

Request for Bid

Fixed-Price Defined Scope of Work to Complete Characterization

Solicitor

Lewis Brothers Garage

3 Hunts Court

Clark Summit, Pennsylvania 18411

PADEP FACILITY ID #35-10233

PAUSTIF CLAIM #2007-0053(F)

Date of Issuance

June 16, 2014

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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 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 <http://www.insurance.pa.gov>.

Calendar of Events

Activity	Date and Time
Notification of Intent to Attend Site Visit	July 3, 2014 by 5 p.m.
Mandatory Pre-Bid Site Visit	July 8, 2014 at 10 a.m.
Deadline to Submit Questions	July 15, 2014 by 5 p.m.
Bid Due Date and Time	July 24, 2014 by 3 p.m.

Contact Information

Technical Contact
Mr. Mark Bedle B&B Diversified Enterprises, Inc. PO Box 70 Barto, PA 19504 Phone – 610-845-0640 Fax – 610-845-0650 Email – mbedle@bbde.com

All questions regarding this Request for Bid (RFB) and the subject site conditions must be directed via e-mail 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 “[insert site name and claim number provided on cover page] – RFB QUESTION”. Bidders must neither contact nor discuss this RFB with the Solicitor, PAUSTIF, the Pennsylvania Department of Environmental Protection (PADEP), or ICF International (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 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. **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 “[insert site name and claim number provided on cover page]– SITE MEETING ATTENDANCE NOTIFICATION”.** The name and contact information of the company participant should be included in the body of the e-mail. Notification of intent to attend is appreciated; however, is not required. Attendance at the pre-bid site meeting is mandatory.

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 # [insert claim number provided on cover page]"**. 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 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 Request for Bid. 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 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 Scope of Work (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/milestones included the Bid Cost Spreadsheet and the total bid cost. Any optional 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.
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 ten.
 - 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 (i.e 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”.

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.

Site Address

Lewis Brothers Garage
PA Route 347
Olyphant PA 18447

Scott Township, Lackawanna County

Site Location and Operation Information

The Site is located on the northeastern corner of the intersection of PA Route 347 and Hilltop Road in Scott Township, Lackawanna County, Pennsylvania. The Site is currently utilized as a storage facility. Located at the Site are a one (1) story building, including a garage and offices, one (1) 6,000 gallon unleaded gasoline UST, and one (1) 10,000 gallon unleaded gasoline UST. In May 2007 the residual product remaining in both of the unleaded gasoline UST's located at the Site were pumped out and the UST's were placed in Temporarily Out of Service status. During April 2008 a partial system closure consisting of dispenser and product line removal was completed with the USTs remaining in place and out of service. Petroleum impacted soils were excavated to the maximum extent practical and post excavation soil samples indicate petroleum impacted soils remained in place exceeding the residential used aquifer Statewide health standard (SHS). One (1) 1,000 gallon used motor oil UST (orphan) was removed from the Site in July 2010. The surrounding properties are a mix of residential and commercial properties. The Site is supplied water from an off-site potable well and utilizes an on-lot septic system (unknown location). Public water is not available and all properties in the vicinity of the Site utilize potable wells. A Site Plan is provided in Attachment 3 as Figure 1, respectively. The closest surface water body is an unnamed tributary of Hull Creek located on the northeast side of the Site.

Site Background Information

In December 2006, Ms. Amy Jarrow, a resident of 899 Justus Boulevard (approximately 200 feet southeast of the Site) reported the presence of petroleum odors in the potable water at her residence to the PADEP. Analytical results of a potable water sample collected by the PADEP from the Jarrow residence potable well indicated the presence of MTBE at a concentration of 40.0 micrograms per liter (ug/L), which is above the Residential and Non-Residential SHS. Based on the results of the aforementioned sample, the Solicitor retained a consultant to complete site characterization activities at the Site.

During May 2007, the residual product was pumped out of both of the unleaded gasoline USTs (Tank #003 and Tank #004) and the USTs were placed in Temporarily Out Of Service status.

From May 2007 through August 2011, a total of 73 initial and 29 confirmatory drinking water samples were collected from private potable supply wells in the vicinity of the Site. The drinking water samples were laboratory analyzed for PADEP unleaded gasoline target compounds (benzene, toluene, ethylbenzene, total xylenes, cumene, naphthalene, MTBE, 1,2,4-TMB, and 1,3,5-TMB). Laboratory analytical results indicated that concentrations were detected in 27 individual wells. Point of Entry Treatment (POET) systems were installed on each of the 27 potable wells with detectable unleaded gasoline target compound concentrations.

Between February 28, 2008 and March 3, 2008, a total of 21 soil borings (TB-1 through TB-21) were installed at the Site. A total of 22 soil samples were analyzed for PADEP unleaded gasoline target compounds. The laboratory analytical results indicate benzene ethylbenzene,

toluene, naphthalene, xylenes, 1,2,4-TMB and 1,3,5-TMB were detected above their respective Residential PADEP SHS.

On March 10, 2008 through March 12, 2008, a total of five (5) overburden monitoring wells (MW-1S through MW-5S) were installed at the Site to depths ranging from 22.5 feet below surface grade (ftbsg) to 30 ftbsg. Initial sampling results indicated that benzene, MTBE, 1,2,4-TMB, and 1,3,5-TMB were detected above their respective PADEP SHS in monitoring well MW-4S.

On April 15, 2008, the two (2) product dispensers and product supply lines were removed from the UST systems. Approximately 60 tons of petroleum-impacted soil was excavated from these areas and ultimately transported off-site for disposal. Post-excavation soil samples were not collected.

On June 12, 2008, a total of four (4) additional soil borings (TB-22 through TB-25) were installed at the Site and five (5) soil samples were collected for laboratory analysis. The laboratory analytical results indicated that benzene, 1,2,4-TMB and 1,3,5-TMB were detected above their respective Residential PADEP SHS.

On June 12, 2008, a total of four (4) vapor monitoring wells (VP-1 through VP-4) were installed at the Site. Initial soil gas sampling results indicated that all parameters were below their respective PADEP screening criteria.

On June 13, 2008, three (3) surface water samples (SW-1, SW-2, and SW-3) were collected from an unnamed tributary to Hull Creek located adjacent to the Site. The laboratory analytical results for surface water indicated that all parameters were below PADEP SHS.

On June 18, 2008 through June 23, 2008, a total of one (1) overburden monitoring well (MW-6S) and three (3) bedrock monitoring wells (MW-1D, MW-2D, and MW-6D) were installed at the Site. Initial groundwater sampling results indicated that benzene, toluene, ethylbenzene, and total xylenes, naphthalene, 1,2,4-TMB, and 1,3,5-TMB were detected above their respective PADEP SHS in some or all of the wells.

