

Request for Bid

Defined Scope of Work

Complete Site Characterization, Reporting, Demonstrate Attainment of Risk-Based Site-Specific Standards & Case Closure

Solicitor

Worthington Sunoco

**15126 US Route 422
Worthington, Pennsylvania 16262**

PADEP Facility ID #: 03-80025 PAUSTIF Claim #: 2017-0043(F)

Date of Issuance

December 23, 2019

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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	January 23, 2020 by 5 p.m.
Mandatory Pre-Bid Site Visit	January 24, 2020 at 11 a.m.
Deadline to Submit Questions	February 14, 2020 by 5 p.m.
Bid Due Date and Time	February 21, 2020 by 3 p.m.

Contact Information

Technical Contact
<p>Mr. Joseph Ozog, Jr., P.G. Excalibur Group, LLC 91 Park Avenue Windber, PA 15963 Office: 814-467-6359 joeozog@excaliburgrpllc.com</p>

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 **“Worthington Sunoco #2017-0043(F) – 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.

Requirements

Mandatory Pre-Bid Site Meeting

The Solicitor, the Technical Contact, or their designee will hold a mandatory Site visit on the date and time listed in the Calendar of Events to conduct a Site tour for one (1) participant per bidding company. The Technical Contact will 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. **A notice of the bidder's intent to attend this meeting is requested to be provided to the Technical Contact via email by the date listed in the Calendar of Events with the subject "Worthington Sunoco, Claim #2017-0043(F) – SITE MEETING ATTENDANCE NOTIFICATION"**. The name and contact information of the company participant should be included in the body of the email. Notification of intent to attend is appreciated; however, it is not required. Attendance at the Pre-Bid Site Meeting is mandatory. 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, **one (1) hard copy of the signed bid package and one (1) electronic copy (one (1) PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact and the Solicitor. Bid responses will only be accepted from those companies that attended the Mandatory Pre-Bid Site Meeting. **The ground address for overnight/next-day deliveries is ICF International, 4000 Vine Street, Middletown, PA 17057, Attention: Contracts Administrator. The outside of the shipping package containing the bid must be clearly marked and labeled with "Bid – Claim #2017-0043(F)".** Please note that the use of U.S. Mail, FedEx, UPS, or other delivery method does not guarantee delivery to this address by the due date and time listed in the Calendar of Events for submission. Companies mailing bids should allow adequate delivery time to ensure timely receipt of their bid.

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 time-stamped and returned. If, due to inclement weather, natural disaster, or any other cause, the PAUSTIF's third party administrator, ICF's office is closed on the bid due date, the deadline for submission will automatically be extended to the next business day on which the office is open. 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 are subject to the Pennsylvania Right-to-Know Law.

Bid Requirements

The Solicitor wishes to execute a mutually agreeable contract with the selected consultant ("Remediation Agreement"). The Remediation Agreement is included as Attachment 1 to this RFB. The bidder must identify and document in their bid any modifications that they wish to propose to the Remediation Agreement language in Attachment 1 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 will be one (1) of the criteria used to evaluate the bid. **Any bid that does not clearly and unambiguously state whether the bidder accepts the Remediation Agreement language in Attachment 1 "as is", or that does not provide a cross-referenced list of requested changes to this agreement, will be considered non-responsive.** This statement should be made in a Section in the bid entitled "Remediation Agreement". Any proposed changes to the agreement should be specified in the bid; however, these changes will need to be reviewed and agreed upon by both the Solicitor and the PAUSTIF.

The selected consultant will be provided an electronic copy (template) 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 shall provide its bid cost using the Bid Cost Spreadsheet (included as Attachment 2) with descriptions for each task provided in the body of the bid document. Please note, if costs are provided within the text of the submitted bid and there is a discrepancy between costs listed in the Bid Cost Spreadsheet and in the text, the costs listed within the Bid Cost Spreadsheet will be used in the evaluation of the bid and in the Remediation Agreement with the selected consultant. Bidders are responsible to ensure spreadsheet calculations are accurate. The technical score for bids will be based solely on those tasks represented as milestones included in

the Bid Cost Spreadsheet 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.

In addition, the bidder shall provide:

1. The bidder's proposed unit cost rates for each expected labor category, subcontractors, other direct costs, and equipment;
2. The bidder's proposed markup on other direct costs and subcontractors (if any);
3. The bidder's estimated total cost by task consistent with the proposed SOW identifying all level-of-effort and costing assumptions; and
4. A unit rate schedule that will be used for any out of scope work on this project.

Each bid will be assumed to be valid for a period of up to 120 days after receipt unless otherwise noted. The costs quoted in the Bid Cost Spreadsheet 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. Any bid that disregards this requirement will be considered non-responsive to the bid requirements and, as a result, will be rejected and will not be evaluated.

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. Demonstration of the bidder's understanding of the Site information provided in this RFB, standard industry practices, and objectives of the project.
2. 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). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall

be discussed, quantified, and priced separately; however, failure to bid the SOW “as is” may result in a bid not being considered. 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.

3. 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.
4. The names and brief resumes/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)).
5. Responses to the following specific questions:
 - a. Does your company employ a Pennsylvania-licensed Professional Geologist that is designated as the proposed project manager? How many years of experience does this person have?
 - b. How many Pennsylvania Chapter 245 projects is your company currently the consultant for in the PADEP Region where the Site is located? Please list up to 10.
 - c. How many Pennsylvania Chapter 245 Corrective Action projects involving an approved SCR, RAP, and RACR has your company and/or the Pennsylvania-licensed Professional Geologist closed (i.e., obtained Relief from Liability from the PADEP) using any standard?
 - d. Has your firm ever been a party to a terminated PAUSTIF-funded Fixed-Price (FP) or Pay-for-Performance (PFP) contract without attaining all of the milestones? If so, please explain.
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.). 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. Please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exceptions may result in the bid response being deemed “unresponsive”.
11. 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.

Bid Review and Evaluation

1. Bid Review and Scoring

Bidders' submissions that are administratively qualified (attend the mandatory pre-bid site meeting, submission of the bid by the designated due date and time) will be evaluated.

Technical Scoring

Bids are evaluated for technical viability before cost is considered. Bids that have technical scores that fall within 75% of the highest technical score will advance to cost scoring. Bids with technical scores below 75% 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: $(1 - ((B - A) / A)) \times C = D$

- 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 equal to, or greater than, twice the amount of the lowest bid cost, the formula calculation will result in a negative number and 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 ICF staff, and the TPR who assisted in developing the bid package will score all bids that are administratively qualified based on the above criteria. 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 submitted a qualified bid package 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 3. The information and documentation has 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 3, the bidder should defer to the source documents.

Background Summary

The Worthington Sunoco facility is an active retail gasoline fueling station with a convenience store and Subway restaurant. The subject property ("Site") encompasses ~0.84 acres on the north side of S.R. 422 in Worthington, Pennsylvania. Surrounding properties include Pennsylvania's S.R. 422 to the south, a commercial property adjoining Site to the west and a mixture of commercial and residential properties to north and east. An unnamed, southward flowing stream tributary runs between the Site and the adjoining commercial property to the west. The Site and surrounding area are shown on Figure 1 in Attachment 3a.

