of remedial action objectives and the initial identification of remedial alternatives and potential ARARs associated with particular actions. Respondents shall categorize the ARARs and TBC information as radiological-, chemical-, location-, or action-specific. Along with the list of ARARs, Respondents shall include a description of the process and manner in which ARARs and TBC information were identified.

108. Respondents shall revise the preliminary list of potential ARARs and TBCs to address all EPA comments. Copies of the revised list shall be submitted within thirty (30) calendar days after receipt of EPA comments or within the time determined by the EPA RPM.

109. Respondents shall continue to identify preliminary ARARs and TBC information as Study Area conditions, COPCs, background conditions and remedial action alternatives are better defined.

**6. Additional Study Area Characterization for Evaluation of Remedial Alternatives**

110. In reviewing data collected and evaluated as part of the RI, Respondents and/or EPA may determine that additional Study Area data are required to evaluate remedial alternatives for the Study Area during the Feasibility Study. If Respondents, in consultation with EPA and the State of New Mexico, determine that existing data are insufficient to evaluate remedial alternatives for the Study Area, Respondents shall submit a Memorandum for Additional Study Area Characterization documenting the need for such additional field investigation and data collection to EPA's RPM within 60 days after the date the Preliminary Study Area Characterization Summary is submitted to EPA. EPA, in its discretion, will determine whether the additional data to evaluate remedial alternatives for the Study Area will be collected by Respondents and whether it will be incorporated into deliverables. EPA will notify Respondents if the Memorandum for Additional Study Area Characterization is approved or if

any other additional field investigation and data collection are required to evaluate remedial alternatives for the Study Area. If EPA directs Respondents to conduct such additional Study Area Characterization, EPA and the State of New Mexico will discuss the required additional data, including any new boring or monitoring well, with Respondents and explain how the proposed work addresses a core data gap in the characterization of Study Area groundwater conditions necessary to evaluate remedial alternatives for the Study Area. EPA and the State of New Mexico will consider any concerns or objections expressed by the Respondents before making any final determination as to the necessity of such additional data. Respondents shall not be required to do additional Study Area Characterization outside of the Study Area and/or inconsistent with paragraphs 9, 10 and 11.

111. Within sixty (60) calendar days after receiving notification by the EPA RPM that the Respondents' Memorandum for Additional Study Area Characterization is approved or additional field investigation and data collection, consistent with paragraphs 9, 10 and 11, are required by EPA to adequately characterize the Study Area for evaluating remedial alternatives or performing the Baseline Risk Assessment, Respondents shall submit to EPA for approval addenda to the RI/FS Work Plan and SAP, and a schedule, that documents the decisions and Work approved or specified by EPA.

112. Respondents shall revise the RI/FS Work Plan and SAP addenda to address all EPA comments. The revised RI/FS Work Plan and SAP addenda shall be submitted to EPA for review and approval within thirty (30) calendar days after receipt of EPA comments or within the time determined by the EPA RPM. EPA may, at its discretion, give verbal approval for Work to be conducted prior to providing written approval of any modified or supplemented RI/FS Work Plan and SAP.

113. Respondents shall complete the additional field investigation and data collection in accordance with the EPA-approved RI/FS Work Plan and SAP addenda and schedule. Respondents shall notify EPA at least fourteen (14) calendar days prior to initiating any additional field investigative activities so that EPA may adequately schedule oversight activities.

## **7. Baseline Risk Assessment**

114. Respondents shall perform the Baseline Risk Assessment, including a Human Health Risk Assessment ("HHRA") and a Baseline Ecological Risk ("BERA") Assessment for the Study Area, which will be a part of the RI and documented in the RI Report. During Scoping (Task 1), Respondents shall prepare one section of the draft RI/FS Work Plan which discusses the risk assessment process and outlines the steps necessary for coordinating with EPA at key decision points within the process. The Baseline Risk Assessment activities, including submission of deliverables, meetings and/or conference calls, and presentations to EPA will be



specified in the project schedule in the approved RI/FS Work Plan. The development or refinement of (PRGs) during risk assessment shall be an activity on the project schedule as well as written notification to EPA when PRG development is completed. The PRG completion date will trigger the start of the Feasibility Study (“FS”) activities (*see* Section F of this SOW). The DQOs listed in the approved QAPP shall include DQOs specific to risk assessment needs, and critical samples needed for the risk assessments shall be so identified within the approved SAP.

115. Respondents shall schedule a risk assessment scoping meeting and Study Area visit with EPA, NMED, and MMD. The Study Area visit shall be scheduled before or at the same time as the risk assessment scoping meeting. Respondents’ contractor(s) performing the HHRA and BERA shall attend the scoping meeting and Study Area visit with the EPA, NMED, and MMD risk assessors, project managers, and other personnel to ensure that there is a thorough understanding of the types of exposures potentially present at the Study Area.

116. Respondents shall update the conceptual Study Area model for both human and environmental receptors as new Study Area-related information is obtained.

117. In addition to, or in coordination with, the deliverables listed in the following subsections, Respondents shall submit to EPA for approval risk assessment memoranda that document three key elements of the Baseline Risk Assessment: 1) selection of COPCs, including radionuclides of potential concern, 2) delineation of exposure areas, and 3) exposure point concentrations and Study Area conceptual exposure models. The risk assessment memoranda shall be submitted to EPA at key EPA decision points within the risk assessment process.

