Request for Bid

Fixed-Price Defined Scope of Work

Site Characterization and Remedial Pilot Testing

Solicitor

Andrew Park

Park Station

29558 Great Cove Road, Fort Littleton, PA 17223-9636

PADEP Facility ID #: 29-60120 **PAUSTIF Claim #: 2019-0039(F)**

Date of Issuance

February 5, 2021

Table of Contents

The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF), on behalf of the claimant who hereafter is referred to as the Client or Solicitor, is providing this Request for Bid (RFB) to prepare and submit a bid to complete the Scope of Work (SOW) for the referenced Site. The Solicitor is the current owner/operator of the Site. PAUSTIF has determined that the claim reported by the Solicitor is eligible for coverage from the PAUSTIF subject to the applicable statutes and regulations. Reimbursement of Solicitor approved reasonable and necessary costs, not to exceed the claim aggregate limit, for the corrective action work described in this RFB will be provided by PAUSTIF. Solicitor is responsible to pay any applicable deductible and/or proration.

Each bid response will be considered individually and consistent with the evaluation process described in the PAUSTIF Competitive Bidding Fact Sheet which can be downloaded from the PAUSTIF website https://ustif.pa.gov.

Calendar of Events

Activity	**Date and Time**
Notification of Intent to Attend Site Visit (due to COVID-19 pandemic this is a required activity)	February 17, 2021 by 5 p.m.
Mandatory Pre-Bid Site Visit (The Technical Contact will provide a scheduled time to each person who submits a Notification of Intent to Attend Site Visit)	February 24, 2021
Deadline to Submit Questions	March 10, 2021 by 5 p.m.
Bid Due Date and Time	March 24, 2021 by 3 p.m.

Contact Information

Technical Contact
Christopher D. O'Neil, P.G. **Groundwater Sciences Corporation** **2601 Market Place Street, Suite 310** **Harrisburg, PA 17110** **coneil@groundwatersciences.com**

All questions regarding this RFB and the subject Site conditions must be directed via email to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be "**Park Station – 2019-0039 – RFB QUESTION".** Bidders must neither contact nor discuss this RFB with the Solicitor, PAUSTIF, the Pennsylvania Department of Environmental Protection (PADEP), or ICF unless approved by the Technical Contact. Bidders may discuss this RFB with subcontractors and vendors to the extent required for preparing the bid response. Questions and their respective answers will become part of the RFB, which in turn, will become part of the final contract. Bidders are responsible to monitor questions and answers and address any changes, modifications or clarifications made to the RFB as a result of the questions and answers.

Requirements

Mandatory Pre-Bid Site Meeting

On behalf of the Solicitor, the Technical Contact, or their designee will hold a mandatory Site visit on the date listed in the Calendar of Events to conduct a Site tour for one (1) participant per bidding company. The Technical Contact may answer questions at the Site meeting or may collect questions and respond via email. All questions and answers will be provided via email to all attendees. This meeting is mandatory for all bidders, no exceptions. This meeting will allow each bidding company to inspect the Site and evaluate Site conditions. Due to the circumstances surrounding the COVID-19 pandemic, the number of attendees on-site at the same time will be limited; and, all attendees should follow CDC safety guidelines. **A notice of the bidder's intent to attend this meeting is <u>required</u> to be provided to the Technical Contact via email by the date listed in the Calendar of Events with the subject "Park Station – 2019-0039 – SITE MEETING ATTENDANCE NOTIFICATION".** The name and contact information of the company participant should be included in the body of the email. A detailed schedule for the mandatory pre-bid site meeting, including arrival and departure times for participants and meeting point, will be distributed via email to the attendees within two (2) business days after the due date for the Required Notification of Intent to Attend Site Visit in the Calendar of Events. **Attendance at the Pre-Bid Site Meeting is mandatory and each attendee must check in with the Technical Contact on site to record attendance**. Changes to the Site meeting date and/or time due to inclement weather conditions or other unexpected circumstances will be posted at https://ustif.pa.gov/bids; and, the Technical Contact may notify via email all companies that provided Site Meeting Attendance Notification.

Submission of Bids

To be considered for selection, an electronic .pdf version of the signed bid package must be submitted to RA-Bid-Submission@icf.com by the bid due date and time in the Calendar of Events. Bid cost spreadsheets may be submitted in Microsoft Excel format. File sizes in excess of 5 MB are to be submitted using a file share service of your choosing. If you do not have access to a file share service, an email must be send to RA-Bid-Submission@icf.com, at least 24 hours prior to the bid due date and time, to request access to PAUSTIF's third party administrator, ICF, file share service. Reply messages will be sent to acknowledge receipt of emails. Bid responses will only be accepted from those companies that attended the Mandatory Pre-Bid Site Meeting. Bids attempted to be submitted through ground services such as USPS, UPS, Fed-Ex, etc. or hand delivery will not be considered for selection. PAUSTIF, in its discretion, reserves the right to reject or allow correction to bid submissions that are substantively deficient in some manner, but any late submission will be rejected.

The bid must be received by 3 p.m., on the due date shown in the Calendar of Events. Bids will be opened immediately after the 3 p.m. deadline on the due date. Any bids received after this due date and time will be returned. If, due to inclement weather, natural disaster, or any other cause, the deadline for submission may be extended. The PAUSTIF's third party administrator, ICF, may notify all companies that attended the Mandatory Pre-Bid Site Meeting of an extended due date. The hour for submission of bids shall remain the same. Submitted bid responses might be subject to disclosure pursuant to the Pennsylvania Right-to-Know Law.

Bid Requirements

The Bid Submission Coversheet included as Attachment 1 to this RFB must be completed, signed by an authorized representative of the company, and included as the first page of the Bid Submission. Bids that are not signed may be rejected. The name and contact information of the person who is to be contacted in the event the bid is selected by the Solicitor and/or a Right to Know request is received by PAUSTIF must be listed on the Bid Submission Coversheet.

The Solicitor wishes to execute a mutually agreeable contract with the selected consultant ("Remediation Agreement"). The Remediation Agreement is included as Attachment 2 to this RFB. The bidder must indicate if the Remediation Agreement is accepted with no changes. If changes are proposed, bidder must identify and document proposed modifications to the Remediation Agreement language other than obvious modifications to fit this RFB (e.g., names, dates, and descriptions of milestones). The number and scope of any modifications to the standard agreement language must be listed on the Required Responses Submission Form (Attachment 3), including, but not limited to, terms and conditions, Exhibits A and B, Site-Specific Assumptions and Provisions; and, will be one of the criteria used to evaluate the bid and will need to be agreed upon by both the Solicitor and PAUSTIF (for funding).

