

Request for Bid

Fixed-Price Bid to Result

Remediation To Closure

Solicitor

Superior Petroleum Company

Fueland #203

**101 Mile Lock Lane
Brackenridge, Pennsylvania 15014**

PADEP Facility ID #: 02-13744 PAUSTIF Claim #: 2009-0125(F)

Date of Issuance

August 3, 2016

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

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

Calendar of Events

Activity	Date and Time
Notification of Intent to Attend Site Visit	August 18, 2016 by 5 p.m.
Mandatory Pre-Bid Site Visit	August 19, 2016 at 11 a.m.
Deadline to Submit Questions	September 9, 2016 by 5 p.m.
Bid Due Date and Time	September 16, 2016 by 3 p.m.

Contact Information

Technical Contact
<p>Mr. Joseph Ozog, Jr., P.G. Excalibur Group, LLC 91 Park Avenue Windber, PA 15963 joeszog@excaliburgrp.com</p>

All questions regarding this RFB and the subject Site conditions must be directed via email to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be “[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 email. Notification of intent to attend is appreciated; however, it 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 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). Bidders shall prepare a conceptual remedial action plan including the conceptual design of a remedial system in their response to this RFB. Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to 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 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”.

General Site Background and Description

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

Background Summary

The Fueland #203 facility is located at 103 Mile Lock Lane in the town of Brackenridge, Pennsylvania, occupying ~0.25-acre, irregular-shaped, property located adjoining the west/northwest corner of the intersection between 1st Avenue and Mile Lock Lane (see Figures 1 and 2, Attachment 3a). The Site is occupied by a one-story, concrete block, structure with no basement located in the north-central portion of the Site, wooden shed to the east, and a dispenser island with canopy south of the Site building. The Site building is currently occupied by a convenience store. Surrounding properties consist of a mixture of commercial businesses and residences, with an industrial manufacturing facility to the northeast. The site adjoins the right-of-ways (ROWs) for Mile Lock Lane to the northeast and 1st Avenue to the south. The Allegheny River is across the street (1st Avenue) from the facility.

The Site is currently an active retail gasoline and kerosene fuel sales facility. The current UST system includes one 10,000-gallon unleaded gasoline UST (tank 005) installed in October 1990 and one 4,000-gallon kerosene UST (tank 004) installed in May 1987; and associated product piping and dispenser islands. The USTs are located in two separate tank cavities, with tank 004 being located in the northern portion of the Site adjoining the east side of the Site building, and tank 005 located in the southwestern portion of the Site, west of the gasoline dispenser islands. Two former USTs, 5,000-gallon unleaded gasoline (tanks 006 and 007), were situated in a common tank cavity with existing tank 005, located in the western portion of the Site, on the north side of existing tank 004. Tanks 006 and 007 were closed via removal in April 2011. See Figure 2 in Attachment 3a for the location and layout of the existing UST systems.

From at least 1970 to 1990, the Site was owned by Mr. Buff Nolen and operated as Buff's Service. During that time, the UST system at the Site included three USTs, one 6,000-gallon (tank 001) and two 8,000-gallon (tanks 002 and 003), product piping, and dispenser islands. The three USTs were formerly located in a common tank cavity in the area beneath the location of the existing dispenser island in the south-central portion of the Site. The waste oil UST was located in a separate tank cavity on the west side of the Site building. Tanks 001, 002, and 003, along with an unregistered steel 550-gallon waste oil UST, were closed via removal in September 1990. Following removal of tanks 001, 002, and 003, ~170 tons of contaminated soil was removed from the Site for disposal. Tanks 005, 006, and 007, installed in October 1990 in the southwestern corner of the property, replaced tanks 001, 002, and 003. Glassmere

Fuel Service, Inc. purchased the Site in the mid-1990s. Superior Petroleum purchased the facility in 2005. See Figure 2 in Attachment 3a for the location of tanks 005, 006 and 007.