(a) Human Health Risk Assessment

118. Respondents shall perform the HHRA in accordance with the Order, this SOW, the approved RI/FS Work Plan (including the approved project schedule), SAP, and all relevant EPA guidance. Respondents shall evaluate and assess the risk to human health posed by the radiological and chemical contaminants present in groundwater at the Study Area. Respondents shall refer to the appropriate EPA guidance documents (EPA 1989a, 1991a, 1991b, 1991f, 1992a, and 1998b) in conducting the HHRA. In the Risk Assessment Guidance for Superfund (RAGS) Part D, there are blank sheets that Respondents shall fill in to help in standardizing planning, reporting and review of the HHRA. Respondents shall also refer to the appropriate EPA radiation risk assessment guidance documents in conducting the HHRA, including:

- *Radiation Risk Assessment at CERCLA Sites: Q&A* (EPA 2014);
- *Radionuclide Preliminary Remediation Goals (PRGs) for Superfund* electronic calculator, known as the Rad PRG calculator (EPA 2002a);

- *Building Preliminary Remediation Goals for Radionuclides (BPRGs)* electronic calculator (EPA 2007);
- *Radionuclide Outdoor Surfaces Preliminary Remediation Goals (SPRG)* electronic calculator (EPA 2009);
- *ARAR Dose Compliance Concentrations for Radionuclides (DCC)* electronic calculator (EPA 2004);
- *ARAR Dose Compliance Concentrations for Radionuclides in Buildings (BDCC)* electronic calculator (EPA 2010a), known as the BDCC calculator;
- *ARAR Dose Compliance Concentrations for Radionuclides in Outdoor Surfaces (SDCC)* electronic calculator (EPA 2010b), known as the SDCC calculator;
- Chapter 10, “Radiation Risk Assessment Guidance” of the Risk Assessment Guidance for Superfund (RAGS) Part A (EPA 1989a);
- Chapter 4, “Risk-based PRGs for Radioactive Contaminants,” of RAGS Part B (1991a);
- Appendix D, “Radiation Remediation Technologies,” of RAGS Part C (EPA 1991b);
- RAGS Part D, *Standardized Planning, Reporting, and Review of Superfund Risk Assessments* (EPA 1998a); and *Superfund Radiation Risk Assessment and How You Can Help: An Overview* (EPA 2005)

119. The PRG and DCC calculators are frequently updated. OSWER directives specific to radioactive contaminants may be found at the Superfund Radiation website at <http://www.epa.gov/superfund/health/contaminants/radiation/index.htm>.

120. Respondents shall address the following in the HHRA:

- Hazard Identification (sources)/Dose-Response Assessment;
- Conceptual Exposure/Pathway Analysis;
- Characterization of Study Area and Potential Receptors;
- Exposure Assessment;
- Risk Characterization; and
- Identification of Limitations/Uncertainties.

121. During the exposure assessment, Respondents shall identify the magnitude of actual or potential human exposures, the frequency and duration of these exposures and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for developing acceptable



exposure levels. In developing the exposure assessment, Respondents shall develop reasonable maximum estimates of exposure for both current land-use conditions and potential future land-use conditions at the Study Area

122. During risk characterization, Respondents shall review outputs from toxicity and exposure assessments, quantify risks from individual chemicals and radionuclides, quantify risks from multiple chemicals and radionuclides, combine risks across exposure pathways and assess and present uncertainty. For chemicals or radionuclides lacking an EPA toxicity value, EPA and Respondents will work together to identify an appropriate surrogate toxicity factor, with EPA deciding on the final scientifically valid surrogate to use.

123. Based on COPC identification, exposure assessment, toxicity assessment, and risk characterization, Respondents shall update the human health component of the conceptual Study Area model for the Study Area. Respondents shall produce a Human Health Technical Memorandum that 1) describes groundwater concentrations; 2) provides a comparison of the groundwater concentrations to screening values; 3) identifies the chemicals and radionuclides of concern; 4) delineates exposure areas; and 5) includes the revised conceptual Study Area model for human health. The Technical Memorandum shall be submitted prior to or simultaneously with the Screening Level Ecological Risk Assessment (“SLERA”) Report.

124. Respondents shall prepare and submit to EPA for review and approval a draft HHRA Report according to the project schedule in the approved RI/FS Work Plan.

(b) Ecological Risk Assessment

125. Respondents shall perform the Ecological Risk Assessment (“ERA”) in accordance with the Order, this SOW, the approved RI/FS Work Plan (including the approved project schedule) and SAP, and relevant EPA guidance. Respondents shall perform the ERA concurrently with the HHRA. The ERA shall conform to current EPA guidance, including but not limited to EPA, 1989b; EPA, 1992a; EPA, 1992b; EPA, 1997b; and 1998d. The scoping of all phases of the ERA shall follow the general approach provided in EPA, 1992b, and shall include discussions between Respondents’ and EPA’s risk assessors and risk managers and on the direction provided by EPA. The ERA shall conform to the general outline provided in EPA, 1997.

126. The eight steps in the ERA process are the following:

- Step 1 - Screening-Level Problem Formulation and Ecological Effects Evaluation;
- Step 2 - Screening-Level Preliminary Exposure Estimate and Risk Calculation;
- Step 3 - Baseline Risk Assessment Problem Formulation;

- Step 4 - Study Design and Data Quality Objectives;
- Step 5 - Field Verification and Sampling Design;
- Step 6 - Study Area Investigation and Analysis of Exposure and Effects;
- Step 7 - Risk Characterization; and
- Step 8 - Risk Management.

127. The scope of the ERA shall be determined via a phased approach as outlined in EPA's guidance documents and documented in the following deliverables.

128. At the end of Step 2, Respondents shall determine, with input from EPA, whether the information available is adequate to support a risk management decision and make a recommendation to EPA. The four possible recommendations at this point will be: 1) there is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risk; 2) the information is not adequate to make a decision at this point, and the ecological risk assessment process will continue to Step 3; 3) the information indicates a potential for adverse ecological effects, and a more thorough assessment is warranted; or 4) there is adequate information to support a risk management decision such as taking action to eliminate an identified exposure pathway. Respondents shall document the recommendation and the basis for it in the draft SLERA Report and submit it to EPA for review and approval according to the project schedule in the approved RI/FS Work Plan.

129. If a decision is made by EPA to continue the ERA at the conclusion of Step 2 of the ERA process, Respondents shall schedule a risk assessment meeting with EPA, NMED, MMD, and any supporting agencies, as specified by EPA, to be held within fourteen (14) calendar days of receiving notification from EPA of such decision. The risk assessment meeting shall be to discuss the problem formulation for the baseline ERA (BERA) (Step 3).