In August 2008, both rising and falling head slug tests were performed on monitoring well MW-3S, MW-5S, and MW-2D. In August 2010, both rising and falling head slug tests were performed on multiple monitoring wells (MW-2S through MW-5S, MW-7S through MW-12S, and MW-8D through MW-13D).

On October 3, 2008, bedrock monitoring well (MW-7D) was installed at the Site to a total depth of 60 ftbsg.

In October 2008, a Preliminary Site Characterization Report (SCR) was prepared and submitted to the PADEP. The aforementioned report summarized the characterization efforts completed to date for the Site and recommended additional characterization activities.

On March 22, 2009, soil gas sampling points VP-1 through VP-4 were sampled and laboratory analytical results indicated that all parameters were below PADEP SHS.

On April 30, 2009, an 8-hour high vacuum extraction event was conducted at the Site on monitoring well MW-2S. A total of 1,199 gallons of product and petroleum impacted water was extracted from monitoring well MW-2S.

During March 2010 and April 2010, a total of six (6) additional bedrock monitoring wells (MW-8D through MW-13D) were installed at the Site to total depths ranging from 100 ftbsg to 201 ftbsg.

In May 2010, a total of seven (7) additional overburden monitoring wells (MW-7S through MW-13S) were installed at the Site. Initial groundwater sampling results indicated that benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, 1,2,4-TMB, and 1,3,5-TMB were detected above their PADEP SHS in some or all of the new wells.

On July 27, 2010, an orphan 1,000-gallon used motor oil UST was closed via removal after it was exposed by a precipitation event. Analytical results from two (2) soil samples collected as part of the UST closure activities indicated that all parameters were below PADEP SHS.

In September 2010, approximately 426.67 tons of petroleum-impacted soil was excavated from the vicinity of the former dispenser islands and product piping runs and transported off-site for disposal. A total of 12 post excavation soil samples were collected from the excavation area in accordance with the Systematic Random Sampling Procedures set forth in the Act 2 Technical Guidance Manual. The laboratory analytical results indicate that benzene, MtBE, 1,2,4-TMB, and 1,3,5-TMB were detected above their respective Act 2 standards in some of the samples.

During October 2010, aquifer testing was conducted at the Site. Both a step pump test and a constant rate pump test were conducted at the Site on monitoring well MW-11D.

During July 2011 and August 2011, a replacement potable supply well was installed off-site at the Jarrow residence. The replacement supply well was installed to a total depth of 352 ftbsg and had steel casing installed to 230 ftbsg, and was left a 6" open rock borehole from 230 ftbsg to 352 ftbsg. Initial sampling results indicated that all parameters were not detected above PADEP SHS and the well was placed on-line on October 4, 2011. On December 2, 2011 the former Jarrow production well was abandoned by filling the well from bottom to top with grout.

On August 16, 2011, one (1) additional overburden monitoring well (MW-14S) was installed at the Site to a total depth of 20 ftbsg and had three (3) feet of PVC riser installed in the well.

Groundwater, surface water, potable well, and soil gas sampling events have been conducted at the Site on a periodic basis over the past five (5) years and have been reported to PADEP in numerous reports prepared by the previous environmental consultant.

On June 19, 2013, a SCR was submitted to the PADEP on behalf of the client by the previous consultant. The SCR summarized characterization and risk assessment activities completed to date and indicated that a combination of SHS (groundwater) and SSS (soil) would be applied to the Site. A remedial alternatives evaluation suggested leaving impacted soils in place (SSS – pathway elimination), active remediation of shallow groundwater, natural attenuation of groundwater within the bedrock aquifer, and the utilization of POET systems on potable wells as an engineering control.

In a letter dated September 12, 2013, the June 2013 SCR was disapproved by PADEP. A copy of the letter is included in Attachment 3. Several reasons and/or comments were cited in the letter as to why the SCR was disapproved. A summary of the reasons and comments follows:

1. Soils have not been fully delineated as required.
2. Provide details of the steps that have been taken or are being taken to restore or replace affected or diminished water supplies.
3. The SCR indicates that there are vapor standards. The numerical values associated with PADEP's guidance are screening criteria and not cleanup standards.
4. The SCR indicates vapor modeling results pass with regard to the "subject property". All potential receptors and source areas need to be fully evaluated and described within the SCR.
5. The potential exposure pathways for soils were evaluated incorrectly. All potential exposure pathways must be evaluated.
6. The presence and use of POETS as an engineering control to eliminate an exposure pathway may be viable. However, they need to be properly maintained, sampled, and included in a post remedial care plan. They may also need to be included in a covenant(s).
7. Results and an explanation of the results is needed pertaining to why the provided report contains no sampling data from both the monitoring wells and supply wells after June of 2012.
8. The SCR indicates the SSS is proposed for soils via the installation and maintenance of an asphalt cap as an institutional control. This proposed remedy does not address the off-site impacted soils in the smear zone. Also, the corresponding plot maps depicting the impact to each of the specific soil zones should only include the specific sampling locations associated with that zone.
9. The SCR indicates 12 post-excavation soil samples were collected from the September 2010 source area excavation. A plot map drawn to scale and indicating all pertinent features is needed including but not limited to the sampling locations and depths. Also, an explanation is needed regarding why additional source removal was not completed, since nine (9) of the 12 samples collected still exceed the applicable standards.
10. The SCR indicates the September 2010 post-remedial soil sampling was done in a systematic random manner. The soil impact has not been delineated and the excavation did not remove all impacted soils. Therefore, the PADEP views them as characterization not attainment samples.
11. The former 1,000-gallon used motor oil tank needs to be noted on all applicable plot maps.
12. Contaminant trend analysis contained within the SCR indicates increasing trends in groundwater including the bedrock aquifer. Therefore the proposed monitored natural

attenuation of this aquifer needs to be reconsidered. All data needs to be provided in tabular format. The SCR indicates the observed increasing trends were likely due in part to the completed interim remedial actions. Documentation was not provided to substantiate this assertion.

13. Figure 9C needs to be modified. It shows TB-11 within the zone of impact but was not sampled and TB-5 is also shown within the zone of impact and it was not impacted.
14. Provide an explanation of the detected levels of benzene for the 11/8/11 sampling event of MW-12D.
15. A pilot study will be necessary for the selected remedial technique after the characterization is completed. The pilot study will need to verify effectiveness of the selected technique as well as any effects on the nearby stream and/or water supply wells.
16. The evaluation of remedial options needs to address removal of free product to the maximum extent practical.
17. The screens for shallow monitoring wells 4, 11, and 14 are “drowned” or completely submerged under water. This is viewed as a result of the the extremely high water table. Therefore, when collecting samples for laboratory analysis the water level must be within the screened portion of the well.
18. An explanation is needed regarding the November 2011 sampling event for the MtBE Isoconcentration map. Specifically, how was the 5ppb isopleth determined without wells to the extent of the projected concentration extent?
19. The Remedial Action Plan was not reviewed in its entirety and the draft environmental covenant was not evaluated due to the incompleteness of the site characterization, as well as the fact that all off-site impacts were not evaluated.
20. Quarterly sampling and reporting should continue through the site characterization process.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the Scope of Work (SOW) specified herein. The SOW presented in this RFB was provided to the PADEP for review and comment. A response was received from the PADEP via e-mail on April 4, 2014. PADEP’s comments are provided in Attachment 3j. The Technical Contact provided a letter responding to PADEP’s comments dated April 21, 2014 (Attachment 3j) and this RFB was modified based upon PADEP comments.

