

# **APPENDIX B**

**APPENDIX B**

**REMEDIAL ACTION**

**STATEMENT OF WORK**

**DELAWARE SAND & GRAVEL LANDFILL SUPERFUND SITE**

**New Castle County, State of Delaware**

**EPA Region 3**

**February 4, 2022**

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## 1. INTRODUCTION

**1.1 Purpose of the SOW.** This Statement of Work (SOW) sets forth the procedures and requirements for implementing the Work, which includes implementing the Remedial Action (RA) being designed pursuant to the Administrative Settlement Agreement and Order on Consent for Remedial Design (RD AOC SOW) between the Delaware Sand & Gravel Remedial Trust and the EPA dated May 29, 2018. The RA will be performed consistent with the Record of Decision Amendment No. 2 (ROD Amendment No. 2) and the Consent Decree For Remedial Action (“Consent Decree”), to which this SOW is attached, and EPA Superfund Remedial Design and Remedial Action Guidance (OSWER Directive 9355.0-4A).

To prioritize the remedial components included in ROD Amendment No. 2 associated with extraction and conveyance of groundwater from proposed Upper Potomac Aquifer (UPA) wells and for consistency with the Remedial Design deliverables for “RD-1 – Area of Attainment (AoA) Upper Potomac Aquifer (UPA) Extraction Wells” and “RD-2 – Waste Management Area (WMA) Remedy Components,” the RA will be performed on two separate, but coincident tracks. These tracks will be referred to as “RA-1 – AoA UPA Extraction Wells” and “RA-2 – WMA Remedy Components.”

### 1.2 Structure of the SOW

- Section 2 (Community Involvement) sets forth EPA’s and Performing Settling Defendants’ (Performing SDs’) responsibilities for community involvement.
- Section 3 (Remedial Action) sets forth requirements regarding the completion of the RA, which includes submission of specified primary deliverables related to completion of the RA.
- Section 4 (Reporting) sets forth Performing SDs’ reporting obligations.
- Section 5 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding Performing SDs’ submission of, and EPA’s review of, approval of, comment on, and/or modification of, the deliverables.
- Section 6 (Schedules) sets forth the schedule for submitting the primary deliverables, and sets forth the schedule of milestones regarding the completion of the RA.
- Section 7 (State Participation) addresses State participation.
- Section 8 (References) provides a list of references, including URLs.

**1.3** The Scope of the Remedy includes the actions described in the Record of Decision (ROD) Amendment No. 2 for the Delaware Sand & Gravel Landfill Superfund Site (Site), signed by EPA on December 12, 2017. The Selected Remedy in ROD Amendment No. 2 consists of remedial action components which are categorized as follows:

- 1) Remedial components that were selected in prior decision documents which were not modified by ROD Amendment No. 2 (each identified below as an "Existing Component");

- 2) Remedial components that were selected in prior decision documents which were modified by ROD Amendment No. 2 (each identified below as a "Modified Component"); and
- 3) New remedial components that were not selected in prior decision documents (each identified below as a "New Component").

Specifically, the Selected Remedy consists of the following components:

1. Slurry-wall system (Existing Component);
2. Pre-design investigations to develop supplemental information regarding source and extent of contamination in the Upper Potomac Aquifer and hydraulic connections between hydrostratigraphic units within the Upper Potomac Aquifer, and confirm target capture zones within the Upper Potomac Aquifer (New Component);
3. Hydraulic control of contaminated groundwater within the slurry-wall enclosure using an enhanced low-flow groundwater extraction system (eLFExS) (Modified Component);
4. A composite barrier cap to minimize infiltration of precipitation through contaminated soil contained within the slurry wall surrounding the DDA (Existing Component);
5. Installation and operation of extraction wells in areas determined to optimize capture and remove contaminant mass from the more highly impacted areas of the Upper Potomac Aquifer, including the UPCUTZ (Modified Component);
6. Discharge of groundwater pumped from the DS&G extraction wells to the Wilmington Wastewater Treatment Plant (Modified Component);
7. Continued groundwater extraction at Artesian Water Company's Llangollen well field with treatment utilizing existing systems for bis(2-chloroethyl)ether (BCEE), 1,4-dioxane, manganese, and, if necessary, additional treatment systems targeting other Contaminants of Concern (COCs) as defined by CERCLA generally and by EPA for the Site (New Component);
8. A groundwater monitoring program to ensure that the remedial action is meeting the short-term goal of plume containment and will meet the long-term goal of aquifer restoration in the Area of Attainment within a reasonable time frame (New Component);
9. Institutional controls to prevent direct contact with contaminated soil, the installation of drinking water wells on the Site property and other future uses of the Site property which could compromise the effectiveness of the Selected Remedy (Existing Component); and

10. Institutional controls to prevent potential future exposure to Site contaminants in indoor air (New Component).

- 1.4 The terms used in this SOW that are defined in CERCLA, in regulations promulgated under CERCLA, or in the Consent Decree (CD), have the meanings assigned to them in CERCLA, in such regulations, or in the CD, except that the term “Paragraph” or “¶” means a paragraph of the SOW, and the term “Section” means a section of the SOW, unless otherwise stated.