130. Within twenty-one (21) days following the risk assessment meeting, Respondents shall submit a draft BERA Problem Formulation Report to EPA for review and approval. This report shall discuss the assessment endpoints, exposure pathways, risk questions, and the CSM integrating these components. The products of Step 3 will be used to select measurement endpoints and to develop an ERA Work Plan and updated SAP for the Study Area in Step 4.

131. Within twenty-one (21) days after receipt of EPA's approval of the BERA Problem Formulation Report, Respondents shall submit to EPA for review and approval the draft BERA Work Plan and updated SAP, which includes the sampling design and a schedule for completion of the BERA (Step 4). The project schedule in the approved RI/FS Work Plan shall be updated for the BERA activities to conform to the approved BERA schedule.



132. Upon approval of the BERA Work Plan and updated SAP by EPA Respondents shall perform the BERA in accordance with the approved BERA Work Plan (including the schedule contained therein) and the updated SAP. Respondents shall notify EPA in writing of the date of receipt of the last BERA analytical results from the laboratory within seven calendar days of receipt of those data.

133. At the end of Step 7, Respondents shall submit a draft BERA Report to EPA for review and approval. Respondents shall submit the draft BERA Report within sixty (60) calendar days after receipt of the last BERA analytical results.

134. “Risk Management” at the Study Area will be the responsibility of EPA. EPA will balance risk reductions associated with cleanup of contaminants with potential impacts of the remedial actions themselves. In Step 7, a threshold for effects on the assessment endpoint as a range between contamination levels identified as posing no ecological risk and the lowest contamination levels identified as likely to produce adverse ecological effects, shall be identified. In Step 8, EPA will evaluate several factors in deciding whether or not to clean up to within the effects range. This risk management decision will be finalized by EPA for remedy selection.

## **8. Remedial Investigation Report (3.7.2)**

135. Within sixty (60) days after the date of EPA approval of the HHRA Report or BERA Report, whichever occurs later, Respondents shall prepare and submit a draft RI Report to EPA for review and approval. Respondents shall refer to the RI/FS Guidance and follow, as appropriate, Table 3-13 (Suggested RI Report Format) for the RI Report format and content. The draft RI Report shall summarize the results of the field activities to characterize the Study Area groundwater, the sources of contamination, the nature and extent of contamination, and the fate and transport of contamination in groundwater. The draft RI Report shall also include an updated conceptual Study Area model.

136. Respondents shall summarize the results of the HHRA and BERA in the draft RI Report. The draft HHRA and draft BERA reports shall be submitted to EPA as separate deliverables according to the requirements outlined in Section D.7. above.

## **E. TREATABILITY STUDIES (RI/FS Guidance, Chapter 5)**

137. Respondents shall perform groundwater treatability studies to assist in the detailed analysis of alternatives, if determined necessary by EPA. Such determination will be based, in part, on identified candidate technologies for treatability studies and a literature survey to be performed by Respondents. If Respondents are directed to perform such studies, the Work shall

include: 1) preparation of planning documents, 2) performance of bench- or pilot-scale treatability testing, and 3) preparation of an evaluation report to document test results.

138. Candidate technologies are identified for a treatability studies program by Respondents during the Scoping phase of the project (*see* Section B.1(g) of this SOW, Identification of Candidate Technologies Memorandum for Treatability Studies). The listing of candidate technologies covers the range of technologies required for alternatives analysis. The specific data requirements for the testing program shall be determined and refined during the characterization of the Study Area and the development and screening of remedial alternatives.

#### **1. Conduct Literature Survey and Determine Need for Treatability Studies (5.2)**

139. Within sixty (60) calendar days after EPA approves the Identification of Candidate Technologies Memorandum for Treatability Studies, Respondents shall complete a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance requirements, and implementability of the candidate technologies and submit a summary of the results of the survey to EPA in a Literature Survey Technical Memorandum. If practical technologies are not demonstrated to EPA's satisfaction or cannot be adequately evaluated for this Study Area on the basis of available information, EPA will notify Respondents that treatability studies for candidate technologies are required.

#### **2. Prepare Treatability Studies Work Plan (5.5)**

140. If EPA determines that treatability studies are necessary, Respondents shall submit a draft Treatability Study Work Plan, including a schedule, within sixty (60) calendar days after receipt of EPA's notification that treatability studies are required. Respondents shall include with the draft Treatability Studies Work Plan an updated SAP for defining the sampling activities to be performed during any required treatability study.

141. Respondents shall include the following in the draft Treatability Studies Work Plan:

- A description of the data that shall be gathered to conduct treatability studies of candidate technologies;
- A description of the type of treatability test which Respondents shall recommend to test each of the candidate technologies (*i.e.*, bench versus pilot);
- A description of various aspects of the treatability studies, including the Study Area background, candidate remedial technologies to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance,



analytical methods, data management and analysis, health and safety, and residual waste management;

- Documentation of the DQOs for treatability testing;
- If testing is to be performed outside of the Study Area, a description of permitting requirements and the manner in which Respondents shall meet permitting requirements; and
- A project schedule for completion of the treatability studies.

142. If the HASP to be prepared by Respondents in Section B (Scoping) is not adequate for defining the activities to be performed during implementation of any required treatability study, Respondents shall update the HASP and submit it to EPA for review along with the draft Treatability Studies Work Plan. EPA will not approve the updated HASP but may provide comments to Respondents.

### **3. Perform and Evaluate Bench- or Pilot-Scale Treatability Testing**

143. Respondents shall perform bench- or pilot-scale treatability testing in accordance with the approved Treatability Studies Work Plan and project schedule contained therein. Respondents, in consultation with EPA and any supporting agencies (as specified by EPA), shall evaluate the treatability testing results for application of the technology at full-scale to determine if the limitations of the bench- or pilot-scale test need to be considered in full-scale implementation. This evaluation may include a sensitivity analysis to identify key parameters and unknown variables that can affect a full-scale system.