The current UST system includes four unleaded gasoline USTs identified as Tanks 004 – 006, and 008 (one 4,000-gallon, two 3,000-gallon, and one 10,000-gallon, respectively), and one 2,000-gallon kerosene UST (Tank 009). Tanks 004 – 006 are installed within a common tank cavity in the northeastern portion of the Site. Tank 009 is installed in a separate location near the east side of the convenience store building. Other structures on the property include a dispenser island canopy covering two dispenser islands located south of the UST cavity for Tanks 004 – 006; a single-story convenience store/Subway restaurant building located in the north-central portion of the Site; and a second building in the western portion of the Site occupied by a swimming pool and spa retail store (Country Pools and Spas). The USTs were reportedly installed in 1978 (Tanks 004 – 006) and 1992 (Tanks 008 and 009). Figure 2 (Attachment 3a) shows the location of the existing UST system components.

Previous UST systems have included two 4,000-gallon unleaded gasoline USTs (Tanks 001 and 002), a 3,000-gallon unleaded gasoline UST (Tank 003), and a 550-gallon kerosene UST (Tank 007). Tanks 001, 002, and 003 were installed in 1978 and closed via removal in August 1992, and Tank 007 was installed in 1988 and closed via removal in September 1992.¹

Release History

There are two documented Site releases: one that occurred in 2006; and the second in 2017.

¹ Location of previous USTs (Tanks 001, 002, 003, and 007) along with conditions at the time of closure was not made available.

2006 Unleaded Gasoline

The historical record indicates that in June 2006, there was an unleaded gasoline release impacting soil and groundwater reported to both PADEP and PAUSITF. On 6/1/06, unleaded gasoline product was observed seeping into an excavation trench associated with sanitary sewer line installation work. On 6/2/06, product piping associated with Tank 004 failed tightness testing. Additional details associated with the release, interim remedial work, site characterization, and in-situ remediation is available in the April 2015 Remedial Action Completion Report (RACR) provided in Attachment 3e. PADEP subsequently provided a release of liability (ROL) for this unleaded gasoline release in August 2015 upon approval of the April 2015 RACR for the Site Specific Standard (SSS) closure via pathway elimination. When PADEP granted the ROL, concentrations of benzene and MTBE were still above the Residential Statewide Health Standard (R-SHS) in groundwater on-property at the point of compliance (POC), and off-property (south of the Site, on opposite side of US Route 422).² Environmental Covenants (ECs) were executed for both the Site and an off-property location. Deed restrictions at the Site include –

- No use of groundwater for potable or agricultural purposes;
- Vapor barrier or mitigation system required on modifications to existing structures, or additional future structures, and future structure modifications, or future construction, restricted to slab-on-grade; and
- Property restricted to non-residential use.

The deed restriction at off-property location south of the Site, on opposite side of PA S.R. 422, includes no use of groundwater for potable or agricultural purposes. Also, PADEP approved an environmental covenant waiver with respect to future installation of potable wells in the roadway right-of-way for PA S.R. 422. A copy of the executed ECs and EC waiver are provided in Attachment 3f and 3e, respectively.

2017 Unleaded Gasoline

The basis of the subject PAUSTIF Claim #2017-0043(F) is a release of unleaded gasoline from Tank 008 that was confirmed on 3/27/17 upon receipt of a failed tank tightness test on Tank 008. During a physical inspection on the inside of Tank 008 on 5/31/17, the bottom of the tank was observed to be damaged, with the damage reportedly associated with the repeated dipstick impact on the bottom of the tank, and groundwater was observed to be entering the tank proximate to the damaged area.³

² The compounds 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were not included during the characterization, remediation, and closure of this 2006 release.

³ Containment Solutions Services letter to County Pools, Inc., dated June 12, 2017

Site Investigation / Characterization Activities

Site characterization work by CORE Environmental Services, Inc. (CORE) under PAUSTIF Claim #2017-0043(F) occurred from October 2017 to December 2018 and included advancing five on-property soil borings (SB-1 through SB-5); installing six shallow monitoring wells (MW-1 through MW-6); installing one bedrock monitoring well MW-7D; collecting / analyzing 15 soil samples from the soil borings and well borings; collecting/analyzing groundwater samples from the seven monitoring wells; and vapor intrusion evaluation/sampling. The locations of the soil borings and monitoring wells are shown on the figures in the March 2019 combined Site Characterization Report/Remedial Action Plan (SCR/RAP) in Attachment 3c, and monitoring wells are also shown on Figure 2 in Attachment 3a.

Soil/Bedrock Characteristics

Soil borings were advanced to between ~3 to 8 feet below grade whereas monitoring wells extended to at least 20 feet below the surface. The borings indicate that in the vicinity of the UST system, the Site is underlain by fill material (gravel, terracotta fragments, coal, and sand) extending to depths of ~7 feet below grade. Elsewhere (e.g., north and south of UST system), native silty clay with sand and gravel is encountered beneath the surface cover. A thin layer of silty clay was encountered overlying bedrock below the fill and native soil. Weathered shale bedrock was encountered at depths ranging ~7 to 12 feet. Sandstone was observed beneath the weathered shale at a depth of ~12 to 17 feet. No soil samples had any COC concentration exceeding PADEP's generic, residential used aquifer SHSs⁴.

Groundwater Data

Monitoring wells MW-1, MW-2, and MW-3 are installed to depths of 19 to 20 feet and constructed of 15-feet of screen (fill material and weathered shale), and wells MW-4, MW-5, and MW-6 (along the southern property boundary) are installed to a depth of ~10 feet and constructed of only five feet of screen (silty clay). Groundwater levels in the shallow/overburden material have ranged ~4.5 to 9 feet, with a potentiometric mounded surface in the UST area indicating multi-directional flow. When compared to PADEP SHS, concentrations of benzene, MTBE, and 1,2,4-TMB were found to exceed the PADEP R-SHS in monitoring wells MW-1, MW-2, and/or MW-3. These wells are located in the vicinity of the existing UST system. The groundwater contaminant plumes are currently not fully delineated, representing a data gap.

The designated overburden point of compliance (POC) wells (MW-4 through MW-6) do not contain concentrations exceeding PADEP SHS. However, point of compliance (POC) wells screened in the underlying weathered shale have not been installed. Since groundwater is first

⁴ Use of PADEP's SHS for comparison purposes here and throughout this RFB is for the purposes of offering a reference point and is not intended to suggest a Site cleanup goal.

encountered at or near the bottom of the tank cavity, and the bottom of the tank cavity is near the top of the weathered shale, a tank cavity release could have entered and preferentially migrated in the weather shale. As such, it is anticipated that PADEP will require POC wells installed within the weathered shale as part of the site characterization and closure documentation. The insufficient bedrock delineation represents a data gap.