## 2. COMMUNITY INVOLVEMENT

### 2.1 Community Involvement Responsibilities

- (a) EPA has the lead responsibility for developing and implementing community involvement activities at the Site. In 1984, EPA developed a Community Involvement Plan (CIP) for the Site; EPA updated the CIP in 2021. Pursuant to 40 C.F.R. § 300.435(c), EPA shall review the existing CIP and determine whether it should be revised to describe further public involvement activities during the Work that are not already addressed or provided for in the existing CIP.
- (b) If requested by EPA, Performing SDs 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 Site. Performing SDs’ support of EPA’s community involvement activities may include providing online access to initial submissions and updates of deliverables to (1) any Community Advisory Groups, (2) any Technical Assistance Grant recipients and their advisors, and (3) other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP Performing SDs’ responsibilities for community involvement activities. All community involvement activities conducted by Performing SDs at EPA’s request are subject to EPA’s oversight.
- (c) **Performing SDs’ CI Coordinator.** If requested by EPA, Performing SDs shall, within 30 days, designate and notify EPA of Performing SDs’ Community Involvement Coordinator (Performing SDs’ CI Coordinator). Performing SDs may hire a contractor for this purpose. Performing SDs’ notice must include the name, title, and qualifications of the Performing SDs’ CI Coordinator. Performing SDs’ CI Coordinator is responsible for providing support regarding EPA’s community involvement activities, including coordinating with EPA’s CI Coordinator regarding responses to the public’s inquiries about the Site.

## 3. REMEDIAL ACTION

- 3.1 **RA Work Plan.** Performing SDs shall submit a RA Work Plan (RAWP) for EPA approval as described in ¶ 5.6. As introduced in ¶ 1.1, the RA will be implemented along

two separate, but coincident tracks: RA-1 and RA-2. As such, two separate RAWPs will be submitted. Each RAWP must include:

- (a) A proposed RA Construction Schedule using critical path method or other format approved by EPA;
- (b) Schedule for updates to supporting deliverables, if required by EPA, described in ¶ 5.7 (Supporting Deliverables): Health and Safety Plan; Emergency Response Plan; Field Sampling Plan; Quality Assurance Project Plan; Sitewide Monitoring Plan; Construction Quality Assurance/Quality Control Plan; O&M Plan; O&M Manual; and Institutional Controls Implementation and Assurance Plan to cover activities during the RA;
- (c) Plans for satisfying permitting requirements, including obtaining permits and/or permit equivalencies for off-site activity and for satisfying substantive requirements of permits for on-site activity; and
- (d) Requirements as included in ¶ 3.2 (Independent Quality Assurance Team), ¶ 3.3 (Meetings and Inspections), ¶ 3.4 (Emergency Response and Reporting), and ¶ 3.5 (Off-Site Shipments).

**3.2 Independent Quality Assurance Team.** Performing SDs shall notify EPA of Performing SDs' designated Independent Quality Assurance Team (IQAT). The IQAT will be independent of the Supervising Contractor. Performing SDs may hire a third party for this purpose. Performing SDs' notice must include the names, titles, contact information, and qualifications of the members of the IQAT. The IQAT will have the responsibility to determine whether Work is of expected quality and conforms to applicable plans and specifications. The IQAT will have the responsibilities as described in ¶ 2.1.3 of the *Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties*, EPA/540/G-90/001 (Apr. 1990).

### **3.3 Meetings and Inspections**

- (a) **Preconstruction Conference.** Performing SDs shall hold a preconstruction conference with EPA and others as directed or approved by EPA and as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995). Performing SDs shall prepare minutes of the conference and shall distribute the minutes to the United States, the State, and New Castle County.
- (b) **Periodic Meetings.** During the construction portion of the RA (RA Construction), Performing SDs shall meet regularly (frequency will be based on type/complexity and duration of construction activity(ies)) with EPA, and others as directed or determined by EPA, to discuss construction issues. Performing SDs shall distribute an agenda and list of attendees to all Parties prior to each meeting. Performing SDs shall prepare minutes of the meetings and shall distribute the minutes to the United States, the State, and New Castle County.
- (c) **Inspections**

- (1) EPA or its representative shall conduct periodic inspections of the Work. At EPA's request, the Supervising Contractor or other designee shall accompany EPA or its representative during inspections.
- (2) Upon notification by EPA of any deficiencies in the RA Construction, Performing SDs shall take all necessary steps to correct the deficiencies and/or bring the RA Construction into compliance with the approved Final Remedial Design (RD), any approved design changes, and/or the approved RAWP. If applicable, Performing SDs shall comply with any schedule provided by EPA in its notice of deficiency.

