Request for Bid

Defined Scope of Work

Site Characterization and
Combined Site Characterization & Remedial Action Report (SCR/RAP)

Solicitor

Multani Bros PA Realty LLC

Blue Bell Sunoco

899 Dekalb Pike
Blue Bell, Pennsylvania 19422

PADEP Facility ID #: 46-20382 **PAUSTIF Claim #: 2016-0163(I)**

Date of Issuance

December 11, 2018

Table of Contents

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

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

Calendar of Events

Activity	Date and Time
Notification of Intent to Attend Site Visit	January 4, 2019 by 5 p.m.
Mandatory Pre-Bid Site Visit	January 7, 2019 at 1 p.m.
Deadline to Submit Questions	January 25, 2019 by 5 p.m.
Bid Due Date and Time	February 1, 2019 by 3 p.m.

Contact Information

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

All questions regarding this RFB and the subject Site conditions must be directed via email to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be **"Blue Bell Sunoco #2016-0163(I) – 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 "Blue Bell Sunoco, Claim #2016-0163(I) – 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 # 2016-0163(I)".** 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

   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 have not been independently verified. Bidders may wish to seek out other appropriate sources of information and documentation specific to this Site. If there is any conflict between the general Site background and description provided herein and the source documents within Attachment 3, the bidder should defer to the source documents.

Background Summary

The Blue Bell Sunoco is an active retail gasoline fueling facility that also includes automotive service/repair and a convenience store. The subject property (or "Site") encompasses ~0.75 acres on the north side of the intersection between West Skippack Pike (PA S.R. 73) and Dekalb Pike (PA S.R. 202) in Whitpain Township, Montgomery County near the town of Blue Bell, Pennsylvania. Surrounding properties include roadway right-of-ways for West Skippack Pike and Dekalb Pike, an unnamed stream tributary that flows to the southwest adjoining the west side of the Site, and a mixture of commercial and residential properties. The UST system is located in the central portion of the Site and includes three 8,000-gallon gasoline USTs in a common tank cavity adjoining the northeast corner of the dispenser island. Other structures on the property include a dispenser island canopy covering four dispenser islands, and a single-story convenience store/garage building located in the north-central portion of the Site. All three of the USTs were reported installed in October of 1983. Figure 1 (Attachment 3a) shows the location of the Site and location of the existing UST system components. Figure 1 also reveals the land use of adjacent properties, which generally consists of commercial businesses and roadways.

Release History

<u>1989 Unleaded Gasoline</u>

The historical record indicates that in August 1989, there was an unleaded gasoline release (PADEP eFACTS Incident ID #1491) impacting soil and groundwater. According to eFACTS, the "cleanup date" for this 1989 release was ten years hence on 4/9/98. In the interim between the 1989 unleaded gasoline spill and the cleanup date, a used oil UST was removed (in 1993) and investigated by confirmation sampling of tank pit soil. A no further action (NFA) letter issued by PADEP for the 1993 used oil UST closure is also dated 4/9/98. Thus, the record suggests PADEP closed both the 1989 release and the used oil UST removal / confirmation sampling investigation at the same time. While a few more details on the used oil UST removal are provided below, no readily available information has been found regarding the 1989 unleaded gas release (e.g., source and volume), any cleanup efforts or attained PADEP standards.

1993 Used Oil UST Removal

In December 1993, one 1,000-gallon used oil UST was removed from the Site. This used oil UST was situated west of the existing Site building (see Figure 1). After pulling the tank, a total of ~16 tons of impacted soil were excavated and transported off-site for disposal. Four UST closure soil samples were collected from the excavation at depths ranging from 8 to 10 feet below grade and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds and total petroleum hydrocarbons (TPH). Although TPH was detected at concentrations up to 2,500 mg/kg, BTEX compounds were either "non-detect" or at low concentrations (xylenes only) below current PADEP Statewide Health Standards (SHS).