Release History / UST System Closure

In September 2009, a release (associated with PAUSTIF Claim 2009-0125(F)) was suspected from the midgrade and premium unleaded gasoline USTs (Tanks 006 and 007), when SIR data in August 2009 indicated inconclusive results for the tanks, and tightness testing performed on 9/4/09 revealed that tanks 006 and 007 did not meet passing criteria. As a result, a verbal notification of a reportable release was provided to PADEP on 9/4/09 and a written notification was submitted on 9/18/09. On 4/11/11, tanks 006 and 007 were closed via removal. Tank 007 was in “poor condition with cracks radiating from the tank gauge stick strike area.”¹ A total of six post-removal soil samples were collected from below the tanks (three samples below each tank), with one soil sample (below tank 007) containing concentrations of benzene, toluene, naphthalene, 1,2,4-trimethylbenzene (1,2,4-TMB), and 1,3,5-trimethylbenzene (1,3,5-TMB) exceeding PADEP Statewide Health Standards (SHS). No water was encountered within the tank cavity and petroleum impacted soils were left in-place during the closure activities. The former location of tanks 006 and 007 and the UST closure soil sample locations are shown on Figure 3 (Attachment 3a).

Site Characterization & Interim Remedial Activities

Site characterization activities were initiated in April 2012 by the Solicitor’s consultant, Letterle and Associates LLC (Letterle), in response to the September 2009 suspected release of unleaded gasoline that was confirmed in April 2011 during UST closure activities. The characterization activities included – advancing 15 soil borings (SB-1 through SB-15) on- and off-property; collecting / analyzing soil samples from select soil borings; converting on-property borings SB-1 through SB-3 to groundwater monitoring wells MW-1 through MW-3, borings SB-7 through SB-10 to monitoring wells MW-4 and MW-5 and recovery wells RW-1 and RW-2, and boring SB-15 to well MW-10, all installed to a depth of 30 feet below grade; converting off-property borings SB-11 through SB-14 to monitoring wells MW-6 through MW-9 installed to a depth of 30 feet below grade; collecting / analyzing groundwater samples; converting borings SB-4 through SB-6 to soil vapor monitoring points VP-1 through VP-3 installed to five feet below grade; collecting / analyzing of soil vapor samples; and slug testing the aquifer. Interim remedial actions (IRAs) have included the recovery of light non-aqueous phase liquid (LNAPL). Locations for the soil borings, monitoring wells, and soil vapor points are shown on Figure 2 in Attachment 3a.

Based on the available site information, most of the soil borings were advanced to a depth of 30 feet, with exception of on-property borings SB-4, SB-5, and SB-6 which were only advanced to 5 feet below grade. No bedrock was encountered during the characterization activities. The unconsolidated materials underlying the Site consist of natural alluvial soils that include silty sand that becomes coarser with depth and includes a mixture of silty sand and gravel to a depth

¹ Underground Storage Tank System Closure Report Form, dated May 9, 2011.

of 30 feet. Fill material (sandy silt and clay) that extended to a depth of 7 feet was only encountered on the north side of former tank 007. Off-property, fill material (limestone cobbles, slag, sandstone cobbles) extends to depths of ~19 to 22 feet underlain by alluvial silty sand and gravel with clay. Groundwater is reportedly first encountered in the alluvium during drilling of the soil borings at a depth of ~21 to 26 feet below grade.

A total of 17 soil samples were collected from on- and off-property soil borings, with most of the soil samples collected from the periodically saturated (or smear zone) and saturated zone. Soil Samples collected from borings SB-4 (3-5 feet), SB-5 (3-5 feet), and SB-10 (10-11 feet) appear to have been collected from the unsaturated zone and are not impacted. Concentrations of benzene, toluene, ethylbenzene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB exceed the PADEP SHS for soil samples collected within the smear zone. Soil impacts exceeding PADEP SHS within the smear zone includes most of the Site property and extending off-property beneath 1st Avenue and on the opposite side of 1st Avenue next to the Allegheny River. Soil boring locations are shown on Figure 2 in Attachment 3a. Approximate area for smear zone soil impacts exceeding SHS is shown on Figure 4 in Attachment 3a.

The current monitoring well network consists of on-property wells MW-1 through MW-5 and MW-10, and off-property wells MW-6 through MW-9, located south (downgradient) of the Site across 1st Avenue. In addition, there are two on-property recovery wells (RW-1 and RW-2) that were used for pilot testing. Static groundwater levels within the on-property wells have ranged from ~18 to 23 feet below top of casing, and within off-property wells the water levels have ranged from ~19 to 24 feet below top of casing. Groundwater flow direction is generally in a southerly direction; however, a multi-directional flow pattern to the north, west, and south from a groundwater high at on-property well MW-4 has been observed at the Site. The Allegheny River shoreline is located less than ~100 feet south/southwest of the Site (across 1st Avenue).