### 3.4 Emergency Response and Reporting

- (a) **Emergency Response and Reporting.** If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the Site and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Performing SDs shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) no more than 48 hours after the onset of the event orally notify the authorized EPA officer (as specified in ¶ 3.4(c)); and (3) take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plan, the Emergency Response Plan, and any other deliverable approved by EPA under the SOW.
- (b) **Release Reporting.** Upon the occurrence of any event during performance of the Work that Performing SDs 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, Performing SDs shall immediately (within 4 hours) notify the authorized EPA officer orally.
- (c) The "authorized EPA officer" for purposes of immediate oral notifications and consultations under ¶ 3.4(a) and ¶ 3.4(b) is the EPA Project Coordinator, the EPA Alternate Project Coordinator (if the EPA Project Coordinator is unavailable), or the EPA Region 3 Hotline at 215-814-3255 (if neither EPA Project Coordinator is available).
- (d) For any event covered by ¶ 3.4(a) and ¶ 3.4(b), Performing SDs shall: (1) within 21 days after the onset of such event, submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 45 days after the conclusion of such event, submit a report to EPA describing all actions taken in response to such event.
- (e) The reporting requirements under ¶ 3.4 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

### 3.5 Off-Site Shipments

- (a) Performing SDs 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. Performing SDs will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Performing SDs 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) Performing SDs may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, they provide notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Performing SDs also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Performing SDs shall provide the notice after the award of the contract for RA construction and before the Waste Material is shipped.
- (c) Performing SDs 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 ROD Amendment No. 2. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped off-site for treatability studies, are not subject to 40 C.F.R. § 300.440.

**3.6 RA Construction Completion.** As introduced in Paragraph 1.1, the RA will be implemented along two separate, but coincident tracks: RA-1 and RA-2. As such, the following sub-paragraphs will be applied separately as part of RA-1 and RA-2.

- (a) For purposes of this ¶ 3.6, "RA Construction" comprises, for any RA that involves the construction and operation of a system to achieve Performance Standards (for example, groundwater restoration remedies), the construction of such system and the performance of all activities necessary for the system to function properly and as designed.
- (b) **Inspection of Constructed Remedy.** Performing SDs shall schedule an inspection to review the construction and operation of the system and to review whether the system is functioning properly and as designed. The inspection must be attended by Performing SDs and EPA and/or their representatives. A re-inspection must be conducted if requested by EPA.

- (c) **Shakedown Period.** There shall be a shakedown period of up to three years for EPA to review whether the remedy is functioning properly and performing as designed. Performing SDs shall provide such information as EPA requests for such review.
- (d) **RA Report.** Following the shakedown period, including the installation of all extraction and monitoring wells necessary to demonstrate capture throughout the target capture zone, Performing SDs shall submit an “RA Report” requesting EPA’s determination that RA Construction has been completed. The RA Report must: (1) include statements by a registered professional engineer and by Performing SDs’ Project Coordinator that construction of the system is complete and that the system is functioning properly and as designed; (2) include a demonstration, and supporting documentation, that construction of the system is complete and that the system is functioning properly and as designed; (3) include as-built drawings signed and stamped by a registered professional engineer; (4) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA’s *Close Out Procedures for NPL Sites* guidance (May 2011), as supplemented by *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017); and (5) be certified in accordance with ¶ 5.5 (Certification).
- (e) If EPA determines that RA Construction is not complete, EPA shall so notify Performing SDs. EPA’s notice must include an explanation of its rationale and a description of, and schedule for, the activities that Performing SDs must perform to complete RA Construction. EPA’s notice may include a schedule for completion of such activities or may require Performing SDs to submit a proposed schedule for EPA approval. Performing SDs shall perform all activities described in the EPA notice in accordance with the schedule.
- (f) If EPA determines, based on the initial or any subsequent RA Report, that RA Construction is complete, EPA shall so notify Performing SDs.

**3.7 Certification of Attainment of Cleanup Levels.** As discussed in the Remedial Design deliverables for RD-1 submitted in accordance with the RD AOC SOW, including the February 2021 Pre-Design Investigation Evaluation Report – Revision 1, the AoA for the Site includes two distinct areas: AoA-1 (Area of Attainment for Selected Area) and AoA-2 (Area of Attainment Impacted by Others). The following sub-paragraphs will be applied separately for AoA-1 and AoA-2 (the latter of which is anticipated to clean up albeit on a longer time frame than the former).

- (a) **Monitoring Report.** Performing SDs shall submit a Monitoring Report to EPA requesting EPA’s Certification of Attainment of Cleanup Levels. The report must: (1) include certifications by a licensed professional geologist and by Performing SDs’ Project Coordinator that the groundwater cleanup levels have been attained throughout the Area of Attainment; (2) be consistent with EPA’s *Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions*, OSWER 9355.0-129 (November 2013) and *Recommended Approach for Evaluating*

*Completion of Groundwater Restoration Remedial Actions at a Monitoring Well*, OSWER 9283.1-44 (August 2014); (3) contain monitoring data to demonstrate that Performance Standards have been achieved; and (4) be certified in accordance with ¶ 5.5 (Certification).