### **4. Prepare Treatability Studies Report (5.6)**

144. Respondents shall submit a draft Treatability Studies Report to EPA for review and approval according to the project schedule in the approved Treatability Studies Work Plan. This report shall evaluate the technology's effectiveness and implementability in relation to the PRGs established for the Study Area. Respondents shall compare actual results with predicted results to justify effectiveness and implementability discussions.

## **F. FEASIBILITY STUDY**

145. Respondents shall conduct the FS in accordance with the Order, this SOW, applicable EPA guidance, and the EPA-approved RI/FS Work Plan and the project schedule contained therein. The FS phase consists of the development and screening of remedial

alternatives and the detailed analysis of those alternatives considered the most promising after screening.

**1. Development and Screening of Remedial Alternatives (RI/FS Guidance, Chapter 4)**

146. The purpose of the development and screening of remedial alternatives is to compile an appropriate range of remedial options for evaluation in the Detailed Analysis of Alternatives. Concurrent with Scoping (Section B) and Study Area Characterization (Section D), Respondents shall begin to develop and evaluate a range of appropriate remedial options that ensure protection of human health and the environment. This range of alternatives should include: 1) options in which treatment is used to reduce the toxicity, mobility, or volume of contaminated groundwater, but varying in the types of treatment, the amount treated, and the manner in which long term residuals or untreated contaminated groundwater is managed, 2) options involving containment with little or no treatment, 3) options involving both treatment and containment, and 4) a no action alternative. An option for using point-of-use treatment at residential taps or wellheads or municipal water supply systems to protect human health from exposure to contaminated groundwater used as drinking water should also be considered.

147. Respondents shall perform the activities described below for development and screening of remedial alternatives:

(a) Attend Initial Feasibility Study Meeting

148. Within thirty (30) days after notification of EPA approval of the HHRA, Respondents shall conduct an initial FS meeting with EPA, NMED, MMD, and any supporting agencies (as specified by EPA) to discuss Respondents' PRGs and risk calculations as part of the Baseline Risk Assessment and the initial steps for developing and screening remedial alternatives. Development of PRGs shall be an activity to be tracked on the project schedule in the RI/FS Work Plan. Respondents, EPA, NMED, MMD, and any other federal, state, and tribal agencies, as specified by EPA, shall discuss the PRGs and risk summary and review the preliminary remedial action objectives approved for the Study Area by EPA during the RI.

(b) Refine and Document Remedial Action Objectives (4.2.1)

149. Respondents shall refine the preliminary remedial action objectives based on the meeting with EPA and any supporting agencies, as specified by EPA, and the information gathered during Study Area Characterization. Respondents shall document such refinement in a Memorandum on Remedial Action Objectives and submit the memorandum to EPA for review and approval in accordance with the project schedule contained in the EPA-approved RI/FS



Work Plan. Respondents shall include remedial action objectives for engineering controls and institutional controls in the memorandum. Respondents' refined remedial action objectives shall specify the COPCs, potential exposure pathways and receptors, and PRGs. Respondents' proposed PRGs shall be protective of human health and the environment and shall be developed in accordance with 40 C.F.R. §§ 300.430(e)(2)(i)(A) through (G).

(c) Develop General Response Actions (4.2.2)

150. Respondents shall develop general response actions for contaminated groundwater, defining containment, treatment, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

(d) Identify Estimated Volumes (4.2.3)

151. Respondents shall identify areas or estimated volumes of contaminated groundwater to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. Respondents shall take into account the radiological, chemical, and physical characterizations of the Study Area.

(e) Identify and Screen Remedial Technologies and Process Options (4.2.4)

152. Respondents shall identify and evaluate technologies, including innovative technologies, applicable to each general response action. General response actions shall be refined to specify remedial technology types. Technology process options for each of the technology types shall be identified either concurrent with the identification of technology types or after the screening of the considered technology types.

153. Respondents shall evaluate technology process options on the basis of effectiveness, implementability, and cost factors to select and retain one or more representative processes for each technology type. Respondents shall summarize the technology types and process options and specify the reasons for eliminating alternatives.

(f) Assemble and Document Remedial Alternatives (4.1.3 and 4.2.6)

154. Respondents shall assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives shall represent a range of treatment and containment combinations that shall address either the Study Area or an operable unit as a whole. Respondents shall summarize the assembled alternatives and their related action-specific ARARs.

155. For source control actions, Respondents shall develop alternatives that involve little or no treatment but protects human health and the environment primarily by preventing exposure and/or reducing the mobility of contaminants through engineering controls (e.g., containment) and, as necessary, institutional controls.

156. For groundwater response actions, Respondents shall include a limited number of alternatives that attain Study Area-specific groundwater cleanup levels (*i.e.*, ARARs or other health-based criteria determined to be protective) within varying time periods utilizing one or more different technologies. Respondents shall include presumptive remedies as alternatives for groundwater response actions if supported by Study Area Characterization data.

157. Respondents shall include one or more innovative technologies as components of alternatives if, as determined by EPA, such technologies offer the potential for comparable or superior performance or implementability, fewer adverse impacts than other available approaches, or lower costs for similar levels of performance than demonstrated treatment technologies.

158. Respondents shall develop a no-action alternative, which may be no further action if some remediation has already occurred at the Study Area.

159. Respondents shall explain in writing the reasons for eliminating alternatives during the preliminary screening process.

(g) Refine Alternatives (4.3.1.2)

160. Respondents shall refine the alternatives to provide quantitative information to allow differentiation among alternatives with respect to effectiveness, implementability, and cost. Respondents shall refine the volumes or extent (both aerial extent and depth) of COPC-impacted media and the sizing of major technology and process options addressed by the alternatives. If sources or contaminated soil are found to significantly affect contaminant levels in other media, Respondents shall evaluate the effect of source control actions on the remediation levels and projected time periods for cleanup of other media. Respondents shall also modify PRGs for each chemical and radionuclide in each medium, as necessary, to incorporate any new risk assessment information in the Baseline Risk Assessment. Additionally, Respondents shall update preliminary action-specific ARARs as remedial alternatives are refined.