The selected consultant will be provided an electronic copy of the draft Remediation Agreement in Microsoft Word format to allow agreement-specific information to be added. The selected consultant shall complete the agreement-specific portions of the draft Remediation Agreement and return the document to the Technical Contact within 10 business days from date of receipt.

The Remediation Agreement fixed costs shall be based on unit prices for labor, equipment, materials, subcontractors/vendors, and other direct costs. The total cost quoted in the bid by the selected consultant will be the maximum amount to be paid by the Solicitor unless a change in scope is authorized and determined to be reasonable and necessary. There may be deviations from and modifications to this SOW during the project. The Remediation Agreement states that any significant changes to the SOW will require approval by the Solicitor, PAUSTIF, and PADEP. NOTE: Any request for PAUSTIF reimbursement of the reasonable costs to repair or replace a well will be considered on a case-by-case basis.

The bidder must complete and include in their bid response the Required Responses Submission Form, included as Attachment 3 to this RFB.

The bidder shall provide its bid cost only in the Bid Cost Submission Form (included as Attachment 4) with descriptions for each task provided in the body of the bid document. No cost information should be provided in the technical submittal. Bidders are responsible to ensure all costs are provided in the Bid Cost Submission Form, and calculations (including, but not limited to the total bid cost) are accurate; the Bid Cost Submission Form must be signed by an authorized representative of the company. In addition, bidders are required to include, as backup for the Bid Cost Submission Form, a list of bid labor rates and a detailed breakdown of each milestone fixed-cost including, but not limited to, labor, subcontractor costs and mark-up, direct costs, and equipment. Copies of subcontractor quotes and/or estimates should be included as part of the cost submittal backup. The technical score for bids will be based solely on those tasks represented as milestones included in the Bid Cost Submission Form and the total bid cost. Any optional bidder-defined tasks, milestones, or cost adders that are not requested as part of this RFB will not be considered by the Bid Evaluation Committee in the technical review and technical score for the bid.

Each bid will be assumed to be valid for a period of up to 180 days after receipt unless otherwise noted. The costs quoted in the Bid Cost Submission Form will be assumed to be valid for the duration of the Remediation Agreement.

Please note that the total fixed-price bid must include all costs, including those cost items that the bidder may regard as “variable”. These variable cost items will not be handled outside of the total fixed-price quoted for the SOW unless the RFB requests costing alternatives for specific items or services.

The RFB is requesting a total fixed-price bid unless the RFB requests costing alternatives for specific items or services. PAUSTIF will not agree to assumptions (in bids or the selected bidders executed Remediation Agreement) referencing a level of effort and/or hours. Costs provided in your bid should be developed using your professional opinion, experience, and the data provided. PAUSTIF will not reimburse costs for additional hours to complete activities included as part of the base bid/contract price.

Each bid response document must include at least the following:

1. Completed Bid Submission Coversheet (Attachment 1), Required Responses Submission Form (Attachment 3) and Bid Cost Submission Form (Attachment 4 and must include supporting documentation).

2. Demonstration of the bidder's understanding of the Site information provided in this RFB, standard industry practices, and objectives of the project.

3. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the Site specific work scope/SCR/RAP implementation). Bidders must bid the Scope of Work as requested in this RFB. Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to also bid the SOW "as is" may result in a low technical score. Bids should include enough original language conveying bidder's thought such that the understanding of site conditions, closure approach (if applicable), and approach to addressing the scope of work can be evaluated. Since bidders are not prequalified, the bid response must provide the Bid Evaluation Committee and Solicitor enough information to complete a thorough review of the bid and bidder.

4. A copy of an insurance certificate that shows the bidder's level of insurance consistent with the requirements of the Remediation Agreement. Note: The selected consultant shall submit evidence to the Solicitor before beginning work that they have procured and will maintain Workers Compensation, commercial general and contractual liability, commercial automobile liability, and professional liability insurance commensurate with the level stated in the Remediation Agreement and for the work to be performed.

5. The names and brief resumes and statement of qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)). Resumes should directly follow the Required Responses Submission Form.

6. A description of subcontractor involvement by task. Identify and describe the involvement and provide actual cost quotations/bids/proposals from all significant specialized subcontracted service (e.g., drilling/well installations, laboratory, etc.) as part of the bid cost submission back up. If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk. Added costs resulting from bid errors, omissions, or faulty assumptions will not be considered for PAUSTIF reimbursement.

7. A detailed schedule of activities for completing the proposed SOW including reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the SOW. Each bid must provide a schedule that begins with execution of the

Remediation Agreement with the Solicitor and ends with completion of the final milestone proposed in this RFB. Schedules must also indicate the approximate start and end date of each of the tasks/milestones specified in the Scope of Work, and indicate the timing of all proposed key milestone activities (e.g., within 30 days of the contract being executed).

8. A description of how the Solicitor, ICF, and the PAUSTIF will be kept informed as to project progress and developments and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project.

9. A description of your approach to working with the PADEP. Describe how the PADEP would be involved proactively in the resolution of technical issues and how the PADEP case team will be kept informed of activities at the Site.

10. Key exceptions, assumptions, or special conditions applicable to the proposed SOW and/or used in formulating the proposed cost estimate. Key exceptions, assumptions, or special conditions that bidder proposes as modification to the Remediation Agreement must be identified and listed on the Required Responses Submission Form (Attachment 3). Please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exceptions will be considered during bid evaluation and may negatively impact technical score.

Bid Review and Evaluation

1. Bid Review and Scoring

   Bid submissions where the bidder was represented at the mandatory pre-bid site meeting and that were properly submitted by the designated due date and time will be accepted for review.

   Clarification & Additional Information

   After receipt of the bids, the USTIF shall have the right to contact Bidders for the purpose of:

   - Seeking clarification of the Bid which informs the USTIF's understanding of statements or information in the Bid
   - As a result of clarification, determining whether the bidder seeks to withdraw their bid

   Administrative Evaluation

   USTIF will determine if a bid is administratively qualified based on certain criteria including, but not limited to acceptance of the Remediation Agreement, proposed modifications to the Remediation Agreement, history of terminated Remediation Agreements and demonstration of insurance requirements.

   Technical Scoring

   Bids that are considered administratively qualified are evaluated for technical viability before cost is considered. Bids that have technical scores that are equal to or greater than 70% of the highest technical score will advance to cost scoring. Bids with technical scores below 70% of the highest technical score are eliminated from further consideration.

   Numerical values will be assigned for defined SOW bids for two categories:

   - Understanding the problem and demonstrating knowledge of how to perform the work
   - Qualifications and Experience

   Numerical values will be assigned to three categories in those cases where there is a bid-to-result request:

   - Understanding of the problem
   - Technical and Regulatory Approach to Remediation
   - Qualifications and Experience

Cost Scoring

Cost scores are determined by a cost formula. The bid(s) with the lowest total cost receives the maximum cost points available. The remaining bids are scored by applying the following cost formula: (1-((B-A)/A)) x C = D

A = the lowest bid cost
B = the bidder's cost being scored
C = the maximum number of cost points available
D = bidder's cost score (points)

If a bid cost is double or greater than double the amount of the lowest bid cost the bid will be assigned zero cost points.