- (b) If EPA concludes that the groundwater cleanup levels have not been attained throughout the Area of Attainment, EPA shall so notify Performing SDs. EPA's notice must include an explanation of its rationale and a description of any deficiencies.
- (c) If EPA concludes, based on the initial or any subsequent Monitoring Report requesting Certification of Attainment of Cleanup Levels, that the groundwater cleanup levels have been attained throughout the Area of Attainment, EPA shall so certify to Performing SDs and Artesian Water Company.

### **3.8 Certification of RA Completion.**

- (a) **Monitoring Report.** Performing SDs shall submit a Monitoring Report to EPA requesting EPA's Certification of RA Completion. The report must: (1) include certifications by a registered professional engineer and by Performing SDs' Project Coordinator that the RA is complete; (2) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA's *Close Out Procedures for NPL Sites* guidance (May 2011), as supplemented by *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017); (3) contain monitoring data to demonstrate that Performance Standards have been achieved in AoA-1 and AoA-2; and (4) be certified in accordance with ¶ 5.5 (Certification).
- (b) If EPA concludes that the RA is not Complete, EPA shall so notify Performing SDs. EPA's notice must include an explanation of its rationale and a description of any deficiencies. EPA's notice may include a schedule for addressing such deficiencies or may require Performing SDs to submit a schedule for EPA approval. Performing SDs shall perform all activities described in the notice in accordance with the schedule.
- (c) If EPA concludes, based on the initial or any subsequent Monitoring Report requesting Certification of RA Completion, that the RA is Complete, EPA shall so certify to Performing SDs. This certification will constitute the Certification of RA Completion for purposes of the CD, including Section XVI of the CD (Covenants by Plaintiff[s]). Certification of RA Completion will not affect Performing SDs' remaining obligations under the CD.

- 3.9 Periodic Review Support Plan (PRSP).** Performing SDs shall submit the PRSP for EPA approval. The PRSP addresses the studies and investigations that Performing SDs shall conduct to support EPA's reviews of whether the RA is protective of human health and the environment in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c) (also known as "Five-year Reviews"). Performing SDs shall develop the plan in

accordance with *Comprehensive Five-year Review Guidance*, OSWER 9355.7-03B-P (June 2001), and any other relevant five-year review guidances.

### **3.10 Certification of Work Completion.**

- (a) **Work Completion Inspection.** Performing SDs shall schedule an inspection for the purpose of obtaining EPA's Certification of Work Completion. The inspection must be attended by Performing SDs and EPA and/or their representatives.
- (b) **Work Completion Report.** Following the inspection, Performing SDs shall submit a report to EPA requesting EPA's Certification of Work Completion. The report must: (1) include certifications by a registered professional engineer and by Performing SDs' Project Coordinator that the Work, including all O&M activities, is complete; and (2) be certified in accordance with ¶ 5.5 (Certification). If the Monitoring Report submitted under ¶ 3.8(a) includes all elements required under this ¶ 3.10(b), then the Monitoring Report suffices to satisfy all requirements under this ¶ 3.10(b).
- (c) If EPA concludes that the Work is not complete, EPA shall so notify Performing SDs. EPA's notice must include an explanation of its rationale and a description of the activities that Performing SDs must perform to complete the Work. EPA's notice must include specifications and a schedule for such activities or must require Performing SDs to submit specifications and a schedule for EPA approval. Performing SDs shall perform all activities described in the notice or in the EPA-approved specifications and schedule.
- (d) If EPA concludes, based on the initial or any subsequent report requesting Certification of Work Completion, that the Work is complete, EPA shall so certify in writing to Performing SDs. Issuance of the Certification of Work Completion does not affect the following continuing obligations: (1) activities under the Periodic Review Support Plan; (2) obligations under Sections VIII (Property Requirements), XIX (Access to Information), and XX (Retention of Records) of the CD; (3) Institutional Controls obligations as provided in the Institutional Controls Implementation and Assurance Plan (ICIAP); and (4) reimbursement of EPA's Future Response Costs under Section X (Payments for Response Costs) of the CD.

## **4. REPORTING**

**4.1 Progress Reports.** Commencing with the month following lodging of the CD and until EPA approves the RA Report, Performing SDs shall submit progress reports to EPA on a monthly basis, or as otherwise requested by EPA. The reports must cover all activities that took place during the prior reporting period, including:

- (a) The actions that have been taken toward achieving compliance with the CD;
- (b) A summary of all results of sampling, tests, and all other data received or generated by Performing SDs;

- (c) A description of all deliverables that Performing SDs submitted to EPA;
- (d) A description of all activities relating to RA Construction that are scheduled for the next six weeks;
- (e) An updated RA Construction Schedule, together with information regarding percentage of completion, delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays;
- (f) A description of any modifications to the work plans or other schedules that Performing SDs have proposed or that have been approved by EPA; and
- (g) A description of all activities undertaken in support of the CIP during the reporting period and those to be undertaken in the next six weeks.