2016 Unleaded Gasoline

The origin of PAUSTIF Claim #2011-0082(I) is a surface spill of unleaded gasoline from a dispenser occurring on 11/19/16. This surface spill occurred during replacement of a fuel filter at Dispenser #5/6 (Figure 2). More specifically, an employee who was changing the fuel filter had properly closed the dispenser shut-off valve but an electrical relay that controls the submersible turbine pump (STP) for the dispenser reportedly malfunctioned and did not shut off power to the pump. The resulting pressure in the product piping led to the spewing of unleaded gasoline from the shutoff valve to the dispenser island pad surface. Before power could be cut to the turbine pump, the spilled unleaded gasoline flowed across the paved surface from the dispenser island pad in a southwesterly direction on the Site surface towards West Skippack Pike. After reaching the road, the unleaded gasoline flowed in a northwesterly direction along West Skippack Pike toward a storm drain. The local fire department was able to contain the gasoline release using absorbent materials before the product reached the storm drain. Reportedly, ~70 gallons of unleaded gasoline was spilled onto the surface before the submersible pump was manually shut down. After repairs were made, the dispenser sump was tested and reportedly passed hydrostatic testing. The approximate surface spill flow pathway area is shown on Figures 1 and 2 in Attachment 3a.

Following the 11/23/16 release, three soil samples (S-1, S-2, and S-3) were collected from beneath the asphalt/concrete surface at a depth of 0.75-1 foot in the release area (Figure 2). Only soil sample S-1, located closest to Dispenser #5/6 (release area), contained one or more unleaded gasoline parameters exceeding PADEP Non-Residential Statewide Health Standards (NR SHS)[1]. The unleaded gasoline compounds that exceeded NR-SHS in soil sample S-1 were benzene, toluene, and 1,2,4-trimethylbenzene (1,2,4-TMB). The exceedance prompted subsequent site characterization work beginning in January 2017.

[1] Tables provided in Attachment 3b incorrectly reference the *Residentia*l SHSs, and do not provide the correct *Non-residential* SHSs for the TMBs.

Site Investigation / Characterization Activities

1994 – 1998 Investigation Activities

In July 1994, a Phase I Environmental Site Assessment (Phase I ESA) was performed at the site. This Phase I ESA included advancing three soil borings, installing three monitoring wells (OW1, OW2, and OW3) at these boring locations, and collecting / analyzing soil and groundwater samples. Shale bedrock was reportedly encountered at depths ranging from 5 to 13 feet below grade. Depth to water ranged from ~4.5 to 8 feet, with an inferred groundwater flow direction to the west. Soil and groundwater samples were analyzed for BTEX and TPH. All three soil samples (one sample from each well boring, composited from drill cuttings), contained TPH impacts; however, no BTEX compounds were detected. Locations of the wells OW1, OW2, and OW3 are shown on Figure 3 (Attachment 3a).

The three wells were sampled on a quarterly basis from July 1994 through to February 1997. Concentrations of benzene (ranging 6 to 46 ug/L) exceeded the current PADEP SHS at wells OW1 and OW3 through this entire monitoring period. No other compounds exceeded today's PADEP standards in any of the three wells. In April 1998, PADEP granted NFA[2] concerning the closure of the 1,000-gallon used oil UST and seemingly concerning the 1989 unleaded gasoline spill. At the time of this NFA, benzene concentrations in well OW3 continued to exceed the PADEP SHS.

2007 / 2008 Groundwater Investigation

In connection with a potential real estate divestment, the Site monitoring wells (OW1, OW2, and OW3) were again sampled in November 2007 and May 2008. Groundwater samples were analyzed for BTEX, MTBE, naphthalene, and cumene. In addition to the Site wells, monitoring wells at a nearby Liberty gas station / WAWA located on the opposite side of Dekalb Pike east of the Site were sampled due to a documented release of unleaded gas at this Liberty gas station / WAWA facility. MTBE was detected exceeding PADEP SHS at Site wells OW1 and OW2, with slightly higher concentrations of MTBE at upgradient OW1. This Liberty gas station / WAWA facility was determined to be upgradient of the Site and the elevated concentrations of dissolved MTBE at Site wells OW1 and OW3 were attributed to the off-site, upgradient source. Therefore, in October 2008, PADEP determined that no further corrective action would be required for the Site apparently concurring that the MTBE were from an off-site source.[3] Also, at this time, low levels of benzene (slightly exceeding the PADEP SHS) continued to be reported at Site wells OW1 and OW3.

[2] PADEP letter to Sun Company Inc, dated April 9, 1998 (Attachment 3h).
[3] PADEP letter to Sunoco Marketing, dated October 1, 2008 (Attachment 3h)

Site Characterization Activities for the 2016 Unleaded Gas Release

Limited site characterization work by JPI Associates, Inc. (JPI) under PAUSTIF Claim # 2016-0163(I) was completed in January 2017 with results shared with PADEP in September 14, 2017 correspondence. No subsequent site characterization activities have been documented to date.