2. Evaluation of Bids

A committee comprised of at least two members of the USTIF staff, two members of TPA staff, and the TPR who assisted in developing the RFB will score all bids that are administratively qualified based on the above criteria. USTIF reserves the right to assign additional non-scoring members to the evaluation committee as needed. USTIF recognizes that several bids may be acceptable and receive similar numerical scores. At the conclusion of the scoring process, the claimant will receive those bids whose numerical scores place them in the category of meeting Reasonable and Necessary criteria and acceptable for USTIF funding. The claimant may select any of the consulting firms that had a technical score that allowed the bid to advance to cost scoring, to implement the tasks described in the bid; however, USTIF will only provide funding up to the highest fixed price of those bids determined to be Reasonable and Necessary for USTIF funding.

General Site Background and Description

Each bidder should carefully review the existing information and documentation provided in Attachment 5. The information and documentation have not been independently verified. Bidders may wish to seek out other appropriate sources of information and documentation specific to this Site. If there is any conflict between the general Site background and description provided herein and the source documents within Attachment 5, the bidder should defer to the source documents.

Site Name and Address

Park Station
29558 Great Cove Road,
Fort Littleton, Pennsylvania 17223-9636

Facility Description

The Park Station facility (the "Site") is located along the east side of Great Cove Road (State Route 522) in Dublin Township, Fulton County, Pennsylvania. The Site location is shown on Figure 1 in Attachment 5a.

The facility is operated as a retail petroleum station, convenience store, and vehicle service garage. As shown on Figure 2 in Attachment 5a, the 1.19-acre property is rectangular in shape. The western portion of the property is occupied by a single-story slab-on-grade building, canopy, dispenser islands, underground storage tanks (USTs), aboveground storage tanks (ASTs), and outdoor storage areas. The eastern portion of the property is undeveloped woodland.

The facility is connected to municipal sewer and water is provided by an on-site supply well (Public Water System ID No. 4290827). On August 8, 2020, a geophysical survey was performed on the supply well. On August 19, 2020, a liquid-phase granular activated carbon (LGAC) system was installed an interim remedial action (IRA) to treat water from the supply well. On August 25, 2020, a Remedial Action Summary Report (RASR) was submitted to PADEP that provides information on the supply well geophysical survey and treatment system. A copy of the RASR is included in Attachment 5i.

The former UST system at the facility consisted of three 6,000-gallon gasoline tanks (Tanks 001, 002, and 003) that were installed in 1972 and were removed in 1999. The existing UST system consists of two compartmentalized USTs that were installed in 1999 at the same general location as the former USTs. The existing tanks consist of the following:

- Tank 004 (8,000-gallon unleaded gasoline) and Tank 005 (4,000-gallon unleaded gasoline) in a dual compartment UST and
- Tank 006 (4,000-gallon diesel fuel), and Tank 007 (2,000-gallon diesel fuel) in a dual compartment UST.

Release Description and Characterization Activities

In February 2019, petroleum hydrocarbon odors were noticed emanating from water that was pumped from the supply well. In March 2019, a water sample was collected from the supply well for laboratory analysis. The sample contained concentrations of benzene, ethylbenzene, xylenes, isopropylbenzene (cumene), methyl tertiary butyl ether (MTBE), naphthalene, 1,2,4-trimethylbenzene (124TMB), and 1,3,5-trimethylbenzene (135TMB) above the laboratory reporting limits. Benzene was detected in the sample at a concentration greater than the PADEP nonresidential used aquifer Statewide health standard (SHS) medium specific concentration (MSC).

The source of the release is believed to be leakage of unleaded gasoline and/or diesel fuel from former spill containment buckets for Tanks 004, 005, and 007 and surface spillage. PADEP Incident No. 54014 and PAUSTIF Claim 2019-0038(F) were assigned to the reported release.

In October 2019, a Site Characterization Report (SCR) was submitted to PADEP. Characterization activities included the installation and sampling of eight soil borings (SB-1 through SB-8), seven overburden monitoring wells (MW-1 through MW-7), and two sub-slab soil gas sample points (VW-1 and VW-2). The SCR identified the selected remediation standard as the site-specific standard (SSS) for soil and the used aquifer residential SHS for groundwater. PADEP approved the SCR with modifications in a letter to the claimant dated November 4, 2019.

In April 2020, an Amended Site Characterization Report (ASCR) was submitted to PADEP. Characterization activities included the installation and sampling of five soil borings (SB-8 through SB-12), six overburden monitoring wells (MW-8 through MW-13), and two test pits (TP-1 and TP-2). The ASCR indicated the extent of hydrocarbon impact in soil and groundwater at the facility was delineated. PADEP approved the ASCR in a letter to the claimant dated May 8, 2020.

In May 2020, a Remedial Action Plan (RAP) was submitted to PADEP. Consistent with the SCR, the RAP identified the remediation goals as the SSS for soil and the used aquifer residential SHS for groundwater. The RAP proposed dual-phase extraction (DPE) as the remedial approach. PADEP approved the RAP with modifications in a letter to the claimant dated June 17, 2020.

In August 2020, a Remedial Action Progress Report (RAPR) was submitted to PADEP. The RAPR included the results of groundwater quality sampling and separate phase liquid (SPL) gauging. In addition, the RAPR documented the installation of eight test wells (TW-1 through TW-8).

In October 2020, a RAPR was submitted to PADEP. The RAPR included the results of groundwater quality sampling and SPL gauging.

In January 2021, a RAPR was submitted to PADEP. The RAPR included the results of groundwater quality sampling and SPL gauging.

The locations of the soil borings, monitoring wells, test wells, and test pits are shown on Figure 3 in Attachment 5a. Copies of the SCR, ASCR, RAP, RAPRs, and approval letters from PADEP are included in Attachments 5b through 5k.

Surface Topography

As shown on Figures 2 and 3 in Attachment 5a, the surface topography at the Site slopes from west to east towards an intermittent stream that is an unnamed tributary to Little Aughwick Creek. The stream is located approximately 30 to 135 feet to the east of the facility property and flows towards the north.

The ground surface is relatively flat along the western (developed) portion of the property and has an elevation of approximately 866 feet above mean sea level (AMSL). The eastern (undeveloped) portion of the property has a steep bank that slopes downward to the east towards the stream that has an elevation of approximately 830 feet AMSL. Based on information provided by the claimant and surface topography, a large amount of fill material was used to fill (level) the western portion of the property.