Solicitor's Selected Closure Standards & Regulatory Status

CORE's March 2019 combined SCR/RAP identified the cleanup goals as: SHS for soils; and SSS for groundwater.

On 6/12/19, PADEP disapproved the March 2019 SCR/RAP (Attachment 3c). The reasons for the disapproval included:

- Horizontal and vertical extent of groundwater contamination not fully characterized. PADEP noted its concern with the differences in the constructed well screens between downgradient POC wells MW-4 through MW-6 and wells MW-1 through MW-3;
- Tank pit water has not been characterized;
- Report lacks a description of the type and characteristics of regulated substances involved in accordance with 25 Pa. Code § 245.310(a)(6);
- Vapor intrusion evaluation not complete, noting that the evaluation did not address the electrical conduit lines between tank cavity and convenience store/restaurant building; and
- The report was inconsistent in describing the selected cleanup standard for groundwater.

PADEP's 6/12/19 letter (Attachment 3d) also provided more specific comments/recommended edits to CORE's March 2019 SCR/RAP. Bid responses shall identify and describe how all PADEP's comments/recommendations will be addressed.

Although, not clearly specified in CORE's March 2019 SCR/RAP, the Claimant's cleanup goals are non-residential SHS for soil and risk-based SSS for groundwater. The SSS applicable to Site and associated attainment demonstration shall take into account the land use restrictions already applied to the Site and the property to the south.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the SOW specified herein. PADEP – Northwestern Regional Office (NWRO) was given the opportunity to review the SOW. The PADEP case manager has reviewed and comments provided were incorporated into the RFB SOW.

Objective

Solicitor seeks competitive, fixed-price bids, for this Defined Scope of Work RFB to complete the milestones outlined below to complete the site characterization as specified by the PADEP Act 2 and Chapter 245 regulations and guidelines, prepare / submit a combined Revised SCR / RAP, and implement the remedial approach to site closure. To be deemed responsive, each bid *must* respond *in detail* to each of the milestones, including describing the bidder's understanding of the conceptual site model and how that model relates to the bidder's proposed approach to executing the SOW. In other words, bidders shall respond to the SOW as stated herein to enable as much of an “apples-to-apples” comparison of the bids as possible. The Solicitor has elected to pursue environmental site closure under the PADEP Act 2 Non-Residential, Used Aquifer SHS for soils and SSS for groundwater.

Constituents of Concern (COCs)

The COCs for soils and groundwater associated with demonstrating attainment for the 2017 unleaded gasoline release are PADEP's short list for unleaded gasoline (benzene, toluene, ethylbenzene, xylenes (BTEX); MTBE; cumene; naphthalene; 1,2,4-TMB; and 1,3,5-TMB).

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, Chapter 250 - Administration of Land Recycling Program; 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 below and throughout implementation of the project, the selected consultant shall:⁵

- Conduct necessary, reasonable, and appropriate project planning and management activities until the project (i.e., Remediation Agreement) is completed. 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). Project 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 and shall also include activities related to establishing any necessary access agreements. Project 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.

⁵ As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

Site-Specific Guidelines

As part of this RFB, the selected consultant will need to consider the following site-specific guidelines:

Off-Property Access. Selected consultant will be responsible for securing off-property access where needed to implement the remedial approach. Work required to negotiate, and secure off-property access shall be included within the fixed price for Milestone B. It is reasonable to assume that Claimant will assist, as needed, with this effort.

Field Activities. All on- and off-site work should be conducted during the normal business days and hours of 8:00 AM to 5:00 PM from Monday through Friday, unless work outside of these normal business days and hours is authorized by the respective Solicitor / property owner.

Responsibility. The selected consultant will be the consultant of record for the site. The selected consultant will be required to take ownership of the project and will be responsible for representing the interests of the Solicitor and PAUSTIF with respect to the project. This includes utilizing professional judgment to ensure reasonable, necessary and appropriate actions are recommended and undertaken to protect sensitive receptors and carry out adequate remedial actions in order to move the site toward closure.

Field Instrumentation. Each bidder should state in their bid response the appropriate field instrumentation (e.g., pumps, meters, photoionization detectors, etc.) to be used during the completion of the SOW. Specifically, the product associated with the regulated release at this site is unleaded gasoline. As such, any field-screening instrumentation used at the site should be able to detect the presence of hydrocarbons associated with that type of product.

Safety Measures. Each bidder should determine the safety measures necessary to appropriately complete the milestones. Specifically, if a consultant feels that it is appropriate and necessary to complete utility clearance using an air knife, the cost should be included in their 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. As discussed in the RFB, cost is not the only factor when evaluating bid responses and other factors are taken into consideration during the bid evaluation process, including appropriate safety measures.

Investigation Derived Waste Disposal. The investigation derived waste (including, but not limited to, soil/rock cuttings, used carbon, well development/purging liquids, and groundwater during pilot testing activities) shall be disposed per the instructions included in the "General SOW Requirements" section of the RFB. Bidders will be responsible for arranging any off-site waste disposal (if 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 and groundwater may

be temporarily stored on-site, but should be removed from the site in a timely manner. Bidders will be responsible for including costs in their bid response to cover the disposal of all potential waste related to the milestones included in the SOW. Each bidder should estimate the volume of waste using its professional opinion, experience and the data provided. **PAUSTIF will not entertain any assumptions from the selected bidder in the Remediation Agreement with regards to a volume of waste. Invoices submitted by the selected bidder to cover additional waste disposal costs as part of activities included under the fixed-price Remediation Agreement for this site will not be paid.**

Site-Specific Milestones

Milestone A – Locating/Sampling Tank Pit Observation Well. One of PADEP's reasons for disapproval of the March 2019 SCR/RAP is because the tank pit water, if present, has not been characterized. The concern is that there may be higher concentrations of dissolved contaminants in the tank pit which could continue to leach into groundwater surrounding the tank pit. PADEP would like to make sure reasonable efforts are taken to assess the condition of the tank cavity given the SSS groundwater cleanup goal.

A tank pit observation well is believed to exist between tanks 006 and 008 based on a 3/27/17 Crompco testing report diagram of the UST system layout. More recent information suggests the tank pit observation well exists and is located as per the 3/27/17 Crompco report. Under this milestone, bidders shall provide a fixed price for collecting a water level, along with ambient air and the headspace of the tank pit observation well. Ambient air and headspace shall be screened with a PID. Water level along with ambient air and headspace shall be documented and reported on a minimum of two separate occasions, separated by at least one week. If it is determined that the observation well cannot be located, and the manway appears to have been covered over with asphalt, work to locate and uncover the observation well shall be addressed under Optional Cost Adder Milestone A1. Written email approval from Solicitor and PAUSTIF will be required before beginning the work.

Given that the condition of the well is unknown, and it is unclear if it will be accessible for sampling and if there is sufficient tank pit water in the well to be sampled, the costs for sampling of the well shall not be included in the fixed price. Instead, bidders shall provide a unit cost for collecting and analyzing a water sample and analysis on the Bid Cost Spreadsheet (Attachment 2).