JPI's limited site characterization work included advancing 20 on-property soil borings (SB1 through SB20); collecting / analyzing of 24 soil samples from the soil borings; installing three temporary wells (SB7W, SB12W, and SB16W)[4]; collecting/analyzing groundwater samples from three temporary wells; and performing a geophysical utility scan of the Site. The locations of the soil borings and temporary wells are shown on Figure 4 in Attachment 3a.

Soil Data

JPI's soil borings were advanced using direct push technology (e.g., Geoprobe) to a depth of generally ~8 to 10 feet below grade. The borings indicate the site is underlain by a thin veneer of soil followed by a "saprolite" (or weathered bedrock) described as a sandstone. In these borings, the consultant identified unconsolidated deposits that consist mainly of fill material and stone directly beneath the asphalt/concrete surface underlain a mix of clay, silt, and sand with varying amounts of rock fragments. All of the borings were reportedly terminated at refusal on encountering the weathered sandstone bedrock (refusal generally less than 10 feet below grade). Boring logs indicate that dry or moist conditions were encountered throughout the limited overburden soil column except at boring SB13, where wet soil conditions were reportedly first encountered at a depth of ~6 feet below grade. Wet conditions were also encountered in the underlying weathered bedrock at borings SB1, SB7, SB12, SB13, and SB16.

A total of 24 soil samples were collected from the 20 soil borings. Soil samples were generally collected at intervals of either 1.5-2 or 4.5-5 feet below grade. These samples were analyzed for PADEP's unleaded gasoline parameter compounds by the ALS Environmental Laboratories facility in Middletown, PA.

Six boring locations produced soil samples that contained one or more of PADEP's unleaded gasoline parameters at concentrations exceeding PADEP's NR SHS. More specifically, the measured benzene concentrations exceeded the PADEP NR SHS in SB1, SB2, SB10, SB13, SB14, and SB16. Also, toluene, ethylbenzene, and 1,2,4-TMB concentrations exceeded PADEP's NR SHS in SB13.[5]

[4] There is also reference to a temporary well being installed at boring SB1; however, it is unclear in the record if a temporary well was actually installed, and there are no construction details for a temporary well on the boring log for SB1.

[5] Tables provided in Attachment 3b incorrectly reference the *Residential* SHSs, and do not provide the correct *Non-residential* SHSs for the TMBs.

The data suggest that excessive soil impacts are not continuous beneath the footprint of the spill trace. Instead, there appears to be several discrete areas where soil exceeds PADEP's NR-SHS. The largest area where the shallow soil impacts exceed PADEP NR SHS appears to be in the vicinity of Dispensers #5/6, consistent with the origin of the surface spillage. Two smaller isolated areas of excessive soil impact are located beneath the spill trace including an area that appears to be near or within the West Skippack Pike right-of-way. These seemingly discrete areas with soil contaminants exceeding PADEP NR SHS are depicted using all the available soil analytical data (including the Nov. 2016 results) on Figure 4 (Attachment 3a).

Groundwater Data

Groundwater was apparently observed in the three temporary well points – SB7W (installed to 10 feet), SB12W (installed to 8.5 feet below grade) and SB16W (installed to 10 feet). Depth to groundwater was reported to be ~6.5 feet with sample depths identified as 6.0 feet, 7.2 feet and 6.6 feet, respectively, for SB7W, SB12W and SB16W. Of the groundwater samples collected from these three temporary wells only the sample from SB12W, located closest to the release area, contained detectable concentrations of benzene, cumene, and MTBE. However, **none of the temporary well points contained any unleaded gasoline parameter that exceeded the PADEP NR SHS**. The location of the temporary piezometers are shown on Figure 4 in Attachment 3a.

Although insufficient data have been collected to determine the presence / absence of groundwater in shallow zone (overburden / weathered bedrock), previous investigations (1994-1998 and 2007/2008) indicate shallow groundwater flow in a westerly direction toward the unnamed stream to the west of the Site.

Solicitor's Selected Closure Standards

PADEP has requested that a site characterization be performed in a letter dated 11/22/16. The Solicitor's selected closure standards for this surface release are the Non-Residential SHS for both soil and groundwater. The selected consultant shall prepare a combined SCR/RAP that is consistent with Solicitor's cleanup goals.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the SOW specified herein. PADEP – Southeastern Regional Office (SERO) was given the opportunity to review the SOW; however, no comments were provided from PADEP.