Geology and Hydrogeology

Cross sections A-A' and B-B' (Figure 4 in Attachment 5a) were constructed based on information gathered during characterization activities that was reported in the SCR and ASCR. The cross sections show the Site is underlain by unconsolidated material described on logs as fill and silty clay that ranges in thickness between five and 35 feet. The monitoring well logs describe shale bedrock beneath the unconsolidated material to the west of the property at MW-13 (11.5 feet below ground surface (bgs)) and to the east of the property between the steep slope and the stream at MW-8 through MW-11 (5 to 9 feet bgs). Bedrock at the Site is mapped as the Devonian-aged undifferentiated Hamilton Group that consists of siltstone, shale, sandstone, and conglomerate.

In 2019 and 2020, the depth to groundwater in the monitoring wells ranged between four and 25 feet below top of well casing (BTOC) at MW-10 and MW-7, respectively. As shown on Figure 5 in Attachment 5a, the inferred direction of groundwater flow beneath the Site is west to east from MW-13 to MW-11 (towards the stream). The surface water level in the stream appears to be similar to the water table surface in adjacent monitoring well MW-11.

Soil Quality

Figure 6 in Attachment 5a shows the locations for samples of saturated and/or unsaturated soils (as those terms are defined by the PADEP) with concentrations that exceed the PADEP non-residential SHS MSCs. Ten samples from seven sample locations had concentrations that exceeded the MSCs. The soil samples with MSC exceedances are in the vicinity of the product dispenser islands and USTs between the store/garage building and Great Cove Road (US Route 522). The samples, depths, and parameters with MSC exceedances are as follows:

1. SB-4 (10 feet bgs) - 124TMB,
2. SB-4 (15 feet bgs) - 124TMB,
3. SB-5 (15 feet bgs) – 124TMB,
4. SB-7 (10 feet bgs) - benzene and 124TMB,
5. SB-7 (15 feet bgs) – naphthalene and 124TMB,
6. SB-8 (15 feet bgs) – benzene and 124TMB,
7. SB-11 (10 feet bgs) - benzene and 124TMB,
8. SB-11 (15 feet bgs) - benzene and 124TMB,
9. TP-1 (10 feet bgs) – benzene and 124TMB, and
10. TP-2 (12.5 feet bgs) - benzene.

Groundwater Quality

Laboratory analysis of groundwater samples collected from the overburden monitoring wells in 2019 and 2020 showed concentrations of benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and 124TMB that exceeded the PADEP nonresidential used aquifer MSCs. Figure 5 in Attachment 5a shows the sum of the benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations (total BTEX) in samples collected from the wells on September 14, 2020. The highest total BTEX concentrations were detected in samples from wells in the vicinity of the UST system and hydraulically downgradient (to the east) of the UST system (MW-1 and MW-4, respectively).

Separate Phase Liquid

SPL has been measured and recovered from MW-3 and MW-4. SPL thicknesses in MW-3 and MW-4 ranged between 0.01 and 4.32 feet.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the SOW specified herein. The PADEP case manager for the Site (Cynthia Stine) completed a cursory read through of the RFB and SOW and no comments were provided.

Objective

This SOW includes site characterization and remedial pilot testing activities as part of a Defined Scope of Work RFB. Following completion of the SOW in this RFB, remaining corrective action activities necessary for the Solicitor to obtain relief from liability will either be competitively bid or the consultant selected for this RFB may be invited to continue work under a fixed-price remediation agreement.

Constituents of Concern (COCs)

The COCs for this Site are the PADEP unleaded gasoline and diesel fuel short-list parameters that include benzene, toluene, ethylbenzene, xylenes (total), isopropylbenzene (cumene), methyl tertiary butyl ether (MTBE), naphthalene, 1,2,4-trimethylbenzene (124TMB), and 1,3,5-trimethylbenzene (135TMB).

General SOW Requirements

The bidder's approach to completing the SOW shall be in accordance with generally accepted industry standards/practices and all applicable federal, state, and local rules, regulations, guidance, and directives. The latter include, but are not limited to, meeting the applicable requirements of the following:

- The Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended);
- Pennsylvania Code, Title 25, Chapter 245 - Administration of the Storage Tank Spill and Prevention Program;
- The Land Recycling and Environmental Remediation Standards Act of 1995 (Act 2), as amended);
- Pennsylvania Code, Title 25, Chapter 250 - Administration of Land Recycling Program; and
- The PADEP Land Recycling Program Technical Guidance Manual dated January 19, 2019 (Technical Guidance Document 261-0300-101); and
- Pennsylvania's Underground Utility Line Protection Law, Act 287 of 1974, as amended by Act 121 of 2008.

During completion of the milestone objectives specified, the selected consultant shall:[1]

- Conduct necessary, reasonable, and appropriate project planning and management activities. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control, scheduling, and other activities (e.g., utility location). Planning and management activities will also include preparing and implementing plans for health and safety, waste management, field sampling/analysis, and/or other plans that are necessary and appropriate to complete the SOW. Planning and management shall include identifying and taking appropriate safety precautions to not disturb Site utilities including, but not limited to, contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.
- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water, shall be disposed in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request. All investigation derived wastes shall be handled and disposed per PADEP's Regional Office guidance. It is the selected consultant's responsibility to conform with current PADEP Regional Office guidance requirements in the region where the Site is located.
- Be responsible for providing the Solicitor and facility operator with adequate advance notice prior to each visit to the property. The purpose of this notification is to coordinate with the Solicitor and facility operator to ensure that appropriate areas of the property are accessible. Return visits to the Site will not constitute a change in the selected consultant's SOW or result in additional compensation under the Remediation Agreement.