Objective

This RFB is seeking qualified firms to prepare and submit a fixed price proposal to complete a Defined Scope of Work. Specifically, this RFB seeks competitive bids to complete additional characterization activities, prepare an appropriate SCR, evaluate potential remedial strategies, and facilitate progress towards site closure in a timely, efficient, and cost effective manner. A petroleum release has been confirmed at the Site in both soil and groundwater.

Constituents of Concern (COCs)

The list of COCs for this Site include the following:

- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- MTBE
- Naphthalene
- Cumene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene

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:¹

- 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 of 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.
 - **If the site is located in PADEP Southwest Region:** All investigation derived wastes shall be handled and disposed of per PADEP's Southwest Regional Office guidance. Investigation derived wastes include personal protective equipment, disposable equipment, soil and drill cuttings and groundwater obtained through monitoring well development and purging, as well as equipment decontamination fluids. Investigation derived wastes must be containerized in DOT-approved drums and staged on-site in a pre-determined location, pending results of laboratory analyses and selection of final disposal method(s). Each container must be labeled to indicate contents, site location and date of generation. It is the selected consultant's responsibility to conform with current PADEP Southwest Regional Office guidance requirements.

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

- **If the site is located in any PADEP Region other than Southwest:** All investigation derived wastes shall be handled and disposed of 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.

Site –Specific Guidelines

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

- **Scheduling:** As part of this RFB, the selected consultant shall provide a clear deadline (i.e., within 30 days of the contract being executed) as to when each of the milestones will be completed. This includes the expected date (i.e., within 90 days of the contract being executed) when the draft SCR will be submitted to the Solicitor, PAUSTIF and B&B for review. All on-site work should be completed during the normal working days and hours of 8 am to 5 pm from Monday through Friday.
- **Responsibility:** The selected consultant will be the consultant of record for the Site. They will be required to take ownership and responsibility for the project and will be responsible for representing the interests of the Solicitor and ICF/PAUSTIF with respect to the project. This includes utilizing their professional judgment to ensure reasonable and appropriate actions are recommended and undertaken to protect sensitive receptors, adequately characterize the Site, and move the Site towards closure.
- **Scope of Work:** Please bid the scope of work as provided in the RFB. Consultants are welcome to propose or suggest a change in the SOW; however, the consultant should bid the SOW as presented in the RFB and provide any suggested modification to the SOW and provide the cost difference (+ or -) separately in the proposal.
- **Safety Measures:** Each consultant should determine the level of safety measures needed to appropriately complete the milestones. Specifically, if a consultant feels it is appropriate and necessary to complete activities such as a hole clearing activities, the cost should be included in their proposal and costs. More importantly, if a consultant includes the cost to complete safety activities, they should specify it in their proposal 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 proposals and other factors are taken into consideration during the review process, including appropriate safety measures.

- **Waste Disposal:** The IDW waste (including soil/rock cuttings, development water, and liquids generated during installation and aquifer testing) should be disposed of 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. In an effort to eliminate or minimize the need for change orders on a fixed price contract, please include costs to dispose of all anticipated volumes of waste in your bid response. PAUSTIF will not entertain any assumptions on the contract with regards to a volume of waste (i.e., Project costs assume that no more than 1,000 gallons of groundwater will require disposal after the completion of the pump test). 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. Please estimate the volume of waste using your professional opinion, experience, and the data provided. Invoices submitted to cover additional costs on waste generated as part of activities included under the fixed price contract for this Site will not be paid.
- **Optional Cost Adder Milestones:** Milestone A through Milestone P represents the base Scope of Work for this RFB solicitation. These milestones have been specifically developed in an effort to complete the PADEP’s site characterization requirements. In addition to the above base Scope of Work, the Optional Cost Adder Milestones (Milestone Q through Milestone Z) need to be addressed in your bid response. These cost adders will not be part of your initially approved contract. However, if it becomes necessary to complete any of these activities, they will be completed under the Remediation Agreement signed as part of this project.

Site – Specific Milestones

The following milestones are to be included in bid responses:

Milestone A – Sensitive Receptor Survey – A Sensitive Receptor Survey (SRS) should be conducted for this Site. Sensitive receptors evaluated for this Site should include area water usage, surface water bodies, and subsurface underground utilities and basements. Submitted bids should specify what activities will be included in the SRS activities (i.e., review of tax maps and property assessment records, area canvass, PNDI search, etc.). A 1,000-foot radius water usage survey should be completed as part of the SRS in an effort to document the area water use. As part of the water usage survey, the selected consultant should complete the following:

1. Conduct a private and public well search by obtaining an area specific report;
2. Obtain and review tax maps for the area;
3. Contact the local municipality and water authority to confirm water usage in the area of the Site and any local restrictions on water usage;
4. Review of previously completed sensitive receptor surveys;
5. Review of county property assessment records;
6. Canvass of the area; and
7. Field verification of water supply to surrounding properties.

Results of the SRS are to be taken into consideration during the execution of the project and are to be summarized and included in the SCR to be submitted to PADEP.

Milestone B – Off-Site Access and Permitting –

- Milestone B1 – Modify Existing Agreements – The previous consultant entered into agreements with seven (7) off-site property owners to permit installation of groundwater monitoring wells and ongoing access to those wells. The agreements were prepared in the name of the previous consultant and will need to be converted into new agreements in the name of the Solicitor. Two (2) of the seven (7) properties, Scott Township (Hilltop Road) and Peregrim, will also need to be further modified to permit the installation of soil boring. Copies of the existing agreements are included in Attachment 3. B&B is aware that one (1) of the properties (formerly Jarrow; now Jones) has been recently sold. Therefore, an agreement with the new property owner will be necessary. The consultant will be expected to submit up to two (2) certified letters (with proposed agreements) to affected property owners requesting continued access. If access is not retained, PADEP assistance shall be requested to obtain the desired continued access.
- Milestone B2 – Obtain Access to Additional Properties – The soil boring investigation referenced in Milestone D will require access to two (2) additional off-site properties and public roadways. Two (2) of the properties, Pascavage and Strong, will require new agreements. The consultant will be expected to submit up to two (2) certified letters (with proposed agreements) to both of the affected property owners requesting continued access. If access is not retained, PADEP assistance shall be requested to obtain the desired continued access.
- Milestone B3 – Obtain PennDOT Right of Way Permit – Some of the below proposed soil borings are located within the PennDOT right-of-way. The selected consultant will be responsible for obtaining any/all necessary PennDOT authorizations to advance borings within their right-of-way. Please note, PennDOT typically waives permit fees for other state agencies including the insurance department upon issuance of a letter from the requesting agency, which will be provided upon request. Therefore bidders should not include permit fees in this bid.