- Sampling/Analysis of Water Sample – Unit cost UC-A for collecting and analyzing one tank pit water sample. The fixed cost shall be inclusive of all labor, equipment, subcontractors, waste handling / disposal, and reporting.

If the observation well is accessible and there is sufficient water in the well to sample, the well shall be sampled twice; an initial event and second confirmatory event. Bidders shall assume sampling of this well would be done at the same time as sampling of the monitoring wells (Milestone C). During each event, the depth to water in the observation well and any potential separate-phase hydrocarbons (SPH) shall be gauged prior to purging and sampling. The well shall be purged and sampled utilizing standard low-flow techniques and in accordance with the PADEP Groundwater Monitoring Guidance Manual and standard industry practices. If the well exhibits more than a sheen of SPH the well shall not be purged and sampled.⁶ Bidders shall

⁶ There is no indication in the available data that SPH exists at the Site. If measurable SPH is discovered, work to address the SPL would have to comply with 25 Pa. Code § 245.306(a)(3)(ii), 25 Pa. Code § 245.306(b) and 25 Pa. Code § 245.310(a)(4)(iv), and would be considered a changed condition of the fixed price contract and will require Solicitor and PAUSTIF approval of a work plan and cost estimate before beginning any work.

manage equipment decontamination fluids and groundwater generated by the well purging and sampling activities in accordance with PADEP NWRO guidance. Water samples collected during these two events shall be analyzed for the short-list of unleaded gasoline parameters (BTEX, MTBE, isopropylbenzene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. In addition, each event shall include collection of field measurements and natural attenuation parameters. Field parameters to be measured at each overburden/weathered bedrock well shall consist of pH, temperature, specific conductance, dissolved oxygen (measured in-situ), and oxidation/reduction potential. If the observation well is accessible but there is insufficient water in the well to sample on either or both occasions, the measured water levels (or lack thereof) and ambient air and well head PID head space readings shall be presented and discussed in the revised SCR/RAP (Milestone H).

Milestone B – Installation of Shallow Bedrock Monitoring Wells. Further horizontal and vertical delineation of the dissolved contaminant plumes is necessary to address the previously described data gaps. Under this milestone, bidders shall detail approach and provide a firm fixed-price cost for installing six shallow bedrock (weathered) monitoring wells. The six shallow bedrock monitoring wells shall generally be placed as follows:

Horizontal Delineation

- One off-property on the adjoining property to the north/northeast of existing MW-1;
- One on-property to the west of the existing dispenser island;
- One on-property to the east of the existing dispenser island and east of MW-3; and

Vertical Delineation

- One next to each of the three POC wells MW-4, MW-5, and MW-6.

Each bid must identify the proposed labeled (with distinct well identifications) locations for the six shallow monitoring wells on a site drawing, along with the rationale for each location. The bids shall demonstrate an understanding that the general objectives for installing the new wells are to delineate the horizontal extent of dissolved-phase contaminants in the shallow groundwater; interpret groundwater flow; enable any representative aquifer testing (if required); facilitate contaminant fate-and-transport modeling (if required); and evaluate natural attenuation processes. The intended well locations are (i) a background, presumed upgradient location; (ii) delineate the horizontal extent of the dissolved contaminant plumes at the source area; and (iii) existence of contamination at deeper depth at the presumed down-gradient property line. It is presumed that the final well locations would be adjusted by the selected consultant to avoid any subsurface obstacles / utilities.

If during implementation of this milestone it is determined that one or more additional shallow

monitoring wells are necessary to complete groundwater characterization, these additional wells will be handled under Optional Cost Adder Milestones B1 and/or B2. Written email approval from Solicitor and PAUSTIF will be required before beginning the work.

Borings for the shallow monitoring wells shall be advanced to intersect the shallow water table. For costing purposes, bidders shall assume that each shallow monitoring well boring will be advanced to a depth of 20 feet below grade into the weathered bedrock or to the depth of competent bedrock (if encountered), whichever occurs first. Although the total depth is likely to vary based on actual field conditions encountered. Bidders shall assume advancing all monitoring well borings using a multi-purpose drill rig capable of hollow stem auger with continuous split-spoon sampling and air rotary/air hammer drilling methods. Continuous soil samples of the overburden and weathered bedrock shall be examined in the field and described for lithology, groundwater occurrence, and potential staining / odor indicative of hydrocarbon contamination. Although the bid shall assume no soil samples will be collected from the monitoring well boreholes for laboratory analysis, the soil samples shall be screened in the field with a PID.

The shallow groundwater monitoring wells will be constructed in accordance with the PADEP Groundwater Monitoring Guidance Manual. Bidders shall assume constructing each well of 2-inch diameter Schedule 40 PVC casing and well screen. Although well depths may vary based on actual conditions encountered at each location, the final construction must ensure that the screened interval intersects the water table surface and accounts for seasonal groundwater fluctuations. For cost comparison purposes, bidders shall assume 10 feet of well screen for wells.

Annulus materials shall consist of a filter-pack of silica sand of appropriate grain size for the formation screened and well-screen slot size used, extending to a height of approximately one foot above the top of the screen section overlain by a well seal consisting of hydrated bentonite pellets with a minimum thickness of two feet for the overburden wells. The remaining annulus shall be filled with a cement, and bidders shall assume surface finishing consisting of an expandable locking cap fitted to the top of the PVC riser and a flush-mounted traffic-rated manhole with a bolt-on lid. The flush-mounted manholes shall be set into a 2 ft. by 2 ft. concrete pad.

To accommodate the possible need to install wells deeper than 20 feet (on average) for the shallow monitoring wells, bidders shall provide the following unit costs on the Bid Cost Spreadsheet (Attachment 2).

- Excess Hollow-Stem Auger & Split-Spoon Sampling / Air Rotary Drilling & Well Installation Footage. Unit Cost UC-B. Bidders shall provide a unit cost per lineal foot (\$/foot) for excess hollow-stem auger / split-spoon sampling or air rotary drilling and well installation (i.e., the total lineal well footage installed in excess of the 20-foot x 6 wells = 120-foot quantity assumed in the bid). This unit cost shall include borehole advancement, logging and screening, well construction materials, well installation labor, and waste management and disposal in the event that

additional well footage is required.

Each bidder's fixed-price cost for this task shall account for: (i) securing off-property access; (ii) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call and clearing each borehole location to a minimum depth of 5 feet using vacuum excavation; (iii) well development activities; (iv) management of IDW; and (v) professional surveying of the new well locations and top-of-casing elevations.⁷ Well drilling / installation and development activities along with supporting documentation (e.g., waste manifests, boring logs and construction details, etc.) shall be documented in the combined Revised SCR / RAP.