(h) Conduct and Document Alternative Screening Evaluation (4.3.2)



161. Respondents shall conduct a final screening of alternatives using the three criteria in 40 C.F.R. §§ 300.430(e)(7)(i) through (iii). If necessary, this screening may be conducted to ensure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed and will include options that use treatment technologies and permanent solutions to the maximum extent practicable. Respondents shall summarize the results, rationale employed in screening, alternatives that remain after screening, and identifying the action-specific ARARs for those alternatives.

(i) Alternatives Development and Screening Deliverables

162. Within sixty (60) calendar days after the initial FS meeting, Respondents shall prepare and submit, for EPA review and approval, a Technical Memorandum on Alternatives Development and Screening that summarizes the work performed and the results of any refinement of remedial action objectives and response actions described above, including an alternatives array summary. In this technical memorandum, Respondents shall document the methods, rationale, and results of the alternatives screening process and the ARARs identification process. The rationale shall include the reasons for eliminating alternatives.

163. Respondents may include actions being taken under state and federal programs other than the Superfund Program for consideration in the detailed analysis of alternatives if such actions are approved by the state or federal regulatory authorities. Respondents shall prepare and submit, for EPA review and approval after consultation with the relevant state or federal agency, technical memoranda documenting the development and evaluation of these other actions if they are incorporated into the detailed analysis.

164. Respondents shall contact EPA's RPM to schedule a technical meeting with EPA and any supporting agencies, as specified by EPA, to discuss the Technical Memorandum on Alternatives Development and Screening. The meeting shall occur within 30 days after the date Respondents submits the technical memorandum.

165. Respondents shall then submit, for EPA review and approval, a revised technical memorandum which satisfactorily addresses all EPA comments within thirty (30) calendar days of receipt of the comments or as directed by the EPA RPM. Review and approval of the technical memorandum by EPA is to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis.

**2. Detailed Analyses of Alternatives for Remedial Action (RI/FS Guidance Chapter 6)**

166. Respondents shall conduct a detailed analysis of the remedial alternatives for the Study Area to provide EPA with the information needed to allow for the selection of a remedy. This analysis is the final phase in the Respondents' performance of the FS.

167. Respondents shall conduct the detailed analysis on the limited number of alternatives that passed the screening stage and are approved by EPA. In the analysis, Respondents shall identify pertinent advisories, criteria, or guidance documents.

(a) Analysis of Individual Alternatives (6.2.3)

168. In the detailed analysis, Respondents shall assess each of the individual alternatives against the seven evaluation criteria described at 40 C.F.R. §§ 300.430(e)(9)(iii)(A) through (G) and focus on the relative performance of each alternative against each of the seven criteria. Respondents shall ensure that the analysis reflects the scope and complexity of Study Area or operable unit problems and alternatives being evaluated, and that the analysis considers the relative significance of the factors within each of the criteria at 40 C.F.R. §§ 300.430(e)(9)(iii)(A) through (G).

(b) Comparative Analysis of Alternatives (6.2.5)

169. Once the alternatives have been individually assessed against the criteria, Respondents shall perform a comparative analysis of the alternatives to evaluate the relative performance of each alternative in relation to each of the seven evaluation criteria described in 40 C.F.R. §§ 300.430(e)(9)(iii)(A) through (G). As with the individual analyses, Respondents shall ensure that the analysis reflects the scope and complexity of Study Area or operable unit problems and alternatives being evaluated, and that the analysis considers the relative significance of the factors within each of the criteria at 40 C.F.R. §§ 300.430(e)(9)(iii)(A) through (G).

170. Within sixty (60) days after the submission of the Technical Memorandum on Alternatives Development and Screening, Respondents shall submit to EPA for review and approval a draft Report on Comparative Analysis. The report shall include a narrative discussion describing the strengths and weaknesses of the alternative relative to one another with respect to each criterion.

171. Within 30 days after the Report on Comparative Analysis is submitted to EPA, Respondents shall make a presentation to EPA on the report.

(c) Alternatives Analysis for Institutional Controls and Screening



172. Within sixty (60) days after EPA approves the Technical Memorandum on Alternatives Development and Screening, Respondents shall submit a memorandum on the institutional controls (ICs) identified in the Technical Memorandum on Development and Screening of Alternatives as remedial actions. In accordance with Paragraph 40 of the Order, this Alternatives Analysis for Institutional Controls and Screening Memorandum shall state (1) the objectives for the ICs, (2) the types of ICs that can be used to meet the remedial action objectives, (3) the timing and duration of the ICs, and (4) the agreements needed with the appropriate entities that will be responsible for securing, maintaining and enforcing the ICs. The memorandum shall also include an evaluation of these ICs against the nine evaluation criteria outlined in the NCP (40 C.F.R. 300.430(e)(9)(iii)), including, but not limited to, costs to implement, monitor and/or enforce the ICs.

(d) Feasibility Study Report

173. Within ninety (90) calendar days after EPA approves the Technical Memorandum on Alternatives Development and Screening, Respondents shall submit to EPA, for review and approval, a draft FS Report which documents the activities conducted during the development and screening of alternatives and the detailed analyses of alternatives, as described above. Respondents shall refer to the RI/FS Guidance, specifically Table 6-5 (Suggested FS Report Format) for the suggested FS Report content and format.

174. Respondents shall submit a revised FS Report to EPA for review and approval within sixty (60) calendar days after receipt of EPA comments or within the time period determined by the EPA RPM. The revised FS Report shall address all EPA comments.

175. The FS Report shall provide the basis for the Proposed Plan to be developed by EPA under CERCLA and shall document the development and analysis of remedial alternatives. The FS Report may be subject to change following comments received during the public comment period on EPA's Proposed Plan. EPA will forward any comments pertinent to the content of the FS Report to Respondents and Respondents shall submit the revised report to EPA for review and approval within thirty (30) days after receipt of EPA comments or within the time period determined by the EPA RPM.