Milestone C – Private Utility Markout - Prior to any intrusive investigation work at the Site (i.e., soil borings, monitoring well drilling), a private markout is to be conducted at the Site (and/or off-site location where intrusive activities will be conducted) to confirm the location of any obstruction or underground utility present in the vicinity of the proposed intrusive activity locations. The locations of the identified features should be marked with white paint on the asphalt areas and white flags in grassy areas. A report shall be provided with an explanation of the identified features. The identified features should be included in the site survey described in Milestone F.

Milestone D – Soil Boring Investigation – In an effort to fully investigate the impact to the soil media, a series of soil borings is being proposed. Specifically, the activities include the completion of 15 soil borings (TB-26 through TB-40) utilizing a direct push sampling approach (e.g., Geoprobe®). Specifics on the proposed investigation are provided below:

- The proposed locations of the 15 soil borings (TB-26 through TB-40) are provided on the attached Figure 2. All soil boring locations will be advanced in the locations proposed in the RFB, unless the presence of utilities, obstructions, or safety concerns requires a change in the location. If due to valid concerns the general locations of the proposed borings need to be altered more than eight (8) feet from the approximate locations provided on the attached figure, then the selected consultant will be required to contact the PADEP, discuss the need for the changes, and provide the PADEP with a revised soil boring location map.
- Prior to the advancement of the soil borings, the selected consultant will be required to complete a private markout at the Site to identify the location of obstructions and underground utilities as part of Milestone C. If a consultant feels it is appropriate and necessary to complete hole-clearing activities before advancing the borings, the cost should be included in their proposal and costs. If a consultant includes the cost to complete hole-clearing, they should state it in their proposal and discuss why it is appropriate and necessary. As discussed in the RFB, cost is not the only factor when evaluating proposals and other factors are taken into consideration during the review process, including appropriate safety measures.
- Soil borings will be advanced to groundwater, bedrock, or refusal, whichever is encountered first. However, in the event that there is no evidence of petroleum hydrocarbon impact (includes olfactory, visual, and field instrument detections) for more than 30 feet, then the boring may be terminated. Soil samples will be collected and logged continuously by an on-site geologist for soil classification and structure, odor, soil moisture, soil texture, color, visual petroleum impacts and screened with an appropriate field-screening instrument. Soils should be described using the Unified Soil Classification System.

- A total of 30 soil samples (two (2) soil samples per boring) shall be collected and submitted to an accredited laboratory for analysis. One (1) sample from each boring should be collected from the soil interval exhibiting the highest field-screening reading or evidence of petroleum impacts (i.e., staining, free product, etc.) in each borehole. The second soil sample will be collected at the bedrock interface or just above groundwater (if encountered) in an effort to delineate the soil impacts. Please note that if no elevated field-screening readings or other indicators of impact are observed, two (2) soil samples should still be collected from each boring with one (1) sample to still be collected at the bedrock interface or just above groundwater (if encountered). The depth of the other sample (if no elevated field-screening readings or other indicators of impact are observed) should be determined based on the selected consultant's professional opinion.
- A total of 30 soil samples are proposed to be collected and field preserved in accordance with EPA Method 5035. The samples will then be placed on ice and delivered to an accredited laboratory for chemical analysis. Soil samples will be collected and analyzed for the PADEP unleaded gasoline short list (benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, isopropylbenzene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene). The analytical data, field results, boring logs, and sampling map from the event will be summarized and included in a SCR.
- In addition, one (1) duplicate sample and one (1) equipment blank sample will be collected and submitted per day of sampling.
- Samples should be properly handled under chain of custody documentation protocol and kept cold from sample collection until the samples are relinquished to the accredited laboratory.
- The laboratory to be utilized should be identified in the bid package. Upon receipt of the results, the consultant should forward a copy of the analytical data to the Solicitor and PAUSTIF (or its designated representative).
- Compile the field findings and laboratory data into a summary table and comprehensive soil boring logs.

Milestone E – Soil Vapor Investigation – During the characterization of the Site, a total of six (6) soil gas samples are proposed to be collected during each of the two (2) soil gas sampling events. Please note that PAUSTIF will only pay the selected firm for the actual number of events conducted (i.e., if a firm includes the costs to complete two (2) events, but only one (1) event is conducted, then the firm will only be paid for the one (1) event completed). The selected consultant should be prepared to conduct the first soil gas sampling event at the Site

within two (2) weeks of the execution of the contract and conduct the second event approximately six (6) weeks after the first event. As part of the soil gas investigation, the selected consultant should consider the following:

- Four (4) soil gas points are present at the Site and two (2) additional points are to be installed. All soil gas points will be advanced in the locations proposed in the RFB, unless the presence of utilities, obstructions, or safety concerns requires a change in the location. The proposed locations of the soil gas points are provided on the attached Figure 3.
- The vapor intrusion investigation should be completed in a manner consistent with the Land Recycling Technical Guidance Manual – Section IV.A.4 Vapor Intrusion Into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standards, Document 253-0330-100, dated January 24, 2004.
- Samples should be collected in laboratory provided Summa canisters equipped with laboratory calibrated flow regulators and analyzed for the PADEP Constituents list for unleaded gasoline via TO-15.
- The laboratory to be utilized should be identified in the bid package. Upon receipt of the results, the consultant should forward a copy of the analytical data to the Solicitor and PAUSTIF (or its designated representative).

Results from soil gas sampling events will be summarized and presented to the PADEP in the SCR.

Milestone F – Site Survey – Following the completion of Milestone C, Milestone D, and Milestone E, a professional survey of the Site by a Pennsylvania-licensed surveyor including all current site features (e.g., buildings, property boundaries, monitoring wells, sanitary and storm sewers, etc.) shall be completed. All monitoring wells, soil borings, soil gas points, the Site building, sanitary and storm sewer lines, property boundaries and other important site features are to be surveyed with the purpose of placing their horizontal coordinates on a scaled site map. In addition, the vertical coordinates of the new monitoring well top of casings and surface grade are to be surveyed. The benchmark elevation shall be obtained by referencing the approximate ground surface elevation of the property or from an available benchmark from a USGS topographic map or benchmark elevation marker located at the Site. In conjunction with collecting depth to groundwater readings during sampling events and in an effort to establish groundwater flow at the Site, tops of casing for the existing monitoring wells are to be surveyed to facilitate the construction of a site wide groundwater flow map. In addition, the presence of SPL (if detected) needs to be taken into consideration when calculating the static water levels in the wells and constructing a site wide groundwater flow map. Groundwater elevation data collected following the installation of the additional monitoring wells along with data from the site

survey will be utilized to produce a series of summary figures which will provide additional information as to the groundwater flow direction in each of the monitored water bearing zones.