Milestone C (C1 and C2) – Groundwater Monitoring and Sampling. Under this task, bidders shall provide a firm fixed-price to complete two (2) groundwater monitoring and sampling events; an initial event and second confirmatory event. These monitoring and sampling events shall include the six shallow bedrock wells installed under Milestone B and existing shallow wells MW-1 through MW-6 and bedrock well MW-7D. The initial groundwater monitoring and sampling event shall be performed within two weeks of installing and developing the new six monitoring wells installed under Milestone B, but no sooner than one week after the wells have been developed. The subsequent confirmatory monitoring and sampling event shall be conducted no less than four and no more than six weeks after the initial event.⁸ During each event, the depth to groundwater and any potential SPH shall be gauged in all available monitoring wells prior to purging any of the wells for sampling. Groundwater level measurements obtained from the monitoring wells during both events shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient.

Each of the monitoring wells shall be purged and sampled utilizing standard low-flow techniques and in accordance with the PADEP Groundwater Monitoring Guidance Manual and standard industry practices. Any well exhibiting more than a sheen of SPH shall not be purged and sampled.⁹ Bidders shall manage equipment decontamination fluids and groundwater generated by the well purging and sampling activities in accordance with PADEP NWRO guidance.

Groundwater samples collected during these two events shall be analyzed for the short-list of

⁷ Bidders shall assume that the available survey information obtained by the existing Consultant (CORE) will be provided to the selected bidder in electronic format.

⁸ If the initial and confirmation rounds of groundwater sampling results indicate that groundwater characterization is not complete, additional delineation shall be completed prior to conducting any further groundwater monitoring sampling events (Optional Cost Adder Milestone C3). Installation and monitoring of any necessary additional monitoring wells will be handled under Optional Cost Adder Milestones B1 and/or B2 and C4 and will require Solicitor and PAUSTIF approval before beginning the work. Should work be required to gain property access for additional well installation, this will be handled outside the Remediation Agreement.

⁹ There is no indication in the available data that SPH exists at the Site. If measurable SPH is discovered, work to address the SPL would have to comply with 25 Pa. Code § 245.306(a)(3)(ii), 25 Pa. Code § 245.306(b) and 25 Pa. Code § 245.310(a)(4)(iv), and would be considered a changed condition of the fixed price contract and will require Solicitor and PAUSTIF approval of a work plan and cost estimate before beginning any work.

unleaded gasoline parameters (BTEX, MTBE, isopropylbenzene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.¹⁰ In addition, each event shall include collection of field measurements and natural attenuation parameters. Field parameters to be measured at each overburden/weathered bedrock well shall consist of pH, temperature, specific conductance, dissolved oxygen (measured in-situ), and oxidation/reduction potential.

The conduct and results of these two events shall be documented in the combined Revised SCR / RAP and shall at least include a description of the following: narrative description of the sampling procedures and results; tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered; groundwater elevation contour maps depicting groundwater flow direction in the overburden/weathered bedrock; tabulated historical quantitative groundwater analytical results; laboratory analytical report(s); one site-wide iso-concentration contour map for the overburden/weathered bedrock for each compound detected in any one well above the SHS during the quarter (if needed); and treatment and disposal documentation for waste generated.

Milestone D – Aquifer Characterization Testing. Based on the available documents, it appears that no data has been collected concerning the hydraulic properties of the shallow groundwater, as the fate and transport modeling provided in the March 2019 SCR/RAP used data collected during the site characterization work for the prior 2006. Therefore, in order to establish hydraulic parameters for the shallow groundwater, support contaminant fate-and-transport modeling, and assist with developing a conceptual site model, the bidders shall perform single-well slug testing on the shallow groundwater. Bidders shall provide firm fixed-price costs to perform the slug tests on the three shallow bedrock monitoring wells installed in Milestone B and existing wells MW-1, MW-2, or MW-3, and each bid must identify the wells to be used for slug testing, rationale, and provide a description of the proposed slug test procedures and the planned techniques for reducing the data. The slug tests shall be performed in accordance with accepted industry standards and the data shall be reduced / evaluated using appropriate methods. (e.g., Bouwer and Rice slug test solution for determining the hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells [1976]). Documentation of the slug testing methods, results, and conclusions shall be provided in the combined Revised SCR / RAP, and the slug testing results shall be utilized in the fate-and-transport modeling described in Milestone E.

Milestone E – Updating Contaminant Fate-and-Transport Modeling. After completing the bedrock groundwater monitoring well installations and sampling (Milestones B and C), the existing quantitative contaminant fate-and-transport modeling (PADEP New Quick Domenico) shall be calibrated and updated to current conditions and predict future contaminant distribution. Because

¹⁰ Each bidder's approach to implementing Milestone C shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), purge water disposal methods, QA/QC measures, analytes, and other key assumptions affecting the bid price.

the existing fate and transport modeling did not predict concentrations of the COCs will migrate beyond the down-gradient POC above SHS, and therefore would not impact the nearby surface water tributaries, bidders shall assume that applications such as SWLOAD5B and PENTOXSD will not be necessary. However, if it determined during the fate and transport modeling that SWLOAD5B and PENTOXSD are needed, bidder shall provide a fixed price for this work under Optional Cost Adder Milestone E1.

The fate-and-transport modeling shall utilize the data generated from the slug testing and any relevant historical site characterization data. Each bidder shall describe in detail the specific proposed approach to completing the fate and transport modeling for this site. The fixed-price cost shall include documenting the modeling effort in the Revised SCR / RAP. This documentation shall describe all model input/output, provide a thorough explanation of model construction, justify all input parameters, and include a detailed discussion of the modeling results and conclusions regarding current and predicted future plume stability (or lack thereof).

Milestone F – Updating Vapor Intrusion Evaluation. Bidders shall provide a firm fixed-price to update the evaluation of the indoor air exposure pathway to be consistent with the requirements, guidance document, “Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2”, dated January 18, 2017. More specifically, bidders shall address PADEP’s comment provided in PADEP’s 6/12/19 disapproval letter, noting that the vapor intrusion evaluation did not include the buried electrical conduit lines located between the UST cavity and convenience store/restaurant building, as this buried utility appears to be within the horizontal and vertical proximity distances for external preferential pathways. As part of this evaluation, each bid shall include the installation and sampling of three on-property vapor sampling points. Each bid must identify the proposed locations for the three sampling points on a site drawing and include construction details and a discussion detailing the rationale for each location. Each of the sampling events shall be completed twice and separated by at least 45 days. The samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,3,5-TMB, and 1,2,4-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels.¹¹ Each bidder shall describe their approach in detail, sampling methods and analysis and schedule for when the sampling would be anticipated.

Each bidder’s fixed-price cost for this task shall account for: (i) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call; (ii) management of IDW; and (iii) professional surveying of the vapor sampling locations. All work under this milestone shall be documented in the combined Revised SCR / RAP.