**4.2 Notice of Progress Report Schedule Changes.** If the schedule for any activity described in the Progress Reports, including activities required to be described under ¶ 4.1(d), changes, Performing SDs shall notify EPA of such change at least 7 days before performance of the activity.

## **5. DELIVERABLES**

**5.1 Applicability.** Performing SDs shall submit deliverables for EPA approval or for EPA comment as specified in Section 3 and ¶ 5.7. If neither is specified, the deliverable does not require EPA's approval or comment. Paragraphs 5.2 (In Writing) through 5.4 (Technical Specifications) apply to all deliverables. Paragraph 5.5 (Certification) applies to any deliverable that is required to be certified. Paragraph 5.6 (Approval of Deliverables) applies to any deliverable that is required to be submitted for EPA approval.

**5.2 In Writing.** All deliverables under this SOW must be in writing unless otherwise specified.

**5.3 General Requirements for Deliverables.** All deliverables must be submitted by the deadlines in the RD Schedule or RA Schedule, as applicable. Performing SDs shall submit all deliverables to EPA in electronic form. Technical specifications for sampling and monitoring data and spatial data are addressed in ¶ 5.4. All other deliverables shall be submitted to EPA in the electronic form specified by the EPA Project Coordinator. If any deliverable includes maps, drawings, or other exhibits that are larger than 11" by 17", Performing SDs shall also provide EPA with paper copies of such exhibits. If requested by EPA, Performing SDs shall also provide EPA with paper copies of specified deliverables.

### **5.4 Technical Specifications**

- (a) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format. Other delivery methods may be allowed if

electronic direct submission presents a significant burden or as technology changes.

- (b) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at <https://www.epa.gov/geospatial/epa-metadata-editor>.
- (c) Each file must include an attribute name for each site unit or sub-unit submitted. Consult <https://www.epa.gov/geospatial/geospatial-policies-and-standards> for any further available guidance on attribute identification and naming.
- (d) Spatial data submitted by Performing SDs does not, and is not intended to, define the boundaries of the Site.

**5.5 Certification.** All deliverables that require compliance with this ¶ 5.5 must be signed by the Performing SDs' Project Coordinator, or other responsible official of Performing SDs, and must contain the following statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

## **5.6 Approval of Deliverables**

### **(a) Initial Submissions**

- (1) After review of any deliverable that is required to be submitted for EPA approval under the CD or the SOW, EPA shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing, with an explanation of its rationale.

- (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 ¶ 5.6(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under ¶ 5.6(a), Performing SDs 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: (1) approve, in whole or in part, the resubmission; (2) approve the resubmission upon specified conditions; (3) modify the resubmission; (4) disapprove, in whole or in part, the resubmission, requiring Performing SDs to correct the deficiencies; or (5) any combination of the foregoing, with an explanation of its rationale.
- (c) **Implementation.** Upon approval, approval upon conditions, or modification by EPA under ¶ 5.6(a) (Initial Submissions) or ¶ 5.6(b) (Resubmissions), of any deliverable, or any portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and enforceable under the CD; and (2) Performing SDs shall take any action required by such deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable submitted or resubmitted under ¶ 5.6(a) or ¶ 5.6(b) does not relieve Performing SDs of any liability for stipulated penalties under Section XV (Stipulated Penalties) of the CD.

**5.7 Supporting Deliverables.** Performing SDs shall submit each of the following supporting deliverables for EPA approval, except as specifically provided. Performing SDs shall develop the deliverables in accordance with all applicable regulations, guidances, and policies (see Section 8 (References)). Performing SDs shall update each of these supporting deliverables as necessary or appropriate during the course of the Work, and/or as requested by EPA.

- (a) **Health and Safety Plan.** The Health and Safety Plan (HASP) describes all activities to be performed to protect on site personnel and area residents from physical, chemical, and all other hazards posed by the Work. Performing SDs shall develop the HASP in accordance with EPA's Emergency Responder Health and Safety and Occupational Safety and Health Administration (OSHA) requirements under 29 C.F.R. §§ 1910 and 1926. The HASP developed for the Preliminary Design Investigation (PDI) and RD may be updated, as appropriate, to cover activities during the RA and updated to cover activities after RA Construction Completion. EPA does not approve the HASP, but will review it to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment.