Milestone G – Potable Well Sampling – Tier 1 Wells – A total of three (3) off-site potable wells (Crossley, Jones, & Kowalski) are categorized as Tier 1 wells and are sampled on a quarterly basis. The Crossley and Kowalski wells have POET systems that are sampled influent, mid-fluent, and effluent on a quarterly basis with influent and mid-fluent samples analyzed via EPA Method 8260B and the effluent samples analyzed via EPA Method 524.2. The previously impacted Jones well was abandoned and replaced with a new well that has not exhibited detectable concentrations of unleaded gasoline target compounds. Therefore the new Jones well does not have a POET system and a single sample is collected from the well and analyzed via EPA Method 524.2 on a quarterly basis. Upon receipt of the laboratory analytical report the bidder shall prepare and submit a letter format report to the individual property owners. For purposes of preparing this bid, the bidders should include two (2) quarterly sampling events from this group of potable wells.

Milestone H – Potable Well Sampling – Tier 2 Wells Quarterly Event – A total of eight (8) of the off-site potable wells (Bright, Fryzell, Hryhorcoff, Kvaka, Lewis, Pascavage, Steinmetz, and Strong) are categorized as Tier 2 wells and are sampled on a quarterly basis. All eight (8) Tier 2 wells have POETs, however only influent samples are collected on a quarterly basis based on observed influent concentrations. Therefore a single influent sample should be collected from each well and analyzed via EPA Method 524.2 on a quarterly basis. Upon receipt of the laboratory analytical report the bidder shall prepare and submit a letter format report to the individual property owners. For purposes of preparing this bid, the bidders should include one (1) quarterly sampling event from this group of potable wells.

Milestone I – Potable Well Sampling – Tier 2 Wells Annual Event – As noted in Milestone H, a total of eight (8) off-site potable wells (Bright, Fryzell, Hryhorcoff, Kvaka, Lewis, Pascavage, Steinmetz, and Strong) are categorized as Tier 2 wells. All eight (8) Tier 2 wells have POETs, however only influent samples are collected on a quarterly basis. During the annual sampling event, influent, mid-fluent and effluent samples are collected from all Tier 2 wells with influent and mid-fluent samples analyzed via EPA Method 8260B and the effluent samples analyzed via EPA Method 524.2. Upon receipt of the laboratory analytical report the bidder shall prepare and submit a letter format report to the individual property owners. For purposes of preparing this bid, the bidders should include one (1) annual sampling event from this group of potable wells.

Milestone J – Potable Well Sampling – Tier 3 Wells – A total of 16 of the off-site potable wells (Bobar, Kalinowski, Kazuba, King, Kovalski, Kropiewnicki, Kuzmiak, Stephens, Makala, Nole, Pruzinski, Rabel, Rusyn, Telesz, Tokarz, and Trinovitch) are categorized as Tier 3 wells and are sampled on an annual basis. All 16 Tier 3 wells have POETs. During the annual sampling event, influent, mid-fluent and effluent samples are collected from all Tier 3 wells with influent and mid-fluent samples analyzed via EPA Method 8260B and the effluent samples analyzed via EPA Method 524.2. Upon receipt of the laboratory analytical report the bidder shall prepare and

submit a letter format report to the individual property owners. For purposes of preparing this bid, the bidders should include one (1) annual sampling event from this group of potable wells.

Milestone K – Aquifer Testing – Shallow Aquifer

Milestone K1 - Slug Tests – Rising head slug testing will be conducted on four (4) of the shallow monitoring wells at the Site. A PVC slug will be used to displace the static water level in the well while a transducer will record water levels before the slug is placed in the well, during the recovery of the water level back to the original static water level, and following the removal of the slug. Transducers should be used to monitor the water levels in the wells during each of the slug tests. The data collected by the transducer during the slug tests will be utilized by the selected consultant to calculate site-specific hydrogeologic values including permeability. All of the calculated values will allow for the modeling efforts and risk assessment activities to be conducted with site specific data rather than using published values. In addition, the data collected during the slug testing of the monitoring wells will be evaluated to determine the appropriate monitoring well to be used for the step test and the eight (8) hour pump test. Results from the slug testing activities are to be summarized and included in the SCR to be submitted to PADEP.

Milestone K2 - Step Test – The shallow monitoring well demonstrating the highest permeability during the slug test will be used for the step test and the subsequent eight (8) hour pump test. The selected consultant will conduct a two-hour step test on the well determined by the slug test results to have the highest permeability. The data collected during the step drawdown test will be used to determine an optimal pumping rate and yield for the constant rate pumping test. Results from the step testing activities are to be summarized and included in the SCR to be submitted to PADEP.

Milestone K3 – Pump Test – Once the pumping rate has been determined, an eight (8) hour constant rate pumping test will be conducted by the selected consultant on the selected shallow monitoring well at the Site. Transducers will be used to monitor the resultant water levels in the pumping well and surrounding monitoring wells to be determined at a later date. Also, the remaining monitoring well network should be gauged periodically throughout the test to provide additional aquifer characterization data. Data collected during the constant rate pumping test will be analyzed and used to calculate site specific aquifer values including hydraulic conductivity, transmissivity, storage capacity, and groundwater seepage velocity. All of the calculated values will allow for the modeling efforts and risk assessment activities to be conducted with site specific data rather than using published values. Results from the pump testing activities are to be summarized and included in the SCR to be submitted to PADEP. All IDW waste should be disposed of per the instructions included in the “General SOW Requirements” and “Site Specific Milestones” section of the RFB.

Milestone L – Aquifer Testing – Bedrock Aquifer

Milestone L1 - Slug Tests – Rising head slug testing will be conducted on four (4) of the deep monitoring wells at the Site. A PVC slug will be used to displace the static water level in the well while a transducer will record water levels before the slug is placed in the well, during the recovery of the water level back to the original static water level, and following the removal of the slug. Transducers should be used to monitor the water levels in the wells during each of the slug tests. The data collected by the transducer during the slug tests will be utilized by the selected consultant to calculate site-specific hydrogeologic values including permeability. All of the calculated values will allow for the modeling efforts and risk assessment activities to be conducted with site specific data rather than using published values. In addition, the data collected during the slug testing of the monitoring wells will be evaluated to determine the appropriate monitoring well to be used for the step test and the eight (8) hour pump test. Results from the slug testing activities are to be summarized and included in the SCR to be submitted to PADEP.