Milestone G – Exposure Pathway Evaluation and Risk Assessment. Each bid response shall

¹¹ Each bidder’s approach to implementing Milestone F shall clearly identify the number of sampling events, number of samples per event, QA/QC measures and samples, analytes, analytical method, and other key assumptions affecting the bid price.

describe how the exposure pathway evaluation and human health risk assessment will be completed in accordance with USEPA and Act 2 protocols and how the aforementioned land use restrictions already in place on Solicitor's and the downgradient off-site property will be accounted for in the analyses. Bidders shall assume a numerical human health risk assessment will need to be performed for potentially complete pathways that have not been eliminated including (but not limited to) those associated with the: on-site and off-site (roadway right-of-way) construction / utility workers.

Bidders shall explicitly identify the individual and risk assessment credentials of the proposed risk assessor on bidder's staff or on bidder's specialty subcontractor's organization. Resume(s) for the proposed risk assessment personnel shall clearly identify their training, background, certifications and experience. **Bids lacking adequate details on the risk assessment personnel or that do not include risk assessment specialists will be deemed deficient and will be reflected in bidder's technical score.**

A residential / commercial well use survey and evaluation of local groundwater ordinances shall be performed, as well as research concerning zoning ordinances, flood zones, and future land use plans for the properties in the area of concern.

Should the exposure pathway analysis determine potentially complete exposure pathways, a risk assessment shall be performed with comparing residual soil and groundwater contaminant levels against applicable soil and groundwater screening criteria¹². For those soil and groundwater contaminants passing through the screening criteria, the human health exposure risks shall be quantified. If human health risks are excessive (organ-specific HI >1 and /or carcinogenic risk of >1 x 10⁻⁴), then appropriate land use restrictions for the spill property shall be identified to eliminate the pathway causing the excessive human health risk.

The risk assessment shall encompass an exposure assessment, toxicity assessment, and risk characterization. The identification of exposure pathways for the Site shall be based upon guidance from the American Society for Testing and Materials (ASTM) and the United States Environmental Protection Agency (USEPA), as required by Act 2, Section 250.404. The exposure assessment deliverable shall include separate Exposure Pathway Flowcharts graphics for (a) On-Site; (b) Off-site; and (c) roadway right-of-way to support the risk assessment text. These charts shall graphically depict the thought process in identifying the potentially complete pathways for each of the three areas. The exposure evaluation charts shall include the exposure pathway steps of Constituent Source, Receiving Media, Transport Mechanisms, Exposure Routes and current and future human receptors (i.e., facility workers, construction workers, trespassers, residents, and recreational users and others). **The exposure assessment shall take into**

¹² Constituent concentrations are to be screened against the USEPA RSLs and not against the PADEP Statewide Health Standards (SHS). Only those constituents that do not screen out against the risk-based screening levels remain as COPCs for the exposure pathway analysis and/or demonstrating attainment of the PADEP SHS or a risk-based numeric Site Specific Standard.

account the land use restrictions already applied to Solicitor's and the downgradient off-site property.

The risk assessment shall identify the site soil and groundwater samples used in the risk assessment, show how the constituents of interest (COI) were identified and present the COI for each contaminated media with a potentially complete pathway to a human receptor. Additionally, the risk assessment shall show how the risk assessment exposure point concentrations (EPCs) were calculated¹³ for each contaminated media with a potentially complete human exposure pathway and summarize the calculated EPCs.

For each potentially complete exposure pathway, the level of carcinogenic risk shall be quantified, and the total cumulative carcinogenic risks shall be calculated. Non-carcinogenic risks shall be calculated using the hazard index. Exposure and toxicity assumptions shall be presented and well documented in the risk assessment report along with an uncertainty analysis.

If additional site characterization work has determined that concentrations of groundwater COCs extend beneath the adjoining properties to the north and east of the Site and the risk assessment has determined that the groundwater impacts beneath these properties presents an excessive carcinogenic or non-carcinogenic risks, bidders shall assume that post-remedial care off-property groundwater use surveillance monitoring will be the site remedy. The periodic (e.g., annual) surveillance will verify that groundwater is not used would be implemented.

If it is determined that concentrations of the COCs in shallow groundwater extend beneath the adjoining ROW for PA S.R. 422, an environmental covenant waiver with respect to future installation of potable wells in the roadway right-of-way for PA S.R. 422 is already in place to eliminate potable well exposure pathways. A copy of the waiver is provided in Attachment 3e. However, other roadway exposure pathways have not been eliminated and bidder shall identify those potentially complete exposure pathways (e.g., utility / construction worker) and assess the human health risks for any potentially complete pathway. Bids shall provide a detailed description of how bidders will evaluate the on- and off-property trench worker vapor inhalation pathway including how it will estimate the Construction Worker vapor EPC. If a model is to be used to estimate the vapor concentrations, bidders shall identify the model and the input assumptions that will be used (e.g., trench width and depth dimensions, wind speed / direction, etc.). Should excessive human health risks exist in the PA SR 422 roadway and remediation would be necessary to mitigate those risks, any remediation would be considered a New Condition of the fixed price agreement. The risk assessment shall identify the media and location-specific numerical contaminant concentrations (exposure point concentrations) that would not present an excessive level of risk as the cleanup goal to be addressed by the RAP (Milestone H).

¹³ EPCs shall be derived for COIs by statistical analysis (maximum concentrations shall not be used for EPCs).

With respect to vapor intrusion, bidders shall perform the work consistent with the requirements of the guidance document, "Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2", dated January 18, 2017.

In addition, an ecological screening assessment shall be updated to determine if the site poses an unacceptable risk to ecological receptors. The screening assessment shall be conducted in accordance with Section IV.H of the Pennsylvania Land Recycling Program's Technical Guidance Manual and USEPA Region 3 risk assessment screening criteria insofar as is necessary for determining any potential ecological risk.

If the exposure evaluation and risk assessment determine that the existing institutional controls identified above are sufficient to render the existing contamination safe under current and future site use conditions and there are no excessive human health risks in the PA SR 422 roadway and that any excessive risks for off-property locations to the north and east and on the opposite side of PA SR 422 can be eliminated via periodic post-remedial care groundwater use surveillance, then bidder shall assume no remediation would be necessary, and the remaining work to be addressed in the RAP (Milestone H) would include quarterly monitoring to demonstrate plume stability (Milestone I). If new land use restrictions on the subject property are required to eliminate excessive on-site risks, the land use restrictions shall be identified and proposed to be added as additional ECs.

The exposure evaluation and risk assessment shall be first submitted in draft form to the Solicitor and PAUSTIF for review and comment before being finalized and incorporated into the Revised SCR (Milestone H). Each bidder's project schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft document. The final report shall address comments received from the Solicitor and PAUSTIF on the draft report.

Milestone H – Preparation, Submittal, and PADEP Approval of a Combined Revised SCR / RAP. Upon completing Milestones A through G described above, the selected consultant shall prepare a combined Revised SCR / RAP in draft form for review and comment by the Solicitor and PAUSTIF. The report will be for closure to PADEP's SSS for groundwater. Demonstration of attainment for soil is not necessary since none of the soil sampling data contained concentrations of the COC in exceedance of the SHS and, therefore, there will be no ROL for soil contaminants.