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 and prepare / submit a combined Site Characterization Report / Remedial Action Plan (SCR / RAP). 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 both soil and groundwater.

Constituents of Concern (COCs)

The COCs for soils and groundwater associated with demonstrating attainment for the 2016 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:[6]

- 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.

[6] 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 A. 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. The selected consultant will be responsible for determining and adhering to the restrictions discussed in this section that apply to the Site.

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 – Background Research. Each bidder shall discuss the bidder's approach and provide a firm fixed price for performing a PADEP file review and to research, review, and report on background information necessary to support the site characterization. At a minimum the bids for this Milestone task shall cover the following activities:

- Prepare a complete history beginning when the site was first developed and its past site use(s) including a summary of historical regulated and unregulated UST and dispensing operations;
- Determine regional and local geology, hydrogeology, and hydrology;
- Evaluate the potential for contributing off-site sources of contamination (e.g., leaking UST sites);
- Investigate whether a local groundwater use ordinance exists;
- Identify potential sensitive receptors;
- Research local groundwater use and identify the nature / location of any public and private water supplies within a ½-mile radius of the site;
- Identify, locate (depth & orientation) of all buried utilities at the facility and on surrounding parcels that may serve as preferential contaminant migration pathways;
- Evaluate potential ecological receptors (if any); and
- Develop a preliminary conceptual site model.

Findings from the work completed under this milestone shall be summarized in the combined SCR / RAP (Milestone J).

Milestone B – Professional Site Survey. Under this milestone, bidders shall provide a firm, fixed-price quote for completion of a survey of the subject property, site features, and appropriate surrounding features (e.g., stream and abutting roads) by a professional surveyor licensed in the Commonwealth of Pennsylvania. This task shall include preparation of a scaled base map of the site, including, at a minimum, property boundaries, buildings and other site structures, gasoline dispenser islands / canopy, UST cavity, utility manholes, sanitary sewer lines, septic systems, storm sewer catch basins, storm water lines, water supply lines, natural gas lines, electric utility poles, and overhead electric/telephone/cable lines. Work under this milestone shall also include:

- Obtaining tax maps of the subject property and surrounding adjoining & adjacent properties;
- Surveying in locations and ground surface elevations for the soil borings completed under Milestone C, below; and

- Surveying in the ground surface (top of surface cover) and the top-of-casing (PVC riser pipe) elevations and locations for existing groundwater monitoring wells and monitoring wells completed under Milestone D.

Monitoring well and soil boring locations should include northing and easting coordinates. All elevations should be relative to the North American Vertical Datum of 1988 (NAVD 88) and recorded to the nearest 0.01 foot. Results of the professional survey should be displayed on an appropriately scaled site plan (including an accurate bar scale) to be included in the combined SCR / RAP.

Milestone C – Additional Soil Characterization / Delineation. Additional soil sampling and laboratory analytical work is necessary to adequately meet PADEP requirements for vertical and horizontal delineation of soil contamination. Initial soil sampling work found but did not fully delineate soil impacts exceeding NR SHS. As summarized above, the identified impacts were generally consistent with where the spill occurred and migrated over the pavement (Figure 4, Attachment 3a). Each bid shall detail bidder's supplemental soil delineation approach and provide a fixed price for the soil characterization called for to complete this milestone.

Each bid shall assume advancing eleven (11) borings in total: ten (10) soil delineation borings; and one (1) background soil boring (see below for details on the background soil boring). Each bid must provide the proposed labeled (with distinct boring identifications) locations on a site drawing, along with the rationale for each location. Each bid shall also describe the methods used to investigate utilities so that this work can be accomplished safely and without risking damage to the below grade utilities.

The selected consultant shall consider the possibility that final boring locations may need to be adjusted to avoid subsurface obstacles based on information gained from Milestones A and B and the utility location work. If a bidder believes that additional delineation borings (beyond 10) are necessary, the bidder shall identify the location(s) and provide its supporting rationale for each additional boring location. However, all bidders shall base their bids on completing exactly 11 soil borings plus the requisite sampling and laboratory analyses. Should a bidder propose additional borings (greater than 11 specified in this milestone) associated costs shall be offered separately from the bid fixed price for this milestone.

Each soil boring shall achieve a depth that ensures vertical delineation of unsaturated and saturated soils down to the depth of the weathered bedrock. For the purposes of this bid, bidders shall assume each soil boring shall be completed to an average depth of 10 feet below grade based on the range in depth to the weathered bedrock encountered during previous characterization activities.