- (b) **Emergency Response Plan.** The Emergency Response Plan (ERP) must describe procedures to be used in the event of an accident or emergency at the Site (for example, power outages, water impoundment failure, treatment plant failure, slope failure, etc.). The ERP developed for the PDI and RD may be updated, as appropriate, to cover activities during the RA and updated to cover activities after RA Construction Completion. The ERP must include:
- (1) Name of the person or entity responsible for responding in the event of an emergency incident;
  - (2) Plan and date(s) for meeting(s) with the local community, including local, State, and federal agencies involved in the cleanup, as well as local emergency squads and hospitals;
  - (3) Spill Prevention, Control, and Countermeasures (SPCC) Plan (if applicable), consistent with the regulations under 40 C.F.R. Part 112, describing measures to prevent, and contingency plans for, spills and discharges;
  - (4) Notification activities in accordance with ¶ 3.4(b) (Release Reporting) in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004; and
  - (5) A description of all necessary actions to ensure compliance with Paragraph 11 (Emergencies and Releases) of the CD in the event of an occurrence during the performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency or may present an immediate threat to public health or welfare or the environment.
- (c) **Field Sampling Plan.** The Field Sampling Plan (FSP) addresses all sample collection activities. The FSP must be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. Performing SDs shall develop the FSP in accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988). The FSP developed for the PDI and RD may be updated, as appropriate, to cover activities during the RA and updated to cover activities after RA Construction Completion.
- (d) **Quality Assurance Project Plan.** The Quality Assurance Project Plan (QAPP) augments the FSP and addresses sample analysis and data handling regarding the Work. The QAPP must include a detailed explanation of Performing SDs' quality assurance, quality control, and chain of custody procedures for all compliance and monitoring samples. Performing SDs shall develop the QAPP in accordance with *EPA Requirements for Quality Assurance Project Plans*, QA/R-5, EPA/240/B-

01/003 (Mar. 2001, reissued May 2006); *Guidance for Quality Assurance Project Plans*, QA/G-5, EPA/240/R 02/009 (Dec. 2002); and *Uniform Federal Policy for Quality Assurance Project Plans*, Parts 1-3, EPA/505/B-04/900A through 900C (Mar. 2005). The QAPP also must include procedures:

- (1) To ensure that EPA and its authorized representative have reasonable access to laboratories used by Performing SDs in implementing the CD (Performing SDs' Labs);
- (2) To ensure that Performing SDs' Labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;
- (3) To ensure that Performing SDs' Labs perform all analyses using EPA-accepted methods (i.e., the methods documented in *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis*, ILM05.4 (Dec. 2006); *USEPA Contract Laboratory Program Statement of Work for Organic Analysis*, SOM01.2 (amended Apr. 2007); and *USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration)*, ISM01.2 (Jan. 2010)) or other methods acceptable to EPA;
- (4) To ensure that Performing SDs' Labs participate in an EPA-accepted QA/QC program or other program QA/QC acceptable to EPA;
- (5) For Performing SDs to provide EPA with notice at least 30 days prior to any sample collection activity;
- (6) For Performing SDs to provide split samples and/or duplicate samples to EPA upon request;
- (7) For EPA to take any additional samples that it deems necessary;
- (8) For EPA to provide to Performing SDs, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling; and
- (9) For Performing SDs to submit to EPA all sampling and test results and other data in connection with the implementation of the CD.

The QAPP developed for the PDI and RD may be updated, as appropriate, to cover activities during the RA and updated to cover activities after RA Construction Completion.

- (e) **Sitewide Monitoring Plan.** The purpose of the Sitewide Monitoring Plan (SWMP) is to obtain baseline information regarding the extent of contamination in affected media at the Site; to obtain information, through short- and long-term monitoring, about the movement of and changes in contamination throughout the Site, before and during implementation of the RA; to obtain information regarding contamination levels to determine whether Performance Standards (PS), including

PS for groundwater extraction and treatment at Artesian Water Company's Llangollen well field, are achieved; and to obtain information to determine whether to perform additional actions, including further Site monitoring. The SWMP must include:

- (1) Description of the environmental media to be monitored;
- (2) Description of field procedures and sampling methodologies;
- (3) Description of the data collection parameters, including existing and proposed monitoring devices and locations, schedule and frequency of monitoring, analytical parameters to be monitored, and analytical methods employed;
- (4) Description of how performance data will be analyzed, interpreted, and reported, and/or other Site-related requirements;
- (5) Description of verification sampling procedures;
- (6) Description of deliverables that will be generated in connection with monitoring, including sampling schedules, laboratory records, monitoring reports, and monthly and annual reports to EPA and State agencies; and
- (7) Description of proposed additional monitoring and data collection actions (such as increases in frequency of monitoring, and/or installation of additional monitoring devices in the affected areas) in the event that results from monitoring devices indicate changed conditions (such as higher than expected concentrations of the COCs or groundwater contaminant plume movement).

The SWMP developed for the PDI and RD may be updated, as appropriate, to cover activities during the RA and updated to cover activities after RA Construction Completion.

- (f) **Construction Quality Assurance/Quality Control Plan (CQA/QCP).** The purpose of the Construction Quality Assurance Plan (CQAP) is to describe planned and systemic activities that provide confidence that the RA construction will satisfy all plans, specifications, and related requirements, including quality objectives. The purpose of the Construction Quality Control Plan (CQCP) is to describe the activities to verify that RA construction has satisfied all plans, specifications, and related requirements, including quality objectives. The CQA/QCP must:

- (1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQA/QCP;
- (2) Describe the PS required to be met to achieve RA Construction Completion;

- (3) Describe the activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;
- (4) Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQA/QCP;
- (5) Describe industry standards and technical specifications used in implementing the CQA/QCP;
- (6) Describe procedures for tracking construction deficiencies from identification through corrective action;
- (7) Describe procedures for documenting all CQA/QCP activities; and
- (8) Describe procedures for retention of documents and for final storage of documents.