This combined Revised SCR / RAP shall contain all necessary information required under 25 PA Code §245.309, 245.310, and 245.311 and be of sufficient quality and content to reasonably expect PADEP approval. Each bidder's project schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft document. The final report shall address comments received from the Solicitor and PAUSTIF on the draft report before it is submitted to the PADEP for its review.

The combined report shall document, describe, and evaluate all findings provided from Milestones A through G above (and any necessary cost adder milestones), incorporate information and relevant findings from the previous site documentation (as necessary), and contain all necessary and appropriate figures, tabulated data, and appendices to comply with the regulatory requirements for and to obtain PADEP approval of these documents.¹⁴ The Revised SCR shall address PADEP's comments provided in their 6/12/19 letter disapproving the March 2019 SCR/RAP, including a description of the type and characteristics of regulated substances involved, including quantities, physical state, concentrations, toxicity, propensity to bioaccumulate, persistence, and mobility in accordance with 25 Pa. Code § 245.310(a)(6).

This SCR shall include a conceptual site model (CSM) for the Site and its vicinity based on evaluating the results of the site characterization tasks outlined above. Information considered in developing the CSM shall consist of, but should not necessarily be limited to, stratigraphic and lithologic characteristics / relationships; a discussion of the type and characteristics of the released substances; groundwater elevations and flow direction; hydrogeologic controls on groundwater movement and contaminant transport; intrinsic aquifer parameters; the distribution of hydrocarbon contaminants in soil and groundwater; evaluation of potential sensitive receptors, and consideration of the contaminant fate-and-transport modeling results.

The RAP shall present and discuss the selected closure goals for the Site, discuss the exposure evaluation and risk assessment, including what institutional controls (and engineering controls, if necessary) would be implemented, and that no remediation would be necessary for groundwater. Bidders are to assume that the only work to be included in the RAP is quarterly monitoring to demonstrate plume stability.

The document shall be signed and sealed by a Professional Geologist in the Commonwealth of Pennsylvania and may also require the signature and seal of a Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine if the Professional Engineer seal is required based on the work performed for and documented in the combined report). The fixed-price cost shall also include addressing any PADEP comments on the combined report.

The successful bidder will be eligible to receive payment for 75% of the bid amount for Milestone H when there is proof the document has been completed and submitted to PADEP. The 25% balance will be due for reimbursement once proof has been provided that PADEP has approved the Milestone H deliverable document.

¹⁴ Necessary Cost Adders may prompt adjustments to the scopes of work specified herein for any of the preceding milestones or if additional site characterization may prove necessary. Should this occur, the selected consultant should assume that: (a) the schedule for completing this Milestone will need to be adjusted (assuming the PADEP grants the necessary extensions), and (b) any added cost involved in documenting the additional activities in the SCR / RAP shall be incorporated into the costs for the adjusted/added scope of work under the specific task.

Milestones I1 through I4 – Quarterly Groundwater Monitoring, Sampling, and Reporting.

Under this task, bidders shall provide a firm fixed-price to complete up to four quarters of groundwater monitoring and sampling events to demonstrate stability of the contaminant plume(s) as part of the SSS closure. Each groundwater monitoring and sampling event shall include existing on-property wells MW-1 through MW-6, MW-7D, and the additional six shallow wells installed under Milestone B.¹⁵ The conduct and results of each event shall be documented in quarterly RAPRs. If additional quarterly events would be needed beyond four quarters, up to an additional four quarters are incorporated in the Remediation Agreement as Optional Cost Adder Milestones I5 through I8.¹⁶ Consultant shall seek and obtain written approval from Solicitor and PAUSTIF, providing an explanation for why the additional quarterly events are necessary, to continue with quarterly groundwater monitoring/sampling events (Optional Cost Adder Milestone I). During the quarterly events, each of the monitoring wells shall be monitored, purged, and sampled as described in Milestone C.¹⁷

The Remedial Action Progress Reports (RAPRs) describing the sampling methods and results will be provided to the PADEP on a quarterly basis and within 30 days of the receipt of analytical results for each quarter. At a minimum, each RAPR shall contain the following:

- A summary of site operations and progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered;
- Groundwater elevation contour maps depicting groundwater flow direction;
- Tabulated historical quantitative groundwater analytical results including results from the current quarter;
- Current quarter laboratory analytical report(s);
- One site-wide iso-concentration contour map for each compound detected in any one well above the SHS during the quarter;¹⁸
- For each well exceeding SHS, a graphical depiction of historical key contaminant concentrations and groundwater elevations to provide an assessment of correlations between fluctuating water levels / precipitation

¹⁵ The costs for the monitoring and sampling of any additional monitoring wells installed as per Milestones B1 and B2 will be handled under Optional Cost Adder Milestone C4.

¹⁶ If it becomes evident anytime during the groundwater plume stability demonstration (initiated subsequent to completing Milestone H) that plume stability will not be successful within the four quarters, and up to four additional quarters (Optional Cost Adder Milestone I), this will represent a New Condition under the contract.

¹⁷ Each bidder's approach to implementing Milestone I shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), QA/QC measures, analytes, purge water management methods, and other key assumptions affecting the bid price.

¹⁸ All figures included in each RAPR (e.g., site plan, groundwater elevation maps, dissolved plume maps, etc.) shall be available in electronic format to the Solicitor upon request.

events and contaminant concentrations;

- For each well exceeding SHS, a graphical depiction of recent key contaminant concentration trends and results of any qualitative and quantitative analysis;
- Discussion of the data to offer an updated assessment whether these data are consistent with a stable, shrinking, or expanding plume;
- Treatment and disposal documentation for waste generated during the reporting period; and
- Demonstration of compliance with the required Federal, State, and local permits and approvals.

PAUSTIF will only reimburse for the necessary quarterly groundwater sampling / reporting events actually completed under this milestone (e.g., this milestone shall be considered completed with the initiation of Milestone J). Each RAPR shall be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed and documented in the groundwater attainment demonstration report).

Milestone J – Plume Stability Assessment. Under this task, bidders shall provide a fixed-price cost and describe their approach in detail for evaluating the groundwater data and demonstrating contaminant plume stability. This work is anticipated to include evaluating contaminant trends in individual wells and performing both a quantitative (e.g., contaminant fate-and-transport model) and qualitative (e.g., chronological contaminant extent maps, trend lines, etc.) analysis to address all dissolved-phase constituents whose concentrations exceed the non-residential used aquifer SHS point of reference.

Bid responses will be expected to describe how the preponderance of data would be used to assess the nature of overall plume stability with the recognition there may be localized perturbation of constituent concentrations (e.g., due to groundwater fluctuations in the plume core) that may or may not be a reflection of the stability of the plume as a whole. Bidders are expected to provide a description of how plume stability will be evaluated qualitatively (e.g., using a sequence of plume limit contours chronologically over the post-remedial period to evaluate if the plume generally remains in the same area over time). Additionally, if quantitative statistics are proposed to be used by bidders (e.g., Mann-Kendall) to supplement a qualitative evaluation, bidders shall describe these techniques and how the difference between qualitative analysis and quantitative analysis will be resolved.