[1] As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

Site-Specific Guidelines

- **Responsibility**: Upon execution of the Remediation Agreement, the selected consultant shall become the consultant of record for the Site and the Solicitor. It is expected that the consultant will represent the interest of the Solicitor and PAUSTIF during the execution of all aspects of the project associated with this RFB.
- **Field Work**. Provide 72-hour advance notification to the Solicitor prior to field work activities. Field activities should be conducted Monday through Friday between 8:00 AM to 5:00 PM, unless authorized by the Solicitor.
- **Safety Measures**: Each bidder should determine the level of safety measures needed to appropriately complete the work. If a bidder believes it is appropriate and necessary to implement safety measures other than or beyond what is required in the SOW, it should be included in their bid response and fixed-price cost. If a bidder includes costs to conduct specific safety measures or activities, the bidder should specify it in the bid response and discuss why it is appropriate and necessary and indicate which methods will be utilized and to what extent. Cost is not the only factor when evaluating proposals and other factors are taken into consideration during the review process, including appropriate safety measures.
- **Investigation Derived Waste Disposal**: Investigation derived waste (IDW), including soil/rock cuttings, development and purge water, SPL, and liquids, should be disposed of per the instructions included in the "General SOW Requirements" section of the RFB. The selected consultant will be responsible for arranging any off-site waste disposal (as required) and including costs in their bid response to cover the disposal of all potential waste related to the milestones included in the SOW. Containerized soil, water, and SPL may be temporarily stored on Site at a location agreeable to the Solicitor and should be removed from the Site in a timely manner. Except for IDW volumes specified in Milestone E for multi-phase extraction (MPE) pilot testing, PAUSTIF will not entertain any assumptions on the contract for costs regarding a volume of waste. Bidders are responsible for including costs to manage and dispose of all anticipated volumes of waste in your bid response based on professional opinion, experience, and data provided. If your bid proposes to dispose of waste under a permit, then your bid needs to include the costs to dispose of waste if the permit is not approved. Invoices submitted to cover additional costs for waste generated as part of activities included under the fixed price contract for this Site will not be paid.
- **Milestones Requiring Approval Prior to Initiation:** This RFB includes Optional Milestones J through R that may not be reasonable and necessary to perform based on the information gathered by the selected consultant upon completion of the SOW for Site-Specific Milestones A through I. Therefore, the selected consultant shall obtain approval from the Solicitor and PAUSTIF (for funding consideration) prior to initiating optional milestones.

Site-Specific Milestones

Bidders shall provide costs for each Milestone in Attachment 4. The cost for each Milestone shall include, but not be limited to, all mobilizations, subcontractors, labor, equipment, expenses, and waste handling.

Milestone A – Private Utility Mark Out. Conduct a private utility mark out to confirm locations of underground utilities on and within 50 feet from the facility property boundary and in the vicinity of off-property wells. The mark out is to include notification to the Pennsylvania One Call System, discussions with the Solicitor regarding utilities, and a geophysical survey using ground-penetrating radar (GPR), metal detectors, and utility/line locators. The mark out should include determining the location, construction, use, and depth of underground utilities (e.g., storm sewers, sanitary sewers, drainage pipelines, conduits, and UST system product/vent pipelines).

Underground utilities shall be marked on the ground surface with paint and/or stakes during the mark out and photographed. A report shall be prepared with the results of the private utility mark out and a discussion of utilities.

Milestone B – Reconstruct Well Surface Completions. Reconstruct test and monitoring well stickups as flush-mount surface completions (TW-1 through TW-8 and MW-13). Each well shall be completed at the surface with a securable manhole, set in concrete flush with the ground surface. A locking, pressure fit, watertight cap with a lock shall be placed on each well to prevent surface water infiltration and restrict unauthorized access.

Milestone C – Site Survey. Complete a site survey by a Pennsylvania-licensed land surveyor. The survey should include the facility property, the area to the west of the property including off-site monitoring well MW-13, and the area to the east of the property up to and including the stream (unnamed tributary to Little Aughwick Creek).

The survey shall include, but not be limited to, buildings, structures (e.g., canopy and storage sheds), ground surface cover (asphalt, concrete, grass, and woodland), topography on two-foot contour intervals, UST and AST system components, manholes, underground utilities identified during the private utility mark out, monitoring/test wells, vapor points, water supply well, utility poles, property boundary lines/rights of way, and the portion of the stream east of the facility property. The site survey should include the following:

- Determining whether a Pennsylvania Department of Transportation (PennDOT) Right of Entry Agreement is required for proposed overburden well MW-14, which is located adjacent to the east side of Great Cove Road (US Route 522), and

- Installation and surveying of a surface water gauging station (staff gauge) to enable measurements of the surface water level in the creek. The gauging station shall be located along the creek to the east of monitoring well MW-11 and shall consist of a reference point (rod or pipe) affixed to a permanent structure on the western side of the creek bank

The survey shall be referenced to the Pennsylvania State Plane coordinate system with reference to the North American Datum of 1983 (NAD83) and feature elevations shall be surveyed to a vertical accuracy of 0.01 feet using the North American Vertical Datum (NAVD 88).

The Site survey results shall be documented in a report that is signed and sealed by a Pennsylvania-licensed land surveyor that includes the following:

- Scaled map showing site features,
- Tabulated information for the monitoring wells and water supply well (top of well casing and ground surface elevations and geographic coordinates (northings and eastings)), and
- References to datums used for the survey.

Milestone D – Obtain Off-Property Access. Secure off-site access on adjacent properties to the east and west of the facility property to perform private utility mark out, site survey, well pre-clearance/installation, monitoring, sampling, and well abandonment services. Securing access should include obtaining contact information for the owners of the properties, contacting the property owners (verbally and/or in writing), answering questions from the property owners, preparing access agreements, and executing the agreements. Providing this cost does not commit the consultant to obtain the access agreements.

The milestone schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft access agreements. The final agreements shall address comments received from the Solicitor and PAUSTIF on the draft agreements before they are submitted to the property owners. The cost should also cover the required effort necessary to provide the PADEP with the information they would need to assist in facilitating access to the properties.

<u>Milestone D activities shall be conducted as soon as possible following execution of the Remediation Agreement</u>.

Milestone E - Well Installations. Drill, sample, construct, and develop four (4) overburden monitoring wells (MW-14 through MW-17), four (4) bedrock monitoring wells (MW-1D, MW-2D, MW-3D, and MW-4D), and three (3) extraction wells (EW-1, EW-2, and

EW-3). The well installations shall be completed under the supervision of a Pennsylvania-licensed Professional Geologist at the locations shown on Figure 5 in Attachment 5a.

The locations and construction of wells MW-15, MW-16, EW-1, EW-2, and EW-3 are specifically intended to facilitate MPE pilot testing in Milestone H (e.g., MW-15 and MW-16 are to be located at linear distances of 12 and 20 feet, respectively from EW-1). Therefore, if the well locations need to be adjusted more than five feet from the mapped locations or well construction varies by more than five feet from the descriptions in this Milestone (below), the selected consultant shall notify the Solicitor and PAUSTIF and provide the technical justification before proceeding.

Each well location shall be pre-cleared prior to drilling. Pre-clearing shall be completed to a diameter equal to or greater than the diameter of the down-hole drilling equipment to a minimum depth of five feet bgs.

Soil samples shall be collected during well drilling. Samples are to be inspected at two-foot depth intervals and screened with a photoionization detector (PID) or flame ionization detector (FID) using a consistent head-space type analysis within 20 minutes of sample collection as follows:

- Transfer soil sample into a dedicated resealable polyethylene bag and seal the bag,
- Manually break up soil clumps and shake the bag,
- Allow headspace development for at least 10 minutes at approximate room temperature,
- Introduce the instrument sampling probe through a small opening in the bag into the headspace, and
- Record the highest PID/FID response.