## **Appendix A**

### **Guidance Documents**

The following list contains potentially applicable regulations and guidance documents that apply to the RI/FS process:

National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300

OSHA regulations at 29 C.F.R. 1910.120

“Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA,” U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01

“Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies,” U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3

“Interim Guidance on PRP Participation in the RI/FS Process,” U.S. EPA, May 16, 1988, OSWER Directive No. 9835.1a

“Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents,” U.S. EPA, Office of Solid Waste and Emergency Response, EPA 540-R-98-031, July 1999, OSWER Directive No. 9200.1-23P.

“A Compendium of Superfund Field Operations Methods,” Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14

“EPA NEIC Policies and Procedures Manual,” May 1978, revised November 1984, EPA-330/9-78-001-R

“Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4,” U.S. EPA, Office of Environmental Information, EPA/240/B-06/001, February 2006

“EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5,” U.S. EPA, Office of Environmental Information, EPA/240/B-01/003, March 2001

“EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5,” U.S. EPA, Office of Environmental Information, EPA/240/R-02/009, December 2002

“Users Guide to the EPA Contract Laboratory Programs,” U.S. EPA, Sample Management Office, August 1982



“ARARs Q's & A's: General Policy, RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers,” Office of Solid Waste and Emergency Response Publication 9234.2-01/FS-A July 1991

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

“Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites” (Interim Final), U.S. EPA, Office of Emergency and Remedial Response, December 1, 1988, OSWER Directive No. 9283.1-2

“Draft Guidance on Preparing Superfund Decision Documents,” U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02

“Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A),” December 1989, EPA/540/1-89/002

“Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part B) - Development of Risk-based Preliminary Remediation Goals,” 1991

“Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part D) - Standardized Planning, Reporting, and Review of Superfund Risk Assessments,” January 1998

“Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual Supplemental Guidance, Dermal Risk Assessment” Interim Guidance, 1998

“Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual,” March 1989, EPA/540/1-89/001

“Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments” (Interim Final), U.S. EPA, June 5, 1997

“Guidance for Data Usability in Risk Assessment,” Parts A and B, April 1, 1992, OSWER Directives 9285.7-09A and B

“Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSS) Conducted by Potentially Responsible Parties (PRPs),” August 28, 1990, OSWER Directive No. 9835.15

“Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions,” April 22, 1991, OSWER Directive No. 9355.0-30

“Health and Safety Requirements of Employees Employed in Field Activities,” U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2

“Final Guidance on Administrative Records for Selecting CERCLA Response Actions,” U.S. EPA, December 3, 1990, OSWER Directive No. 9833.3A-1

“Community Relations in Superfund: A Handbook,” U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0#3B

“Community Relations During Enforcement Activities and Development of the Administrative Record,” U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A

“Exposure Factors Handbook,” EPA, 1997

“Human Health Evaluation Manual, Supplemental Guidance, Standard Default Exposure Factors,” EPA, 1991

“Dermal Exposure Assessment: Principles and Applications” (Interim Report), U.S. EPA, Office of Health and Environmental Assessment, January 1992. EPA/600/8-91/011/B

Integrated Risk Information System (IRIS), 2000

“Health Effects Assessment Summary Tables (HEAST),” U.S. EPA, Office of Solid Waste and Emergency Response, 1997, EPA/540/R-95/036



## APPENDIX B

### Summary of Deliverables for Remedial Investigation and Feasibility Study

No.	Deliverable	SOW Task/ Section	SOW Reference Paragraph <sup>2</sup>	Due Date
1.	Designate Project Coordinator	III.A.	16 (24)	90 days after Effective Date
2.	Designate Quality Assurance Manager	III.B.	18	90 days after Effective Date
3.	Notification of Contractors, Personnel	IV.A.4.	30 (23)	90 days after Effective Date
4.	Meeting Documentation	IV.A.5.	31	7 days after meeting
5.	Monthly Progress Reports	IV.A.6.	32 (34)	Report on calendar month of activities on or before 15 <sup>th</sup> day of following month – beginning in month following Effective Date
6.	Scoping Meeting	IV.B.1.(a)	36	14 days after Designation of Project Coordinator
7.	Study Area Visit Documentation	IV.B.1.(b)	40	7 days after Study Area visit
8.	RI/FS Work Plan	IV.B.2.(a)	44, 45-50	120 days after Designation of Project Coordinator
9.	Preliminary Conceptual Study Area Model	IV.B.2.(b)	44, 51-56	120 days after Designation of Project Coordinator
10.	Preliminary Study Area Hydrogeological Model	IV.B.2.(b)	52-56	Same date as Preliminary Conceptual Study Area Model
11.	Data Gap Analysis Report	IV.B.2.(b)	53, 54	Same date as Preliminary Conceptual Study Area Model
12.	Sampling and Analysis Plan	IV.B.2.(c)	44, 57-58	120 days after Designation of Project Coordinator
13.	Field Sampling Plan	IV.B.2.(d)	59-65	120 days after Designation of Project Coordinator
14.	Quality Assurance Project Plan	IV.B.2.(e)	66-67	120 days after Designation of Project Coordinator

<sup>2</sup> Referenced paragraphs in parentheses are in Order.

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15.	Health and Safety Plan	IV.B.2.(f)	68	120 days after Designation of Project Coordinator
16.	Candidate Technologies for Treatability Studies	IV.B.2.(g)	69	120 days after Designation of Project Coordinator
17.	Cultural Awareness and Protection Plan – if required by EPA	IV.B.2.(h)	70	120 days after Designation of Project Coordinator
18.	Notification of Respondents Community Involvement Coordinator	IV.C.	73	15 days after EPA request
19.	Technical Assistance Plan	IV.C.	74	60 days after EPA request
20.	Addenda to RI/FS Work Plan and SAP for Additional Study Area Characterization – if required by EPA	IV.D.1.	81	30 days after notification by EPA
21.	Notification of Field Change (Verbal or via Field Change Order)	IV.D.1.(b)	89	48 hours after identification of condition or circumstance requiring field change
22.	Reuse Assessment – if required by EPA	IV.D.1.(h)	100	According to RI/FS Work Plan
23.	Preliminary Study Area Characterization Summary	IV.D.2.	101	60 days after receipt of the last sample results from the initial eight-consecutive quarters of groundwater sampling and analysis
24.	Preliminary Remedial Action Alternatives	IV.D.3.	102-104	Same date as the Preliminary Study Area Characterization Summary
25.	Preliminary Remedial Action Objectives	IV.D.4.	105-106	Same date as the Preliminary Study Area Characterization Summary
26.	Preliminary List of Potential ARARs and TBCs	IV.D.5.	107-109	Same date as the Preliminary Study Area Characterization Summary
27.	Memorandum for Additional Study Area Characterization for Evaluation of Remedial Alternatives – if required by EPA	IV.D.6.	110	60 days after submission of the Preliminary Study Area Characterization Summary
28.	Addenda to RI/FS Work Plan and Sap for Additional Study Area Characterization of Evaluation of Remedial Alternatives – if required by EPA	IV.D.6.	111	60 days after EPA approval of Memorandum for Additional Study Area Characterization
29.	Notification of Additional Field Activities	IV.D.6.	113	14 days prior to initiating any additional field activities
30.	Baseline Risk Assessment memoranda for (1) selection of COPCs, (2) delineation of exposure	IV.D.7.	117	Key EPA decision points within the risk assessment process