In addition to contacting PA One Call and other methods to locate below grade utilities, bidders shall assume clearing the initial five (5) feet of each boring location using methods that will not

volatilize soil contaminants (i.e. hand auger and screening using a using a calibrated photoionization detector [PID]). Below five feet, each soil boring shall be advanced using direct push drilling / sampling methods. Continuous soil samples shall be collected for description of lithologic characteristics, groundwater occurrence, and staining / odor indicative of potential petroleum impacts. The samples shall be screened in the field using a calibrated PID and standard headspace methods. One biased soil sample per boring shall be submitted for laboratory analysis (ten total) for PADEP's short list unleaded gasoline parameters. This biased soil sample shall be collected from the depth interval exhibiting the highest organic vapor concentration based on PID headspace screening. If no elevated organic vapor levels are measured along the length of a boring and no staining and/or odors are evident, the one sample shall be obtained either from the depth interval immediately above the water table or from the bottom of the borehole or soil immediately above the weathered bedrock interface, whichever occurs first.

Soil samples shall be analyzed for the short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis.[7] Based on these analytical results, the approximate dimensions and volume of remaining residual source material exceeding the PADEP Act 2 NR SHS MSCs for soil, if any, shall be estimated.

In addition to the 10 soil delineation borings described above, one additional boring shall be completed at a background location. From this background boring, one saturated or intermittently saturated soil / weathered bedrock sample shall be collected from this boring for fraction organic carbon (FOC) analysis to assist with the fate-and-transport modeling effort. The sample shall also be analyzed for the current PADEP short list of unleaded gasoline parameters to verify background conditions. In addition, one Shelby tube sample shall be obtained from this boring to be analyzed by an accredited geotechnical laboratory for total porosity and soil bulk density.

To accommodate the possible need to advance borings deeper than 10 feet (on average) resulting in total drilling of more than 110 feet (10 soil borings plus one background boring) and in the event that additional soil samples is necessary and appropriate based on field observations and in order to delineate the vertical extent of soil contamination, bidders shall provide the following unit costs on the Bid Cost Spreadsheet (Attachment 2) under "Schedule of Unit Rates".

- Price per each additional foot of soil boring beyond the assumed cumulative 110 feet for all borings added together ($/foot, inclusive of boring advancement, logging, screening, abandonment, surface restoration, and waste management / disposal); and
- Price per each additional soil sample collection & laboratory analysis for PADEP short list

[7] Each bidder's approach to implementing Milestone C shall clearly identify the number of samples, QA/QC measures, analytes, and other key assumptions affecting the bid price.

parameters beyond the 11 assumed ($/sample).

If during implementation of this Milestone gross soil impacts are evident based on field screening data and observations and additional soil borings are necessary for characterizing and delineating the soil impacts, these additional borings will be handled under Cost Adder Milestone C. Written email approval from Solicitor and PAUSTIF will be required before beginning the work and the requisite milestone-specific supporting documentation identified in the executed contract will be required for reimbursement.

Each bidder's fixed-price cost for this milestone shall also account for: (i) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call, and clearing the borehole location to a minimum depth of 5 feet using methods that will not volatilize soil contaminants; (ii) professional surveying of the soil boring locations and elevations for inclusion on the site plan and geologic cross sections; (iii) sealing each boring with bentonite and an asphalt or concrete surface patch after completion; and (iv) management of IDW. The soil boring program methods and results with supporting documentation (e.g., waste manifests, boring logs, etc.) shall be detailed in the combined SCR / RAP (Milestone J).

Milestone D – Installation of Shallow Monitoring Wells. Previous site characterization work included installing three temporary well points which were subsequently removed after one groundwater sampling event. Although unleaded gasoline contaminants were detected in one of the temporary wells (SB12W), none of the groundwater samples contained any COC exceeding PADEP's NR SHS. Although, the limited sampling from temporary wells points found no NR SHS exceedances, completing the site characterization to meet PADEP requirements will entail installing groundwater monitoring wells to evaluate the quality of shallow groundwater.