Milestone L2 - Step Test – The deep monitoring well demonstrating the highest permeability during the slug test will be used for the step test and the subsequent eight (8) hour pump test. The selected consultant will conduct a two-hour step test on the well determined by the slug test results to have the highest permeability. The data collected during the step drawdown test will be used to determine an optimal pumping rate and yield for the constant rate pumping test. Results from the step testing activities are to be summarized and included in the SCR to be submitted to PADEP.

Milestone L3 – Pump Test – Once the pumping rate has been determined, an eight (8) hour constant rate pumping test will be conducted by the selected consultant on the selected deep monitoring well at the Site. Transducers will be used to monitor the resultant water levels in the pumping well and surrounding monitoring wells to be determined at a later date. Also, the remaining monitoring well network should be gauged periodically throughout the test to provide additional aquifer characterization data. Data collected during the constant rate pumping test will be analyzed and used to calculate site specific aquifer values including hydraulic conductivity, transmissivity, storage capacity, and groundwater seepage velocity. All of the calculated values will allow for the modeling efforts and risk assessment activities to be conducted with site specific data rather than using published values. Results from the pump testing activities are to be summarized and included in the SCR to be submitted to PADEP. All IDW waste should be disposed of per the instructions included in the “General SOW Requirements” and “Site Specific Milestones” section of the RFB.

Milestone M – Soil Vapor Extraction Pilot Test - SVE pilot tests are used to assess unsaturated zone vapor permeability, vapor flow versus induced vacuum characteristics, vacuum radius of influence (ROI), hydrocarbon mass removal rates, and the feasibility of Soil vapor extraction (SVE) technology as a remediation technique. If determined feasible, the test results (influent flow rates, radius of vacuum influence, influent vapor concentrations, etc.) provide the information necessary to design both an SVE treatment point network and the process equipment necessary to effectively remediate subsurface soil. For this milestone, bidders should include all necessary activities and costs associated with the completion of appropriate SVE pilot testing in their bid. The bidder shall provide a detailed description of their proposed pilot testing including rationale, the use of existing or installation of new data monitoring/collection points, proposed equipment to be used, and the data that is proposed to be collected.

The SVE pilot test shall include both short-term vacuum versus air-flow step tests (step tests) and longer term constant vacuum ROI tests. The bids shall provide a detailed SVE pilot test plan (SVE Plan) describing which monitoring well(s) or extraction wells are to be utilized for extraction and which monitoring wells or other types of points (i.e., soil gas sampling points) are to be used for vacuum ROI monitoring and groundwater depth monitoring. If additional SVE extraction wells or monitoring points are deemed necessary for completion of the SVE testing, the bids shall provide locations, construction specifications, and justification for their necessity. The SVE plan shall provide a detailed procedure for completing the entire pilot test, including a sequence for how pre-test monitoring, active test monitoring, and post-test monitoring will occur. The SVE Plan shall describe and provide operating parameters for the equipment to be used for vapor extraction as well as describe the equipment used for vapor quality monitoring, vacuum measurement, flow measurement, and vapor treatment (if necessary). In addition, the SVE Plan shall describe how potential influent groundwater will be separated from the air stream, handled, treated, and/or disposed (if necessary).

The vacuum inducing equipment (blower, liquid ring pump, vac truck, etc.) should be sized for operation on one (1) extraction point at a time. The equipment operating parameters such as flow at maximum vacuum, and maximum flow at ambient intake vacuum shall be included in the bid and based on professional experience with regards to the unsaturated zone geology and anticipated vapor permeability at the Site.

Two (2) to three (3) shallow monitoring wells shall be selected as SVE test extraction wells based on the existing soil contamination concentrations, dissolved phase contaminant concentrations, soil gas concentrations, proximity to monitoring points (soil gas, shallow monitoring wells, and bedrock monitoring wells), and proximity to the UST cavity and former soil excavation. The selected extraction wells shall be used for both the SVE step test and the subsequent constant-rate SVE ROI test. The extraction wells should be selected so that the variability of the subsurface vapor permeability and flow/vacuum characteristics due to excavations, UST holds, buildings, etc. will be evaluated and so that a SVE system can be designed to remediate unsaturated soils at the Site. Prior to any active SVE extraction, static groundwater depths and surrounding monitoring point vacuum/pressure levels should be measured and recorded. At each chosen extraction well, the selected consultant will initially conduct a flow versus vacuum step test immediately followed by the longer term SVE ROI test. The step test shall be conducted so that extracted airflows are measured and recorded starting at lower vacuum levels and then also at increasing vacuum levels in a step wise fashion. The

stabilized airflow should be recorded at each step up in induced vacuum. The data collected during the step test will be used to determine an optimal vacuum and air flow-rate for the constant-rate ROI test. The duration of each step up in vacuum should be sufficient to reach a stable airflow at the set vacuum level. Results from the step testing activities are to be recorded, summarized, and included in the SCR to be submitted to PADEP.

Once the step test is completed to the maximum vacuum level of the equipment or planned for the test, a longer term constant vacuum SVE ROI test shall be conducted. The ROI test shall be completed at each extraction well immediately following the step test at each extraction well. Vacuum gauges will be used to monitor the pressure/vacuum levels in the surrounding monitoring wells at defined periods of time until the surrounding monitoring point vacuums/pressures remain stable. Also, the remaining monitoring well network should be gauged periodically throughout the test to provide additional aquifer characterization data. Influent air samples should be collected at the beginning and end of the test for analysis of total petroleum hydrocarbons and unleaded gasoline target compounds. Data collected during the constant-rate SVE test will be analyzed and used to calculate potential remedial system design parameters. The consultant should clearly specify in their bid the well(s) to be extracted from, wells to be monitored, specific equipment to be utilized for the SVE tests including their operability ranges for both air flow and induced vacuum. Results from the SVE testing activities are to be summarized and included in the SCR to be submitted to PADEP.

If proposed, costs for the installation of additional SVE test points should be included as part of the milestone. All IDW waste should be disposed of per the instructions included in the "General SOW Requirements" and "Site Specific Milestones" section of the RFB. Invoices submitted to cover additional costs generated as part of activities included under the fixed price contract for this Site will not be paid.

As discussed in the RFB, cost is not the only factor when evaluating proposals and other factors are taken into consideration during the review process, including a bidder's technical approach to the SVE pilot testing.

Milestone N – Groundwater & Surface Water Monitoring and Sampling - The selected consultant will gauge and sample the entire monitoring well and surface water sampling network. For this RFB, please assume the total number of monitoring and sampling events that will be needed is two (2) events. Please note that PAUSTIF will only pay the selected firm for the actual number of events conducted (i.e., if a firm includes the costs to complete two (2) events, but only one (1) event is conducted, then the firm will only be paid for the one (1) event completed). The selected consultant should be prepared to conduct the first groundwater sampling event at the Site approximately 90 days after the previously conducted quarterly groundwater sampling event and conduct the second event approximately 90 days after the first event (The current consultant has agreed to continue quarterly sampling at the Site until execution of a contract with a new consultant). Each event should include the following:

- Collect water level readings from each of the monitoring wells using an interface probe capable of distinguishing water and/or the presence or absence of product to the nearest 0.01 feet.