Milestone K – Preparation, Submission, and PADEP Approval of a Remedial Action Completion Report (RACR). Under this milestone, the bidder will prepare a fixed-price cost to prepare a draft and final RACR following the completion of Milestones I and J, and any applicable related optional cost adder milestones. The RACR shall be prepared in accordance with Section

245.313, and at a minimum, the RACR shall provide the details for Milestones A through G, and optional cost adder milestones. The RACR shall also discuss the selected closure criteria for the site, indicate that no demonstration of attainment was necessary for soils, provide proof of groundwater plume(s) stability, and request permanent closure for the site for the current release under an Act 2 Relief of Liability (ROL). The project schedule should allow two (2) weeks for Solicitor and PAUSTIF review of the draft RACR before a final version is submitted to the PADEP. The selected consultant shall then prepare and submit the final RACR to the PADEP in accordance with Sections 245.313, and be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed for and documented in the RACR). The fixed-price cost shall also include addressing any PADEP comments on the RACR.

The successful bidder will be eligible to receive payment for 75% of the bid amount for Milestone K when there is proof the document has been completed and submitted to PADEP. The 25% balance will be due for reimbursement once proof has been provided that PADEP has approved the Milestone K deliverable document.

Milestone L – Site Closure / Restoration Activities. Under this milestone, the bidder shall describe and provide a fixed-price bid for properly closing the site, including: proper disposal of any remaining wastes; in-place abandonment of all on- and off-property monitoring wells, and vapor monitoring points consistent with PADEP guidelines; well head removals; and re-vegetation, concrete / asphalt repairs, as necessary, for areas that have been disturbed by site characterization activities. This task shall also include photo–documenting the site restoration work and completion / submittal of the well abandonment forms. Copies of these photographs and forms shall be provided for the Solicitor’s files.

If additional monitoring wells were installed as part of Milestones B1 and B2, the abandonment of these additional wells will be handled under Optional Cost Adder Milestone L1. Written email approval from Solicitor and PAUSTIF will be required before beginning the work.

Each bid shall specify the number of days for initiating Milestone L following approval of the RACR by PADEP and shall be conducted in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Well, vapor monitoring point abandonment, remedial system removal, and restoration activities will be coordinated with the Solicitor.

Optional Cost Adder Milestones

Optional Cost Adder Milestone A1 – Locating/Uncovering Tank Pit Observation Well. Under this optional milestone, bidders shall detail approach and provide a firm fixed-price cost for locating the manway for this observation well and removing the asphalt to access the well. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste

handling / disposal, and reporting.

Optional Cost Adder Milestone B – Installation of Shallow Bedrock Monitoring Wells.

Provide the following fixed price costs for installation of additional shallow monitoring wells. The scope of work for this cost adder shall follow Milestone A guidelines; including the assumption regarding drilling footage (assume 20-foot well depth). The unit prices under Milestone B for excess drilling and split-spoon sampling shall also apply to this cost adder milestone; however, would be applied beyond 20-feet per well.

- **Optional Cost Adder Milestone B1** – Unit cost for the boring advancement and installation of one (1) shallow monitoring well during a separate drilling mobilization following completion of the original Milestone B work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, surveying, and reporting.
- **Optional Cost Adder Milestone B2** – Unit cost for the boring advancement and installation of one (1) additional shallow monitoring well during a Milestone B1 drilling mobilization. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, surveying, and reporting.

Optional Cost Adder Milestone C – Additional Groundwater Monitoring and Sampling.

Provide a unit cost to complete an additional groundwater monitoring and sampling event during the site characterization activities. The scope of work for this cost adder should follow Milestone C.

- **Optional Cost Adder Milestone C3** – Unit cost for completing one (1) groundwater monitoring and sampling event at all six shallow monitoring wells installed as per Milestone B, and existing shallow wells MW-1 through MW-6 and bedrock well MW-7D. The unit cost shall be inclusive of all labor, equipment, laboratory analysis, waste handling/disposal, reporting, etc.
- **Optional Cost Adder Milestone C4** – Unit cost for monitoring and sampling one (1) additional shallow monitoring well during a sampling event for the other monitoring wells. The unit cost shall be inclusive of all labor, equipment, laboratory analysis, waste handling/disposal, reporting, etc.

Optional Cost Adder Milestone E1 – Performing Models SWLOAD5B and PENTOXSD. If it is determined from data collected during the additional site characterization and updating the fate and transport model that additional modeling is necessary to evaluate any future impacts to nearby surface water tributaries, the modeling work would be expanded to include completing SWLOAD5B and PENTOXSD. Bidders shall provide a fixed price, work scope, and rationale for this work. The fixed costs shall include all work necessary to complete SWLOAD5B and

PENTOXSD and reporting in the Revised SCR/RAP (Milestone H).

Optional Cost Adder Milestones I5 through I8 – Quarterly Groundwater Monitoring, Sampling, and Reporting. This optional milestone may be necessary if stability of the contaminant plume(s) is not adequately demonstrated to PADEP satisfaction during the base work scope of four quarters necessitating further monitoring. The scope of work for this optional cost adder shall follow Milestone I guidelines.¹⁹ Each bid must include the rationale for needing to implement this optional cost adder milestone.

Optional Cost Adder Milestone L1 – Additional Site Closure / Restoration Activities. A fixed unit cost shall be provided for the in-place abandonment of one monitoring well to be performed during the same mobilization to complete the Milestone L work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, well abandonment form, and photo-documenting. The scope of work for this cost adder should follow the details provided in Milestone L.

Optional Cost Adder Milestone M – Finalizing/Filing of EC. Under this task, the bidder shall describe and provide a fixed-price bid for finalizing and filing an EC for the Site for deed restrictions not identified in the existing EC. The fixed-price shall include all reasonable and necessary activities and required fees to finalize and file the EC for the subject property, with the local court house and other required entities. The successful bidder will be responsible for coordinating this work with the impacted property owner(s) and their legal counsel(s). Legal fees are not to be included in bid costs. PAUSTIF reimbursement of Client and/or third party legal fees will be considered outside of the executed Remediation Agreement.

Bidders are to assume that there would not be the need for any additional off-property ECs, including the downgradient off-property location where there is already an executed EC in-place (see Attachment 3f). If it is determined that an additional off-property EC is necessary, the necessary work to complete the EC would be handled outside of the Remediation Agreement on a time and material basis.

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

¹⁹ The costs for the monitoring and sampling of any additional monitoring wells installed as per Milestones B1 and B2 will be handled under Optional Cost Adder Milestone C4.

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 1, 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. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information/Historic Documents
 - a. Figures 1 and 2
 - b. 1st & 2nd Quarter 2019 Groundwater Data
 - c. March 2019 SCR/RAP
 - d. 6/12/19 PADEP Disapproval Letter
 - e. April 2015 RACR (previous 2006 release)
 - f. Executed ECs for previous 2006 release
 - g. Other Miscellaneous Information