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	areas, and (3) exposure point concentrations			
31.	Human Health Technical Memorandum	IV.D.7.(a)	123	With Screening Level Ecological Risk Assessment
32.	Draft Human Health Risk Assessment Report	IV.D.7.(a)	124	According to the Project Schedule in the Approved RI/FS Work Plan
33.	Screening Level Ecological Risk Assessment	IV.D.7.(b)	128	According to the Project Schedule in the Approved RI/FS Work Plan
34.	Baseline Problem Formulation Report for Ecological Risk Assessment	IV.D.7.(b)	130	According to the Project Schedule in the Approved RI/FS Work Plan
35.	Draft Baseline Ecological Risk Assessment Work Plan and Revised SAP – if BERA required by EPA	IV.D.7.(b)	131	According to the Project Schedule in the Approved RI/FS Work Plan
36.	Draft Baseline Ecological Risk Assessment Report – if required by EPA	IV.D.7.(b)	133	According to the Project Schedule in the Approved RI/FS Work Plan
37.	Draft RI Report	IV.D.8	135-136	According to the Project Schedule in the Approved RI/FS Work Plan
38.	Literature Survey Technical Memorandum	IV.E.1.	139	Within 60 days after EPA approves Identification of Candidate Technologies Memorandum for Treatability Studies
39.	Draft Treatability Study Work Plan	IV.E.2	140	60 days after notification by EPA that treatability studies are required
40.	Draft Treatability Studies Evaluation Report	IV.E.4	144	According to Project Schedule in the Approved Treatability Studies Work Plan
41.	Initial Feasibility Study Meeting	IV.F.1.(a)	148	30 days after EPA approval of HHRA
42.	Memorandum on Remedial Action Objectives	IV.F.1.(b)	149	According to the Project Schedule in the Approved RI/FS Work Plan
43.	Technical Memorandum on Alternatives Development and Screening	IV.F.1.(i)	162	60 days after initial FS Meeting
44.	Meeting to discuss Alternatives Memorandum	IV.F.1.(i)	164	30 days after submission of Memorandum on Alternatives Development and Screening

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45.	Report on Comparative Analysis	IV.F.2.(b)	170	60 days after submission of Memorandum on Alternatives Development and Screening
46.	Meeting Presentation to EPA on Comparative Analysis	IV.F.2.(b)	171	30 days after submission of Report on Comparative Analysis
47.	Alternatives Analysis for Institutional Controls and Screening Memorandum	IV.F.2.(c)	172	60 days after EPA approval of Technical Memorandum on Alternatives Development and Screening
48.	Draft FS Report	IV.F.2.(d)	173	90 days after EPA approval of Technical Memorandum on Alternatives Development and Screening

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## APPENDIX D TECHNICAL ASSISTANCE

In accordance with Section IV.C. of the Statement of Work, within 30 days of a request by EPA, Respondents shall provide EPA with a Technical Assistance Plan (TAP) for arranging (at Respondents' own expense, up to \$50,000) for a qualified Community Group to receive services from an independent technical advisor and to share this information with others in the community during the Work conducted pursuant to this Consent Order. Respondents also will provide and arrange for any additional assistance needed if the Community Group demonstrates such a need prior to EPA's issuance of the ROD contemplated by this Order. The Community Group will use this assistance:

(1) To obtain the services of a technical advisor(s), independent from the Respondents, who can help group members understand Site cleanup issues. The technical advisor(s) will help interpret and comment on Site-related documents developed under this SOW and through EPA's issuance of the Record of Decision (ROD) based upon the RI/FS conducted pursuant to this SOW.

(2) To share this information with others in the community.

*a.* Criteria for a Qualified Community Group

To be eligible for TAP assistance, a Community Group shall be: 1) comprised of people who are affected by a release or threatened release at the Site and 2) able to demonstrate its ability to adequately and responsibly manage TAP-related responsibilities. A group is ineligible if it is: 1) a potentially responsible party (PRP) at the Site, represents such a PRP, or receives money or services from a PRP (other than through the TAP); 2) affiliated with a national organization; 3) an academic institution; 4) a political subdivision; 5) a tribal government; or 6) a group established or presently sustained by any of the entities listed above or if members of the group represent any of these entities.