Under this milestone, bidders shall detail approach and provide a firm fixed-price cost for installing three shallow overburden / weathered bedrock monitoring wells. The three monitoring wells shall generally be placed as follows: one in the vicinity of the dispenser source area; one along the spill flow trace near the property boundary; and one close to the inferred upgradient property boundary. Each bid must identify the proposed locations for the three shallow overburden wells on a site drawing, and include a discussion detailing the rationale for each location. The bids shall demonstrate an understanding that the general objectives for installing the new wells are to determine if the surface spill excessively impacted groundwater quality and, if so, to begin 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) presumed source area; and (iii) at the presumed down-gradient property line. It is presumed that the final well locations would be adjusted by the selected consultant to avoid subsurface obstacles based on information gained from Milestone A and the utility location work.

If during implementation of this milestone it is determined that one or more additional monitoring wells are necessary to complete groundwater characterization, these additional wells will be handled under Cost Adder Milestone D. 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 14 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 14 feet (on average) for the overburden wells, bidders shall provide the following unit costs on the Bid Cost Spreadsheet (Attachment 2).

- <u>Excess Hollow-Stem Auger & Split-Spoon Sampling / Air Rotary Drilling & Well Installation Footage</u>. 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 14-foot x 3 wells = 42-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) 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; (ii) well development activities; (iii) management of IDW; and (iv) professional surveying of the new well locations and top-of-casing elevations. 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 SCR / RAP.

Milestone E – 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. The initial groundwater monitoring and sampling event shall be performed within two weeks of installing and developing the new wells installed under Milestone D, 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 separate-phase hydrocarbons (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 SERO guidance.

Groundwater 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. Appropriate QA/QC samples shall also be collected during each event and

[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 (Cost Adder Milestone E). Installation and monitoring of any necessary additional monitoring wells will be handled under Cost Adder Milestones D and/or K and will require Solicitor and PAUSTIF approval before beginning the work. Should work be required to gain property access for 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, any work to address this SPH 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.

analyzed for the same parameters.[10] In addition, each event shall include collection of field measurements and for 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 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 F – Aquifer Characterization Testing. Based on the available documents, it appears that no data has been collected concerning the hydraulic properties of the shallow overburden groundwater. Therefore, in order to establish hydraulic parameters for the shallow overburden 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 monitoring wells installed in Milestone D, 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 / evaluate 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 SCR / RAP, and the slug testing results shall be utilized in the fate-and-transport modeling described in Milestone G.

Milestone G – Contaminant Fate-and-Transport Modeling. After completing groundwater monitoring well installations and sampling (Milestones D and E), and if the new wells installed as part of Milestone D contain detectable concentrations of one or more dissolved-phase constituents above respective PADEP SHS, quantitative contaminant fate-and-transport modeling shall be developed to calibrate to current conditions and predict future contaminant distribution. Note: This milestone shall not be completed if the detected concentrations of the dissolved-phase constituents do not exceed PADEP Act 2 SHS-MSCs for used aquifer/non-residential setting in the shallow overburden.[11]

[10] Each bidder's approach to implementing Milestone E 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.
[11] The successful bidder will only be reimbursed for milestones actually required and completed.

Prior to implementing this task, the selected consultant shall contact the PADEP project officer for his/her input on the type of modeling to be performed. Use of the PADEP New Quick Domenico model may be appropriate for any modeling of the shallow groundwater. Therefore, each bid shall assume the use of New Quick Domenico[12] for the modeling effort in the shallow groundwater. Bidders shall also assume that because of the proximity of the unnamed surface water tributary to the Site, surface water modeling and evaluation using applications such as SWLOAD5B and PENTOXSD will also be necessary.

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 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 H – Stream Surface Water Sampling. Under this milestone, bidders shall provide their work scope and fixed price cost to perform two surface water sampling events; an initial event and second confirmatory event. The subsequent confirmatory sampling event shall be conducted no less than four and no more than six weeks after the initial event. Each of the sampling events shall include the collection of three surface water samples from the adjoining unnamed stream channel along the west side of the site. The locations of the samples would include – one upstream from the Site; one mid-stream, adjoining the west side of the site; and one down-stream from the Site. Each bid must provide the proposed sampling locations on a site drawing. The surface 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. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.[13] Note: This milestone shall not be completed if the concentrations of the dissolved-phase constituents in groundwater samples (Milestone E) do not exceed PADEP Act 2 SHS-MSCs for used aquifer/non-residential setting.[14]

Milestone I – Vapor Intrusion Evaluation. Bidders shall provide a firm fixed-price to conduct an 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. As part of this

[12] Should the PADEP subsequently disagree with the use of Quick Dominico, such work to perform alternative fate & transport modeling will be subject to the "New Conditions" section of the Fixed-Price Agreement.
[13] Each bidder's approach to implementing Milestone H shall clearly identify the number of sampling events, number of samples per event, sampling method(s), QA/QC measures, analytes, and other key assumptions affecting the bid price.
[14] The successful bidder will only be reimbursed for milestones actually required and completed.