- Record the depth to water readings from the monitoring wells and then use the data to determine water level elevations such that groundwater flow direction can be confirmed.
- Groundwater sampling activities should be conducted in accordance with generally accepted practices as outlined in the final version of the PADEP Groundwater Monitoring Guidance Manual.
- Prior to the collection of groundwater samples, the water column in each of the monitoring wells should be purged by either the removal of approximately three (3) volumes of the water column or via low flow sampling method.
- Sampling equipment should be decontaminated prior to sample collection in accordance with generally accepted industry practices.
- Following purging activities, groundwater samples should be collected as quickly as practical from each of the wells into laboratory supplied bottleware.
- Samples should be properly handled under chain of custody documentation protocol and kept cold from sample collection until the samples are relinquished to the accredited laboratory.
- Groundwater and surface water samples collected during each of the events will be sent to an accredited laboratory to be tested for the required constituents of concern in accordance with Pennsylvania's Storage Tank Regulation procedures and cleanup standard criteria as specified in Pennsylvania's Act 2. Specifically, each sample will be analyzed for PADEP unleaded gasoline short list (benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, isopropylbenzene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene).
- Groundwater samples shall be collected from each monitoring well (MW-1s – MW-17s, MW-1d – MW-13d, and OW-1) for a total of 28 groundwater samples. Monitoring well locations are provided on Figure 1 in Attachment 3.
- Surface water samples shall be collected from each surface water sampling point (SW-1 – SW-6) for a total of six (6) surface water samples. Surface water sample locations are provided on Figure 4 in Attachment 3.

- In addition to the samples collected from the monitoring wells and surface water locations, one (1) duplicate sample and one (1) equipment blank sample will be collected and submitted per day of sampling.
- The laboratory to be utilized should be identified in the bid package. Upon receipt of the results, the consultant should forward a copy of the analytical data to the Solicitor and PAUSTIF (or its designated representative). Following collection of the second round of groundwater monitoring and sampling data, a determination will be made whether additional characterization efforts will be needed or if the completed efforts have fully characterized and delineated the groundwater and soil at the Site. The selected consultant will keep PAUSTIF and the Technical Contact updated on the progress of the investigation.
- All IDW waste should be disposed of per the instructions included in the “General SOW Requirements” and “Site Specific Milestones” section of the RFB.

Milestone O – Fate and Transport Modeling and Site Characterization Report –

Milestone O1 - Fate and Transport Modeling – Fate and Transport evaluations shall be completed as appropriate and consistent with Act 2 guidance documents in order to assess the potential for contaminant migration. This evaluation should take into consideration both the groundwater and soil exceedances at the Site. Each firm should evaluate the data and site specific information provided and determine the most applicable model or models needed to complete appropriate fate and transport modeling for the Site. Please specify which modeling software will be used to predict fate and transport of the COCs exceeding the PADEP SHS in groundwater at the release location and its applicability to the Site.

Milestone O2 - Preparation of a Site Characterization Report – Following the completion of the activities proposed in Milestone A through Milestone N as well as the Fate and Transport Modeling noted in Milestone O1, the selected consultant will prepare an SCR for the Site. The information gathered during the aforementioned milestones should be incorporated into a comprehensive SCR that will be submitted to the PADEP and will facilitate the objective to complete regulatory requirements governing the SCR and gain PADEP approval for the report. Specifically, the report should summarize the results of the recent investigations, the findings of the previous investigations, a comprehensive site history, sensitive receptor information, risk assessment, geologic data, results and analysis of the aquifer testing, discussion on the completed remediation efforts, summary of the predictive modeling efforts completed (if applicable), and a series of summary tables, appendices, and figures illustrating the information provided in the report.

The Report will be completed following the guidelines specified in Pennsylvania Code, Title 25, Chapter 245 and the Land Recycling Program (Act 2) Technical Guidance Manual for a Site Characterization Report. The selected consultant will also present significant conclusions and make recommendations for future work at the Site in the SCR. The report will be appropriately signed and sealed by a licensed Professional Geologist.

Within 120 days of contract execution, a draft SCR and all AutoCAD maps / plans included in the report (e.g., site plan / base map, groundwater elevation maps, dissolved plume maps, soil contaminant distribution maps, etc.) and appendices (e.g., boring logs, tables, waste disposal documentation, modeling results and analysis, and sensitive receptor information) shall be submitted electronically (in Adobe PDF format) and in hard copy to the Solicitor, PAUSTIF and the Technical Contact for review / comment prior to finalizing the SCR. Once the selected consultant has addressed comments on the draft, the selected consultant shall finalize and issue the report to the PADEP. The draft report is to be submitted no later than the date specified in the schedule presented by the selected consultant.

Milestone P – Feasible Remedial Alternatives Analysis –

Milestone P1 – Remedial Alternatives Analysis – A Remedial Alternatives Analysis should be completed for the Site to compare cleanup alternatives and evaluate which remedial action is most appropriate for the Site. The evaluation should specifically focus on eight (8) key considerations including cost-effectiveness, proven performance, public and environment protectiveness, regulatory compliance, reliability, practical implementation, health & safety and effects on public health and the environment. The findings of the Remedial Alternatives Analysis will be summarized and presented as part of the Feasible Remedial Alternatives Analysis Report. Information/data generated during the interim remedial activities conducted at the Site should be taken into consideration.

Milestone P2 – Feasible Remedial Alternatives Analysis Report – Following the completion of the proposed Remedial Alternatives Analysis, a Feasible Remedial Alternatives Analysis Report should be prepared for the Site. The report should detail the procedures and findings from the activities completed in Milestone A through Milestone N and describe the calculations and resultant estimate of the amount of hydrocarbon mass present in the Site's subsurface. It should also take into consideration and summarize the assumption, parameters, and predictions from the predictive modeling scenarios included in the SCR. Figures and appendices supporting the findings of the report should be attached to further illustrate the current condition of the Site. The report should appropriately evaluate the Site and assess the risks as well as provide a proper closure strategy and remedial alternative for the Site. Information/data generated during the interim remedial activities conducted at the Site should be incorporated into this milestone.

All AutoCAD maps / plans included in the report (e.g., site plan / base map, proposed remediation location map, dissolved plume maps, soil contaminant distribution maps, etc.) and appendices (e.g., boring logs, tables, remediation technology information, fate and transport modeling, risk assessment and sensitive receptor information) shall also be submitted electronically on CD and in hard copy to Solicitor and Technical Contact for review / comment prior to finalizing it. Once the selected consultant has addressed comments on the draft, the selected consultant shall finalize and issue the report to the PADEP.