Two discrete samples per well location shall be submitted for laboratory analysis from unsaturated and/or saturated soils (per PADEP definition) based on PID/FID screening results. Soil sample collection from the permanently saturated zone (per PADEP definition) are not to be submitted for laboratory analysis. Samples shall be collected in laboratory-provided containers and analyzed by a PADEP-accredited laboratory using appropriate analytical methods and detection levels for the substances listed in the COC section of this RFB.

The wells shall be completed and developed in accordance with generally accepted practices as outlined in the PADEP Groundwater Monitoring Guidance Manual, included as Appendix A to the PADEP's January 19, 2019 Land Recycling Program Technical Guidance Manual (TGM) (Document #261-0300-101) as follows:

- Complete overburden monitoring wells MW-14 through MW-17 to a depth of 30 feet bgs. The wells shall be constructed using two-inch diameter schedule 40 polyvinyl chloride (PVC) materials with no more than 15 feet of screen installed to straddle the water table surface. All bidders shall assume in their cost for this Milestone that traffic control services are required during the completion of MW-14 because it is located in a high traffic area along the east side of Great Cove Road (US Route 522).
- Complete bedrock monitoring wells MW-1D, MW-2D, MW-3D, and MW-4D to depths of 25, 40, 40, and 20 feet bgs, respectively. The wells shall be constructed of two-inch diameter schedule 40 PVC materials using 5 to 10 feet of screen with the top of the screened interval installed at a minimum of depth of 5 feet below the top of competent bedrock. Double-cased well construction shall be utilized to isolate (seal off) the overburden aquifer from the bedrock aquifer.
- Complete extraction wells EW-1, EW-2, and EW-3 in the overburden to a depth of 25 feet bgs or to the top of bedrock, whichever is less. The wells shall be constructed using four-inch diameter schedule 40 PVC materials. The tops of the well screens shall be set at a depth of eight feet bgs to allow for both air and water to enter the well with a grout seal above the screen to limit potential short circuiting of atmospheric air during pilot testing (Milestone H).
- Each of the new overburden, bedrock, and extraction wells shall be developed no sooner than 24 hours following construction. Existing overburden wells MW-1 and MW-4 shall also be developed in preparation for the MPE pilot test in Milestone H. The objective of development is to remove fine-grained material from the well/filter pack and provide hydraulic communication between the well screen and surrounding formation. A surge block combined with air lift or pump water removal shall be used for development. The surge block shall be raised and lowered over the entire length of the well screen several times concurrent with water removal. Development should be performed for a minimum of 1 hour or until measured turbidity of discharge water samples are consistently maintained at less than 10 Nephelometric Turbidity Units (NTUs), whichever is sooner.
- Bidders shall include in their bid response procedures for well drilling and details for well construction (e.g., drilling method and construction of double-cased bedrock monitoring wells).

The wells shall be completed at the surface within a securable manhole, set in concrete flush with the ground surface. A locking, pressure-fit, watertight cap with a lock shall be placed on the well to prevent surface water infiltration and restrict unauthorized access.

Prepare a construction log for each well using a standard and consistent classification system procedure (e.g., Modified Burmister or Unified Soil Classification System (USCS)).

The headspace screening results must be recorded on all logs. The logs shall be prepared under the supervision of a Pennsylvania-licensed Professional Geologist.

Milestone F – Update Site Survey. Complete surveying of the new overburden, bedrock, and extraction wells. The survey shall be completed and documented by a Pennsylvania-licensed Professional Land Surveyor consistent with the work scope described in Milestone C (Site Survey).

Milestone G – Groundwater Monitoring and Sampling. Perform two (2) rounds of groundwater monitoring and sampling, an initial event and second confirmatory event. The initial event includes the new Milestone E overburden, bedrock, and extraction wells and shall be completed no sooner than two weeks following development. The second event is to include all Site wells (overburden, bedrock, and extraction) and the water supply well and shall be completed no sooner than four weeks following the initial event. The second event shall be completed so it occurs during the calendar quarter following the most recent comprehensive quarterly groundwater sampling event performed by the consultant retained by the claimant prior to the execution of the Remediation Agreement associated with this RFB.

During each event, the depth to groundwater and SPL thickness (if present) in all site wells shall be gauged prior to purging for sampling (overburden, bedrock, extraction, test, and water supply wells). If a measurable thickness of SPL is present in a well, it shall be removed, and the volume removed measured and documented for each well. Absorbent socks in wells shall be removed and replaced. For the purposes of this RFB, all bidders shall assume that SPL will be present in five wells prior to purging and sampling during each event.

The overburden, bedrock, extraction, and water supply wells shall be purged and sampled in general accordance with the Groundwater Monitoring Guidance document, included as Appendix A to the PADEP's January 19, 2019 TGM. Field parameters to be measured and recorded at each well during purging shall consist of pH, temperature, specific conductance, dissolved oxygen, and oxidation/reduction potential. Groundwater and quality assurance/quality control (QA/QC) samples shall be collected in laboratory-provided containers and analyzed by a PADEP-accredited laboratory using appropriate analytical methods and detection levels for the substances listed in the COC section of this RFB.

Bidders are required to provide in their bid response document the following:

- Well purging and sampling methods,
- SPL removal, containerization, and disposal procedures,
- QA/QC sample collection protocols, and
- Laboratory analysis methods.

Milestone H – Multi-phase Extraction (MPE) Remedial Pilot Testing. For purposes of this RFB, MPE is defined as using a single vacuum pump to extract water, vapor, and SPL through a small diameter drop (stinger) tube inserted into extraction wells. The work scope includes a 24-hour MPE test on EW-1 immediately followed an 8-hour MPE test on both EW-1 and EW-3. The testing should be conducted with a minimum 20 horsepower (HP) liquid ring pump (LRP) and the system should have an operating vacuum of at least 20-inches of mercury (Hg). Use of a vacuum truck to perform testing is not acceptable.

Objectives of pilot testing are to obtain data for use in the design of full-scale MPE given favorable pilot test results as follows:

- Determine diameter and depth of stinger tube such that groundwater is drawn down below the smear zone in extraction wells. The smear zone is considered the maximum fluctuation of water levels outside the SPL source area and determined by PID or FID measurements from characterization activities within and adjacent to the SPL source area,
- Determine maximum applied LRP vacuum and air flow rate to maximize the rate of vapor, SPL, and water removal,
- Obtain vapor influent hydrocarbon concentrations and mass removal rate,
- Determine water level drawdown in extraction wells EW-1 and EW-3 and surrounding wells during testing,
- Obtain groundwater hydrocarbon concentrations and mass removal rate in extracted groundwater,
- Obtain stinger tube and casing vacuum measurements at extraction wells (a minimum operating casing vacuum of 8-10 inches of mercury is desired),
- Quantify the vapor radius of influence (ROI) - defined in this RFB as an arbitrary 1-inches of water column vacuum at the end of the 24- and 8-hour tests given airflow and groundwater extraction that exposes the smear zone and maximizes mass removal rates,
- Determine dewatering ROI and steady-state groundwater extraction rate required to expose the smear zone to air in the extraction and surrounding wells,
- Obtain the physical chemistry of the groundwater,
- Estimate SPL extraction rates and determine whether SPL separation is necessary due to emulsification of SPL,
- Estimate carbon usage for vapor and liquid-phase treatment,
- Determine potential future extraction well spacing, and
- Determine if a thermal/catalytic oxidizer is required for vapor treatment.