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. Each bid shall describe their approach in detail, sampling methods and analysis and schedule for when the sampling would be anticipated. Each bidder's approach to implementing this milestone 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.

Milestone J – Preparation, Submittal, and PADEP Approval of a Combined SCR / RAP. Upon completing Milestones A through I described above, the selected consultant shall prepare a combined SCR / RAP in draft form for review and comment by the Solicitor and PAUSTIF. The report will be for closure to PADEP's SHS for soils and groundwater. This combined 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 I 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.[15]

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.

[15] 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.

Under this scenario, if it is determined that the overburden/weathered bedrock wells are dry, the selected bidder will make the case to PADEP in the SCR that there is no groundwater in contact with contaminated media; therefore, the groundwater portion of the characterization is complete.

The RAP shall identify, describe and evaluate the relative benefits and drawbacks (including estimated total closure costs) of at least two viable remedial approaches to address the identified contamination in order to attain the selected PADEP NR SHS closure. At least one of the approaches shall consist of or include as a component, excavating the soil exceeding the NR SHS, and an approach shall include an in-situ method of addressing the excessive soil impacts (and groundwater impacts, if found).[16]

If bedrock groundwater is part of the characterization work, Bidders are to assume that bedrock groundwater will not have impacts above PADEP NR SHS. If necessary, designing a remedial approach to address bedrock groundwater impacts would be subject to the "New Conditions" section of the Fixed-Price Agreement.

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.

Potential Cost Adder Milestones

Cost Adder Milestone C – Additional Soil Characterization / Delineation. Provide a unit cost to advance one (1) additional soil boring during the mobilization for Milestone C. The unit cost shall be inclusive of boring advancement, logging, screening, abandonment / surface restoration, any waste handling / disposal, creating boring log, and reporting. The scope of work for this cost adder should follow Milestone C guidelines. The unit prices for additional drilling footage and additional soil sampling under Milestone C shall also apply to this cost adder milestone.

Cost Adder Milestone D – Installation of Shallow Overburden/Weathered 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 D guidelines; including the assumption regarding drilling footage (assume 14-foot well depth). The unit prices under Milestone D for excess drilling and split-spoon sampling shall also apply to this cost adder milestone; however, would be applied beyond 14-feet per well.

[16] If it is determined that any feasibility / pilot testing of the in-situ approach is necessary, any feasibility / pilot testing will be subject to the "New Conditions" section of the Fixed-Price Agreement.

- **Cost Adder Milestone D1** – Total fixed cost for the boring advancement and installation of one (1) shallow monitoring well during a separate drilling mobilization following completion of the original Milestone D work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, and reporting related to the installation of one monitoring well. The fixed cost shall also include collection of one soil sample from the well boring under the Milestone C guidelines.
- **Cost Adder Milestone D2** – Unit cost for installation of one (1) additional shallow monitoring well during a Milestone D1 drilling mobilization. The provided cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, and reporting. The fixed cost shall also include collection of one soil sample from the well boring under the Milestone C guidelines.

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

- **Cost Adder Milestone E1** – Unit cost for completing one (1) groundwater monitoring and sampling event at all three shallow monitoring wells installed as per Milestone D.
- **Cost Adder Milestone E2** – Unit cost for monitoring and sampling one (1) additional shallow monitoring well during a sampling event for the other shallow wells. The unit cost shall be inclusive of all labor, equipment, laboratory analysis, waste handling/disposal, etc.
- **Cost Adder Milestone E2** – Unit cost for monitoring and sampling one (1) bedrock monitoring well during a sampling event for the other shallow wells. The unit cost shall be inclusive of all labor, equipment, laboratory analysis, waste handling/disposal, etc.

Cost Adder Milestone F – Additional Aquifer Characterization Testing. If it is determined from data collected during additional well installations (Cost Adder Milestone D) and groundwater sampling (Cost Adder Milestone E) that additional aquifer characterization testing is necessary, then this testing would be expanded to include an additional shallow/overburden well installed under Cost Adder Milestone D. Bidders shall provide a fixed price and work scope for the additional slug testing at one well. The scope of work for this cost adder should follow Milestone F guidelines.