Milestone Q – Additional Groundwater Monitoring and Sampling (Cost Adder Milestone)– Provide a Unit Cost to complete an additional groundwater monitoring and sampling event. The scope of work for this cost adder should follow Milestone N.

Milestone R – Preparation of Quarterly Progress Report (Cost Adder Milestone)– Provide a Unit Cost to Prepare a Quarterly Progress Report for submittal to the PADEP. The Progress Report should detail the observations documented during the event, summarize the analytical results, map the groundwater flow direction for the Site, provide iso-concentration maps for compounds exceeding the SWHS, provide hydro-graphs, discuss the interim remediation efforts (if any), and provide additional scheduling details for upcoming events. A draft of the progress report should be provided to the Solicitor for review and approval prior to submittal to the PADEP. Once the report is approved by the Solicitor, the report can be finalized and submitted to the PADEP. The progress reports discussed are being proposed to meet the PADEP obligation on progress reporting.

Milestone S – Off-Site Access (Cost Adder Milestone) - Provide a Unit Cost to secure off-site access on one (1) off-site residential/commercial property to conduct site characterization and/or remediation efforts. The cost should cover the necessary time and materials needed to contact the off-site property owner, draft an access agreement, and obtain approval with one (1) draft revision to the access agreement. The cost does not include any legal fees, payments or permitting costs. Providing this Unit Cost does not commit the consultant to obtain the access agreement. If necessary, the cost should also cover the necessary time and material needed to provide the PADEP with the information they will require to facilitate access to the property.

Milestone T – POET Maintenance – Carbon Change Out (Cost Adder Milestone)

A total of 27 off-site properties have POETs installed based on historic sampling results. The POETs are sampled on a periodic basis as discussed above in Milestones G through J. Each treatment system consists of two (2) 2-cubic foot granular activated carbon (GAC) vessels arranged in series, an ultraviolet lamp, and water softener. Should laboratory analytical results indicate it's necessary, both GAC vessels in the affected POET shall be changed out as soon as possible. The GAC will be replaced with virgin potable grade GAC suitable for treatment of the COC's and the spent carbon will be returned to the manufacturer for recycling and/or transported off-site for disposal. Upon completion of the carbon change out, two (2) confirmatory sampling events shall be conducted two (2) weeks apart to verify proper operation and treatment with influent and mid-fluent samples analyzed via EPA Method 8260B and the effluent

samples analyzed via EPA Method 524.2. Upon receipt of the laboratory analytical reports the bidder shall prepare and submit a letter format report to the individual property owners. This optional cost adder milestone is for the carbon change out at a single residence. However, this milestone may be utilized multiple times if necessary.

Milestone U – POET Maintenance – UV Lamp (Cost Adder Milestone) - A total of 27 off-site properties have POETs installed based on historic sampling results. Each treatment system consists of two (2) 2-cubic foot granular activated carbon (GAC) vessels arranged in series, an ultraviolet lamp, and water softener. Should any of the UV lamps burn out, the bulbs should be changed out as soon as possible. The original invoice indicates the UV lamps are Sunburst 7GPM UV Lamps. This optional cost adder milestone is for the UV lamp replacement out at a single residence. However this milestone may be utilized multiple times if necessary.

Milestone V – Additional POET System Installation (Cost Adder Milestone) - Should future sensitive receptor survey and potable well sampling results indicate additional properties are impacted with petroleum hydrocarbons from the on-site release, POETs should be installed at the affected properties as soon as possible. Bidders shall install one (1) new point of entry treatment system at a neighboring residential and/or small commercial property if needed. The POETs should be designed to adequately remove dissolved phase petroleum hydrocarbons from a potable water supply. Upon completion of the POET installation, two (2) confirmatory sampling events shall be conducted two (2) weeks apart to verify proper operation and treatment with influent and mid-fluent samples analyzed via EPA Method 8260B and the effluent samples analyzed via EPA Method 524.2. Upon receipt of the laboratory analytical reports the bidder shall prepare and submit a letter format report to the individual property owners.

Milestone W – Additional Potable Well Sampling Event Tier 1 Wells (Cost Adder Milestone) - Provide a Unit Cost to complete an Tier 1 potable well sampling event. The scope of work for this cost adder should follow Milestone G.

Milestone X – Additional Potable Well Sampling Event Tier 2 Wells - Quarterly (Cost Adder Milestone) - Provide a Unit Cost to complete a quarterly Tier 2 potable well sampling event. The scope of work for this cost adder should follow Milestone H.

Milestone Y – Additional Potable Well Sampling Event Tier 2 Wells - Annual (Cost Adder Milestone) - Provide a Unit Cost to complete an annual Tier 2 potable well sampling event. The scope of work for this cost adder should follow Milestone I.

Milestone Z – Additional Potable Well Sampling Event Tier 3 Wells (Cost Adder Milestone) - Provide a Unit Cost to complete a Tier 3 potable well sampling event. The scope of work for this cost adder should follow Milestone J.

Milestone AA – Two (2) Hour Step Test Extension (Cost Adder Milestone) - Provide a Unit Cost to extend one (1) of the step pumping tests for two (2) additional hours if necessary. The

step pump test would be extended if stabilization does not occur by the end of the two (2) hour step pump test. The scope of work for this cost adder should follow Milestones K2 & L2.

Milestone BB – Two (2)-Hour Pump Test Extension (Cost Adder Milestone) - Provide a Unit Cost to extend one (1) of the constant rate pumping tests for two (2) additional hours if necessary. The constant rate pump test would be extended if stabilization does not occur by the end of the eight (8) hour pump test. The scope of work for this cost adder should follow Milestones K3 & L3.

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 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 written approval of the Solicitor and the PAUSTIF. PADEP approval may also be required.

List of Attachments

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information/Historic Documents
 - a. Preliminary Site Characterization Report – October 2008
 - b. UST Closure Report – August 2010
 - c. Soil Excavation Summary Letter – February 2011
 - d. Site Characterization Report - June 2013
 - e. PADEP SCR Disapproval Letter – September 12, 2013
 - f. Remedial Action Progress Report – February 2014
 - g. Potable Well Sampling Results Letters – October 2013
 - h. Off-Site Access Agreements
 - i. Figures
 - i. Figure 1 – Site Plan
 - ii. Figure 2 – Historical and Proposed Soil Boring Location Map
 - iii. Figure 3 – Historical and Proposed Soil Gas Point Location Map
 - iv. Figure 4 – Surface Water Sampling Location Map
 - j. PADEP RFB Review Comments – April 4, 2014 and PADEP RFB Review Comment Response Letter – May 21, 2014