Bidders shall include in their bid response for pilot testing the following:

- Process and instrumentation diagram (P&ID) of the pilot test equipment set-up. The P&ID should indicate locations and sizes/types of piping, moisture/vapor separation tank, LRP, vapor/liquid treatment, sampling locations (vapor and liquid), meters, gauges, and electrical and controls instrumentation. Individual piping runs from each extraction well (home run piping), shall be used so that air/water flow and mass recovery can be determined on an individual extraction well basis. In addition, the P&ID should identify instrumentation used to measure vacuum, pressure, flow, and temperature.
- Information on subcontracted pilot test services and/or equipment, if proposed.
- Power source for testing equipment.
- Specification for pilot test LRP (manufacture, type/model, motor size, and performance curves for vacuum operation).
- Description of pilot test equipment enclosure.
- Permit requirements and a scope/schedule for obtaining regulatory approval.
- Copies of field data sheets for documenting testing results.
- Health and safety procedures.
- Monitoring and sampling procedures that include the following:
    - Procedures for monitoring well vacuum and water level monitoring. Use of pressure transducers can lead to erroneous results under vacuum conditions and are not to be used. Therefore, monitoring wells should be sealed (capped) between gauging events for vacuum to be maintained. Vacuum measurements shall be obtained using a portable mechanical vacuum gauge from a fitting/control valve or a fixed (dedicated) vacuum gauge installed on the top of the well cap. Water levels shall be measured manually. Although some water level fluctuation may occur when the well cap is temporarily removed for measuring, the rate of water level change should be sufficiently slow to allow for adequate water level measurements.
    - Procedure for measuring air flow rates. Air flow rates must be measured after the knockout tank and on the discharge side of the LRP (any make-up air used must be accounted for in air flow and mass removal calculations) and corrected for vacuum, pressure, and temperature. Redundant air-flow measurement methods are required to ensure precision. A pitot tube, venturi, or orifice plate should be used as one air-flow measurement method.
    - Method and equipment for field measurements of hydrocarbon levels in extracted vapor samples collected at regular intervals throughout the testing of each extraction well to calculate mass removal rates. Measurements must be collected using an FID (note: pilot test mass removal rates from vapor are calculated from field measurement data, not laboratory data).

- Procedure and equipment for monitoring of water level and flow from the water supply well during testing.
- Method and equipment for measuring the volume of groundwater removed from each extraction well to calculate extraction rate in gallons per minute (gpm).
- Procedure for groundwater and vapor sample collection and analysis. Samples shall be collected from extraction well EW-1 at the start, middle, and end of the 24-hour test. During the subsequent 8-hour test, samples shall be collected from EW-1 at the end of the test and from EW-3 at the start and end of the test. Samples shall be collected in laboratory-provided containers and analyzed by a PADEP-accredited laboratory using appropriate analytical methods and detection levels for the substances listed in the COC section of this RFB. In addition, analyze groundwater samples collected from EW-1 and EW-3 at the end of the testing for pH, specific conductance, dissolved oxygen, turbidity, temperature, total/dissolved iron and manganese, and total suspended solids (TSS).
- Procedures for IDW management as follows:
    - SPL containment (e.g., oil water separator) and disposal. For the purposes of this RFB, bidders shall assume 20 gallons of SPL will be generated during testing.
    - Groundwater containment and disposal or treatment. For the purposes of this RFB, bidders shall assume 4,800 gallons of groundwater will be generated during testing.
    - Vapor treatment using a thermal/catalytic oxidizer for extracted vapors due to the potential for SPL and/or high mass removal rates.

Milestone I – Preparation of Remedial Action Progress Report. Prepare a quarterly RAPR presenting data and results generated during the completion of Milestones A through H. The RAPR shall include the following:

- Comprehensive water level, SPL thickness/recovery, and water level elevation data.
- Comprehensive soil and groundwater quality results,
- Groundwater elevation contour maps and discussion of groundwater flow and lateral/vertical gradients,
- Time versus concentration graphs for wells with COC concentrations in samples that exceed the PADEP nonresidential used aquifer MSCs using all available analytical data,
- Iso-concentration maps for the substances listed in the COC section of this RFB,
- Laboratory reports, chains of custody forms, and field sampling documentation,
- Geologic, construction, and development logs for the wells installed in Milestone E,

- Pilot test procedures, data evaluation, and results presented in text, tables, graphs, and figures,
- Recommendations regarding whether MPE is a feasible and cost-effective remedial technology for this Site, and
- Design criteria for full-scale MPE developed from pilot testing given favorable results.

The RAPR shall be prepared in draft form for review and comment by the Solicitor and the PAUSTIF. The draft RAPR shall be provided within 60 days following the completion of Milestones A through H. The timeframe for the completion of the RAPR shall provide two weeks for the Solicitor's and PAUSTIF's review and the selected consultant shall address all of the comments received from the Solicitor and the PAUSTIF before submission of the RAPR to PADEP. The RAPR shall be signed and sealed by a Pennsylvania-licensed Professional Geologist and a Professional Engineer (if applicable).

Optional Milestones

All bidders shall provide the cost for each Optional Milestone included in this SOW in Attachment 4. The cost for each Optional Milestone shall include, but not be limited to, all mobilizations, subcontractors, labor, equipment, expenses, and waste handling. The activation of Optional Milestones requires the prior approval from the Solicitor and PAUSTIF (for funding).

Optional Milestone J – Soil Sampling. Collection and laboratory analysis of one soil sample during well drilling in laboratory-provided containers and analyzed by a PADEP-accredited laboratory using appropriate analytical methods and detection levels for the substances listed in the COC section of this RFB. This cost will be used to modify the reimbursement for Milestone E and Optional Milestones K, L, and M in the event more or less soil samples are collected during drilling of a well.