Cost Adder Milestone K – Installation of Bedrock Monitoring Wells. If it is determined from the data collected during groundwater sampling (Milestone E) that the shallow overburden/weathered bedrock groundwater is impacted with concentrations of COCs exceeding SHS, then the site characterization would be expanded to include the installation of a bedrock monitoring well at the location where shallow impacts above PADEP NR SHS have been

identified.

Bidders shall provide the following fixed price costs for installation of bedrock monitoring wells.

- **Cost Adder Milestone K1** – Unit cost for the boring advancement and installation of one (1) bedrock monitoring well during a separate drilling mobilization following completion of the original Milestone D work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, boring log/well construction details, and reporting related to the installation of one monitoring well. Bidders are to assume that no soil samples will be collected for analysis.
- **Cost Adder Milestone K2** – Unit cost for installation of one (1) additional bedrock monitoring well during a Milestone K1 drilling mobilization. The provided cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, boring log/well construction details, and reporting. Bidders are to assume that no soil samples will be collected for analysis.

The scope of work for this cost adder shall generally follow Milestone D guidelines, with exception to the following:

- Bidders are to assume for costing purposes that the bedrock wells are to be advanced to a depth of 30 feet;
- Each bedrock well shall have 6-inch surface casing installed and sealed in place with cement through the overburden and weathered bedrock before continuing advancement of the boring into bedrock. For costing purposes, the 6-inch casing shall be installed to a depth of 15 feet below grade; and
- Bidders are to assume 10 feet of well screen for bedrock wells

To accommodate the possible need to install the bedrock wells deeper than 30 feet, bidders shall provide the following unit costs on the Bid Cost Spreadsheet (Attachment 2).

- Excess Air Rotary / Hammer-Rotary Drilling/Well Installation Footage. Bidders shall provide a unit cost per lineal foot ($/foot) for excess air rotary / hammer-rotary drilling/well installation to be used beyond 30 feet per well. 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.

Bidders will be required to provide the rationale for the bedrock well(s) along with the proposed number of bedrock wells and a drawing showing the location of the wells before initiating this work as written email approval from Solicitor and PAUSTIF will be required before beginning the work.

Cost Adder Milestone L – Update Site Survey. Provide a unit cost to update the site survey to include any additional soil boring and/or monitoring well location(s). The scope of work for this cost adder shall follow Milestone B.

Cost Adder Milestone M – Bedrock Groundwater Characterization Testing. Bidders shall provide firm fixed-price cost to perform a slug test at one bedrock monitoring well, and each bid must identify the 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 / evaluate 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]). The fixed price cost shall also include documenting the slug testing methods, results, and conclusions in the combined SCR / RAP, and the slug testing results shall be utilized in the fate-and-transport modeling described in Cost Adder Milestone N.

Cost Adder Milestone N – Bedrock Groundwater Contaminant Fate-and-Transport Modeling. If a bedrock well or wells installed as part of Cost Adder Milestone K contain detectable concentrations of one or more dissolved-phase constituents above respective PADEP SHS, quantitative contaminant fate-and-transport modeling shall be developed to calibrate to current conditions and predict future contaminant distribution. Note: This milestone shall not be completed if the detected concentrations of the dissolved-phase constituents do not exceed PADEP Act 2 SHS-MSCs for used aquifer/non-residential setting in the bedrock groundwater.[17]

Each bid shall assume the use of MT3D coupled with MODFLOW shallow/overburden. Bidders shall also assume that because of the proximity of the unnamed surface water tributary to the Site, surface water modeling and evaluation will also be necessary. If a bidder is recommending an alternative fate and transport model for the bedrock groundwater, bidder shall include the cost difference within the text of the bid, along with the rationale for this alternative model.

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 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).

Cost Adder Milestone O - Stream Surface Water Sampling. If it is determined after completing additional site characterization activities that additional surface water sampling events are necessary, under this milestone, bidders shall provide their work scope and fixed price cost to

[17] The successful bidder will only be reimbursed for milestones actually required and completed.

perform one surface water sampling event at the three surface water sample locations determined and sampled under Milestone H. The scope of work for this cost adder should follow Milestone H guidelines.

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 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 through 4
    b. SCR Update to PADEP, dated 9/14/17
    c. Geophysical Utility Scan Report, dated 12/8/16
    d. Boring Logs
    e. Soil and Groundwater Laboratory Reports
    f. PADEP Correspondence
    g. 1993 Used Oil UST Closure
    h. Information related to 1994-1998 and 2007/2008 investigations