If more than one eligible group applies in a timely manner, then their applications should be evaluated according to: 1) which group is more representative of those most affected by the site; 2) each group's proposed system for managing TAP-related responsibilities, including its plans for working with its technical advisor and for sharing site-related information with other members of the community. TAP assistance may be awarded to only one qualified group at a time for purposes of this Consent Order and Statement of Work.



b. EPA's Responsibilities relating to the TAP

EPA should ensure that its Community Relations Plan for the site includes a discussion of the TAP. EPA shall coordinate with the Respondents in soliciting interest in the TAP from community groups. If there are multiple interested groups, then EPA shall coordinate with the Respondents in encouraging the groups to submit a joint application in order to better represent the community. In its sole discretion (ordinarily not until receipt of a Letter of Intent (LOI) to apply from a community group that appears eligible), EPA may request that Respondents prepare a TAP. EPA will review the Respondents' draft TAP and either approve it, disapprove it, or require revisions. EPA will oversee the Respondents' implementation of the TAP. This includes Agency monitoring of the Respondents' solicitation of applications from community groups, its determination of groups' eligibility, and its review of applications. If Respondents and the selected community group opt to negotiate an agreement, EPA will review a draft of the agreement and provide comments. EPA will also oversee the Respondents' evaluation of any request by the selected community group for additional assistance beyond the initial \$50,000.

c. Respondents' Responsibilities relating to the TAP

Upon request by EPA, Respondents shall coordinate with EPA in soliciting interest in the TAP from community groups. If there are multiple interested groups, then Respondents shall coordinate with EPA in encouraging the groups to submit a joint application in order to better represent the community. Upon request by EPA, Respondents shall draft a TAP consistent with this SOW, related Consent Order, and relevant EPA policy and guidance. Within 45 days of EPA's request, Respondents will submit a draft TAP for EPA's review and approval. If EPA disapproves of or requires revisions to the TAP, in whole or in part, Respondents shall amend and submit to EPA a revised TAP that is responsive to EPA's comments, within 30 days of receiving EPA's comments. Once approved, Respondents will implement the TAP.

After EPA approves the TAP, Respondents shall arrange for publication of a notice in local media that a Letter of Intent (LOI) to submit an application for TAP assistance has been received. The notice should explain how other interested groups could also try to combine efforts with the LOI group or else submit their own applications, by a reasonable specified deadline.

Respondents shall review the application(s) received and determine the Community Group's eligibility pursuant to the criteria in section a. above. Respondents shall notify EPA of its determination on eligibility to ensure that it is consistent with the settlement before notifying the group(s). If more than one eligible group applies in a timely manner, then the

Respondents shall review each application and evaluate them according to the criteria specified in section a. above. Respondents shall document its evaluation and its selection of a qualified Community Group. It should brief EPA, which will determine if the Respondents' evaluation process satisfactorily followed the settlement criteria. Respondents will subsequently notify the applicant(s) about its decision.

Respondents shall designate a point of contact to be the primary contact with the selected Community Group within 15 days of any EPA request for such a designation. The point of contact also may respond to the public's inquiries and questions about the TAP and/or any other aspect of the Site. The Respondents may hire a third party to act as the point of contact. If the Respondents opt to hire a third party, they shall submit in writing that person's name, title, and qualifications to EPA within 15 days of EPA's request for a TAP.

Respondents shall negotiate an agreement with the selected Community Group that specifies the duties of Respondents and Community Group, respectively. As part of the negotiations, Respondents shall inform the selected group of the activities that it can and cannot receive or undertake pursuant to the TAP. The list of allowable activities should generally be consistent with 40 CFR 35.4070 (e.g., obtaining the services of an advisor to help the group understand the nature of the environmental and public health hazards at the site and the various stages of the response action, and, to a lesser extent, communicating site information to others in the community), and the list of prohibited activities should generally be consistent with 40 CFR 35.4075 (e.g., activities related to litigation, political lobbying, etc).

The agreement shall also provide that Respondents' review of the Community Group's recommended choice for Technical Advisor will be limited, consistent with 40 CFR 35.4190 and 35.4195, to criteria such as whether the advisor has relevant knowledge, academic training, and experience as well as the ability to translate technical information into terms the community can understand.

The agreement shall also establish the process for the Community Group to seek additional TAP assistance, pursuant to the criteria specified below. Respondents shall submit the draft agreement to EPA for its review.

Respondents shall review any request from the selected Community Group for additional TAP assistance, consistent with the criteria specified in 40 CFR 35.4065, as follows:

- A) The Community Group must demonstrate that it has effectively managed its TAP responsibilities to date; and
- B) The Community Group must show that at least three of the ten factors below are met:



- a. EPA expects that more than eight years (beginning with the initiation of the RI/FS) will pass before construction completion will be achieved;
- b. EPA requires treatability studies or evaluation of new and innovative technologies;
- c. EPA reopens its Record of Decision;
- d. After the PRP's selection of the Community Group, EPA designates additional Operable Units;
- e. EPA issues an Explanation of Significant Differences for its ROD;
- f. After the PRP's selection of the Community Group, a legislative or regulatory change results in significant new site information;
- g. Significant public concern about the site exists, as evidenced, e.g., by relatively large turnout at meetings, the need for multiple meetings, the need for numerous copies of documents to inform community members, etc.;
- h. Any other factor that, in EPA's judgment, indicates that this Site is unusually complex;
- i. A Remedial Investigation/Feasibility Study costing at least \$2 million is performed;
- j. The public health assessment (or related activities) for the site indicates the need for further health investigations and/or health-related activities.

If the Community Group demonstrates a need for additional TAP assistance, then Respondents will arrange to provide the additional services or monies needed. Any unobligated TAP funds shall be retained by the Respondents upon EPA's issuance of the ROD.

The TAP shall state that the Respondents shall provide EPA quarterly progress reports regarding the implementation of the TAP.







APPENDIX E

DRAFT CONFIDENTIALITY AGREEMENT

In order to promote frank and productive discussion, the mediation process will be confidential. The parties, their representatives, and the mediator(s) may not disclose information regarding the negotiations, including settlement terms, proposals, offers, or other statements made during the negotiations, to third parties, unless all parties otherwise agree. The negotiations shall be treated as compromise negotiations under Rule 408 of the Federal Rules of Evidence and applicable state rules of evidence. The mediator(s) shall not appear as a witness, either by subpoena of a party to the mediation or voluntarily, or participate as a consultant or expert, in any pending or future judicial or administrative action or proceeding relating to any matters discussed in these negotiations.

AGREED

[name of party]

By: \_\_\_\_\_

Date: \_\_\_\_\_

[name of party]

By: \_\_\_\_\_

Date: \_\_\_\_\_

Mediator(s)

\_\_\_\_\_

Date: \_\_\_\_\_