Optional Milestone K - Installation of Additional Overburden Monitoring Well. Pre-clear, drill, sample soil, construct, and develop one additional overburden well following the SOW in Milestone E as follows:

- **Optional Milestone K1** – Install one additional overburden well during a separate mobilization event.
- **Optional Milestone K2** – Install one additional overburden well as an add-on to Milestone E or Optional Milestone K1 where mobilization cost has already been included.
- **Optional Milestone K3** – Provide a per-foot cost to modify the reimbursement for installation of an overburden well accounted for by Optional Milestones K1 and K2 and Milestone E in the event that a well is advanced shallower or deeper than then the prescribed depth.

Optional Milestone L - Installation of Additional Bedrock Monitoring Well. Pre-clear, drill, sample soil, construct, and develop one additional bedrock well to a depth of 40 feet bgs following the SOW in Milestone E as follows:

- **Optional Milestone L1** – Install one additional bedrock well during a separate mobilization event.
- **Optional Milestone L2** – Install one additional bedrock well as an add-on to Milestone E or Optional Milestone L1 where mobilization cost has already been included.
- **Optional Milestone L3** – Provide a per-foot cost to modify the reimbursement for installation of a bedrock well accounted for by Optional Milestones L1 and L2 and Milestone E in the event that a well is advanced shallower or deeper than then the prescribed depth.

Optional Milestone M - Installation of Additional Extraction well. Pre-clear, drill, sample soil, construct, and develop one additional extraction well following the SOW in Milestone E as follows:

- **Optional Milestone M1** – Install one additional extraction well during a separate mobilization event.
- **Optional Milestone M2** – Install one additional extraction well as an add-on to Milestone E or Optional Milestone M1 where mobilization cost has already been included.
- **Optional Milestone M3** – Provide a per-foot cost to modify the reimbursement for installation of an extraction well accounted for by Optional Milestones M1 and M2 and Milestone E in the event that a well is advanced shallower or deeper than then the prescribed depth.

Optional Milestone N - Update Site Survey. Update site survey to include optional milestone wells following the SOW in Milestones K, L, and M.

Optional Milestone O – Additional Groundwater Monitoring and Sampling. Perform additional groundwater monitoring and sampling in accordance with the SOW in Milestone G as follows:

- **Optional Milestone O1** – Complete one groundwater monitoring and sampling event from all Site wells (overburden, bedrock, and extraction) and the water supply well consistent with second event for Milestone G.
- **Optional Milestone O2** – Complete groundwater monitoring and sampling of one overburden monitoring well as an add-on to a Milestone or Optional Milestone where mobilization cost has already been included.

- **Optional Milestone O3** – Complete groundwater monitoring and sampling of one bedrock monitoring well as an add-on to a Milestone or Optional Milestone where mobilization cost has already been included.
- **Optional Milestone O4** – Complete groundwater monitoring and sampling of one extraction well as an add-on to a Milestone or Optional Milestone where mobilization cost has already been included.
- **Optional Milestone O5** – Complete groundwater monitoring and sampling of the water supply well as an add-on to a Milestone or Optional Milestone where mobilization cost has already been included.

Optional Milestone P - Monitoring Well Repairs. Complete overburden, bedrock, and/or extraction well surface completion repairs as follows:

- **Optional Milestone P1** – Minor repair of a well surface completion that includes the costs to replace manhole lid bolts, manhole lid O-ring, lockable monitoring well "J" plug, and lock. Assume the minor repair will be completed as an add-on to a Milestone or Optional Milestone where mobilization cost has already been included.
- **Optional Milestone P2** – Major repair of a well surface completion that includes the costs to remove, dispose of, and replace the concrete pad and manhole, and the replacement of the "J" plug and lock. Assume the major repair will be completed as an add-on to a Milestone or Optional Milestone where mobilization cost has already been included.
- **Optional Milestone P3** – Major repair of a well surface completion that includes the costs to remove, dispose of, and replace the concrete pad and manhole, and the replacement of the "J" plug and lock. Assume the major repair will be completed as a stand-alone optional milestone where mobilization cost is included.

Optional Milestone Q – SPL and Groundwater Disposal. Complete disposal of SPL and groundwater as an optional milestone to allow for a modification of the reimbursement for Milestone H as follows:

- **Optional Milestone Q1** – SPL disposal cost on a per gallon basis if more or less than 20 gallons of SPL are generated during MPE remedial pilot testing.
- **Optional Milestone Q2** – Impacted groundwater disposal cost on a per gallon basis if more or less than 4,800 gallons of impacted groundwater are generated during MPE remedial pilot testing.

Optional Milestone R – Preparation of Remedial Action Progress Report. Prepare a RAPR for submittal to PADEP in accordance with the SOW in Milestone I for monitoring and sampling in support of Optional Milestone O1.

Optional Milestone S – Preparation of PennDOT Right of Entry Agreement. Prepare and submit PennDOT right-of-entry agreement (if necessary) for proposed overburden monitoring well MW-14 based on the determination made in Milestone C. This cost should also include required effort necessary to facilitate issuance of the agreement (e.g., on-site meeting, answering questions, and executing the agreement).

Additional Information

In order to facilitate PAUSTIF's review and reimbursement of invoices submitted under this claim, the Solicitor requires that project costs be invoiced by the milestone identified in the executed Remediation Agreement. Actual milestone payments will occur only after successful and documented completion of the work defined for each milestone. The selected consultant will perform only those tasks/milestones that are necessary to reach the Objective identified in this RFB. Selected consultant will not perform, invoice, or be reimbursed for any unnecessary work completed under a milestone.

Any "new conditions", as defined in Attachment 2, arising during the execution of the SOW for any of the milestones may result in termination of or amendments to the Remediation Agreement. Modifications to the executed Remediation Agreement will require the written approval of the Solicitor and the PAUSTIF (for funding consideration). PADEP approval may also be required.

List of Attachments

1. Bid Submission Coversheet
2. Remediation Agreement
3. Required Responses Submission Form
4. Bid Cost Submission Form
5. Site Information/Historic Documents
    a. Figures 1 through 6
        Figure 1 - Site Location Map
        Figure 2 - Site Features Map
        Figure 3 - Sample Location Map
        Figure 4 - Cross Sections A-A' and B-B'
        Figure 5 - Groundwater Data and Proposed Well/Gauging Station Locations
        Figure 6 - Soil Quality Data
    b. Site Characterization Report (SCR), October 2019
    c. PADEP SCR Approval, November 4, 2019
    d. Amended Site Characterization Report (ASCR), April 2020
    e. PADEP ASCR Approval, May 8, 2020
    f. Remedial Action Plan (RAP), May 2020
    g. PADEP RAP Approval, June 17, 2020
    h. Remedial Action Progress Report (RAPR)– 2nd Quarter 2020, August 3, 2020
    i. Remedial Action Summary Report (RASR), August 25, 2020
    j. RAPR - 3rd Quarter 2020, October 27, 2020
    k. RAPR – 4th Quarter 2020, January 13, 2021