The CQA/QCP developed for the RD may be updated, as appropriate, to cover activities during the RA and updated to cover activities after RA Construction Completion.

- (g) **O&M Plan.** The O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. Performing SDs shall develop the O&M Plan in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017). The O&M Plan must include the following additional requirements:

- (1) Description of all PS required to be met to implement ROD Amendment No. 2, including the PS for groundwater extraction and treatment at Artesian Water Company's Llangollen well field;
- (2) Description of activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;
- (3) **O&M Reporting.** Description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, records of operating costs, reports regarding emergencies, personnel and maintenance records, monitoring reports, and monthly and annual reports to EPA and State agencies;
- (4) Description of corrective action in case of systems failure, including: (i) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve PS; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements; and

- (5) Description of corrective action to be implemented in the event that PS are not achieved; and a schedule for implementing these corrective actions.

The draft O&M Plan developed for the RD will be updated to cover activities during the RA and updated to cover activities after RA Construction Completion as part of the RA Construction Completion report.

- (h) **O&M Manual.** The O&M Manual serves as a guide to the purpose and function of the equipment and systems that make up the remedy. Performing SDs shall develop the O&M Manual in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017).

The draft O&M Manual developed for the RD will be finalized to cover activities after RA Construction Completion as part of the RA Construction Completion report.

- (i) **Institutional Controls Implementation and Assurance Plan.** The ICIAP describes plans to implement, maintain, and enforce the Institutional Controls (ICs) at the Site. Performing SDs shall develop the ICIAP in accordance with *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012), and *Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites*, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012). The ICIAP must include the following additional requirements:

- (1) Locations of recorded real property interests (e.g., easements, liens) and resource interests in the property that may affect ICs (e.g., surface, mineral, and water rights) including accurate mapping and geographic information system (GIS) coordinates of such interests; and
- (2) Legal descriptions and survey maps that are prepared according to current American Land Title Association (ALTA) Survey guidelines and certified by a licensed surveyor.

## 6. SCHEDULES

**6.1 Applicability and Revisions.** All deliverables and tasks required under this SOW must be submitted or completed by the deadlines or within the time durations listed in the RA Schedule set forth below. Performing SDs may submit proposed revised RA Schedules for EPA approval. Upon EPA's approval, the revised RA Schedule supersedes the RA Schedule set forth below, and any previously-approved RA Schedule. The RAWPs for RA-1 and RA-2 will include updated schedules based on Contract Award date.

**6.2 RA Schedule.** For simplification, the following RA schedule does not distinguish between RA-1 and RA-2. Updated schedules to be included in the RAWPs for RA-1 and

RA-2 will provide schedule information specific to those RA tracks consistent with the deliverables and deadlines below.

	Description of Deliverable / Task	¶ Ref.	Deadline
1	Award RA contract		120 days after EPA Notice of Authorization to Proceed with RA
2	RAWP	3.1	60 days after Award of RA Contract
3	Designate IQAT	3.2	60 days after EPA Notice of Authorization to Proceed with RA
4	Pre-Construction Conference	3.3(a)	30 days after Approval of RAWP
5	Start of Construction		60 days after Approval of RAWP
	Completion of Construction		
6	Pre-final Inspection	3.6(b)	30 days after completion of construction
7	Pre-final Inspection Report	3.6(d)	20 days after completion of Pre-final Inspection
8	Final Inspection		20 days after completion of work punch list identified in Pre-final Inspection Report
9	RA Report	3.6(d)	60 days after shakedown period
10	Monitoring Report	3.8(a)	45 days after Performing SDs have determined that monitoring data demonstrate that PS have been achieved
11	Work Completion Report	3.10(b)	30 days after Performing SDs have determined that work is complete
12	Periodic Review Support Plan	3.9	Five years after Start of RA Construction

## 7. STATE PARTICIPATION

- 7.1 Copies.** Performing SDs shall, at any time they send a deliverable to EPA, send a copy of such deliverable to the State. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to Performing SDs, send a copy of such document to the State.
- 7.2 Review and Comment.** The State will have a reasonable opportunity for review and comment prior to:
- (a) Any EPA approval or disapproval under ¶ 5.6 (Approval of Deliverables) of any deliverables that are required to be submitted for EPA approval; and
  - (b) Any approval or disapproval of the Construction Phase under ¶ 3.6 (RA Construction Completion), any disapproval of, or Certification of Attainment of Cleanup Levels under ¶ 3.7 (Certification of Attainment of Cleanup Levels), any disapproval of, or Certification of RA Completion under ¶ 3.8 (Certification of RA Completion), and any disapproval of, or Certification of Work Completion under ¶ 3.10 (Certification of Work Completion).

## 8. REFERENCES

**8.1** The following regulations and guidance documents, among others, apply to the Work. Any item for which a specific URL is not provided below is available on one of the two EPA Web pages listed in ¶ 8.2:

- (a) A Compendium of Superfund Field Operations Methods, OSWER 9355.0-14, EPA/540/P-87/001a (Aug. 1987).
- (b) CERCLA Compliance with Other Laws Manual, Part I: Interim Final, OSWER 9234.1-01, EPA/540/G-89/006 (Aug. 1988).
- (c) Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER 9355.3-01, EPA/540/G-89/004 (Oct. 1988).
- (d) CERCLA Compliance with Other Laws Manual, Part II, OSWER 9234.1-02, EPA/540/G-89/009 (Aug. 1989).
- (e) Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, OSWER 9355.5-01, EPA/540/G-90/001 (Apr. 1990).
- (f) Guidance on Expediting Remedial Design and Remedial Actions, OSWER 9355.5-02, EPA/540/G-90/006 (Aug. 1990).
- (g) Guide to Management of Investigation-Derived Wastes, OSWER 9345.3-03FS (Jan. 1992).
- (h) Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, OSWER 9355.7-03 (Feb. 1992).
- (i) Guidance for Conducting Treatability Studies under CERCLA, OSWER 9380.3-10, EPA/540/R-92/071A (Nov. 1992).
- (j) National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, 40 C.F.R. Part 300 (Oct. 1994).
- (k) Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (Mar. 1995).
- (l) Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA/540/R-95/059 (June 1995).
- (m) EPA Guidance for Data Quality Assessment, Practical Methods for Data Analysis, QA/G-9, EPA/600/R-96/084 (July 2000).
- (n) Comprehensive Five-year Review Guidance, OSWER 9355.7-03B-P, 540-R-01-007 (June 2001).

- (o) Guidance for Quality Assurance Project Plans, QA/G-5, EPA/240/R-02/009 (Dec. 2002).
- (p) Institutional Controls: Third Party Beneficiary Rights in Proprietary Controls (Apr. 2004).
- (q) Quality management systems for environmental information and technology programs -- Requirements with guidance for use, ASQ/ANSI E4:2014 (American Society for Quality, February 2014).
- (r) Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3, EPA/505/B-04/900A through 900C (Mar. 2005).
- (s) Superfund Community Involvement Handbook, SEMS 100000070 (January 2016), <https://www.epa.gov/superfund/community-involvement-tools-and-resources>.
- (t) EPA Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, EPA/240/B-06/001 (Feb. 2006).
- (u) EPA Requirements for Quality Assurance Project Plans, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006).
- (v) EPA Requirements for Quality Management Plans, QA/R-2, EPA/240/B-01/002 (Mar. 2001, reissued May 2006).
- (w) USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4 (Dec. 2006).
- (x) USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2 (amended Apr. 2007).
- (y) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2008), <https://www.epa.gov/geospatial/geospatial-policies-and-standards> and <https://www.epa.gov/geospatial/epa-national-geospatial-data-policy>.
- (z) Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration, OSWER 9283.1-33 (June 2009).
- (aa) Principles for Greener Cleanups (Aug. 2009), <https://www.epa.gov/greenercleanups/epa-principles-greener-cleanups>.
- (bb) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).
- (cc) Close Out Procedures for National Priorities List Sites, OSWER 9320.2-22 (May 2011).

- (dd) Groundwater Road Map: Recommended Process for Restoring Contaminated Groundwater at Superfund Sites, OSWER 9283.1-34 (July 2011).
- (ee) Recommended Evaluation of Institutional Controls: Supplement to the “Comprehensive Five-Year Review Guidance,” OSWER 9355.7-18 (Sep. 2011).
- (ff) Construction Specifications Institute’s MasterFormat 2018, available from <https://www.csiresources.org/standards/masterformat>.
- (gg) Updated Superfund Response and Settlement Approach for Sites Using the Superfund Alternative Approach, OSWER 9200.2-125 (Sep. 2012)
- (hh) Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012).
- (ii) Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012).
- (jj) EPA’s Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), <https://www.epaossc.org/HealthSafetyManual/manual-index.htm>.
- (kk) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).
- (ll) Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions, OSWER 9355.0-129 (Nov. 2013).
- (mm) Groundwater Remedy Completion Strategy: Moving Forward with the End in Mind, OSWER 9200.2-144 (May 2014).
- (nn) Guidance for Management of Superfund Remedies in Post Construction, OLEM 9200.3-105 (Feb. 2017), <https://www.epa.gov/superfund/superfund-post-construction-completion>.

**8.2** A more complete list may be found on the following EPA Web pages:

Laws, Policy, and Guidance: <https://www.epa.gov/superfund/superfund-policy-guidance-and-laws>

Test Methods Collections: <https://www.epa.gov/measurements/collection-methods>

**8.3** For any regulation or guidance referenced in the CD or SOW, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after

Performing SDs receive notification from EPA of the modification, amendment, or replacement.