On-property wells MW-3 and RW-1, located immediately downgradient of the existing unleaded gasoline tank 005 (and former tanks 006 and 007) (source area), currently exhibits the highest concentrations of the COC, with concentrations of benzene, toluene, ethylbenzene, total xylenes (BTEX); naphthalene, 1,2,4-TMB, and 1,3,5-TMB exceeding SHS. Other on-property wells MW-1, MW-2, MW-4, and MW-5, located surrounding the existing gasoline UST system (tank field and dispenser island), and RW-2 located within foot print of former tanks 006 and 007, also exhibit concentrations exceeding SHS for benzene, toluene (MW-1, MW-2, and RW-2 only), ethylbenzene, and both TMBs; however, at order-of-magnitude (OOM) lower than MW-3 and RW-1. Off-property wells MW-6 through MW-9, located in downgradient direction from Site, also exhibit concentrations that include a mix of benzene, toluene, ethylbenzene, naphthalene, and both TMBs exceeding SHS. The assumed extent of the contaminant plumes for the COC exceeding SHS in the overburden groundwater are shown in the 2nd quarter 2016 Remedial Action Progress Report (see Attachment 3b).

LNAPL was initially discovered in on-property wells MW-2 and MW-3 in October 2012. LNAPL was measured on 10/8/12 and 10/19/12 at thicknesses of 0.40 and 0.32 feet in MW-2 and 0.54 and 0.40 feet in MW-3, respectively. LNAPL recovery included the installing of absorbent socks

in MW-2 and MW-3 and replacing the absorbent socks as-needed. Although no measurable LNAPL was identified in MW-1, absorbent socks were also installed in MW-1 in November 2012. A total of 1.86 gallons of LNAPL was recovered, and LNAPL has not been observed in either of the wells since January 2013.

Soil vapor samples were collected from VP-1, VP-2, and VP-3 located along the west side of the Site (VP-1 and VP-2) and near the Site building (VP-3). The sampling points were each sampled twice (January 2013 and May 2013). Sample results from the three sampling points did not exceed the PADEP indoor air screening levels.

Solicitor's Selected Closure Standards & Remedial Approach

Solicitor's chosen closure approach for the Site is residential SHS for both soil and groundwater. In October 2013, the Solicitor's consultant, Letterle, provided PADEP with a Environmental Site Characterization Report (ESCR) and in February 2015, Letterle provided PADEP with a Remedial Action Plan (RAP) prescribing soil excavation/removal and use of a air sparge / vapor enhanced groundwater extraction (AS/VEGE) system on-property to remediate soil and groundwater impacts, and monitored natural attenuation (MNA) for off-property smear zone soil impacts and groundwater. PADEP subsequently provided approval of the remedial goals and proposed approach (with no comments/modifications) via letter to the Solicitor dated March 5, 2015.

The soil excavation was contingent upon site renovations / UST system upgrades and proposed to remove any impacted shallow source material identified below the existing UST system once removed (the RAP did not delineate where contaminated soil would be excavated / removed as it hinged on site redevelopment efforts). However, site renovations have been indefinitely deferred, no UST system upgrades are scheduled and the site remains to be an active retail facility; therefore, the renovation-affiliated soil excavation component of the February 2015 RAP will not be part of the remedial approach and the SOW of this RFB.

Pilot Testing to assess the feasibility of the proposed remedial approach was performed at the Site in September/October 2013 (VEGE) and April 2014 (AS). During the VEGE pilot tests, on-property wells RW-1 and RW-2 were used for the extraction of groundwater and vapors during the pilot testing. During the VEGE pilot test on RW-1, the Solicitor's consultant, Letterle, indicated that the accumulation of silt into the recovery well created problems with obstructing the pump inlet and required periodic cleaning during the test. Letterle determined that the groundwater recovery at RW-1 yielded ~1.6 gallons per minute (gpm) with no vacuum enhancement. Although, after 60 minutes into the test and dewatering the well, the liquid ring pump (LRP) was turned on and reportedly produced a vacuum of 7 inches of mercury (in Hg) resulting in a vapor flow rate of ~56 standard cubic feet per minute (scfm). By the end of the test, the groundwater recovery yielded 1.6 gpm with drawdown of 0.5 feet and vacuum of 5 in Hg at 61 scfm. A total of 350 gallons of groundwater was recovered during the 5.5 hour test. Hydraulic influence was observed at most of the on- and off-property wells with a drawdown

recorded greater than 0.1 feet. No significant vacuum (greater than 0.10 inches of water (in Water) was observed in any of the observation wells.

During the VEGE pilot test on RW-2, the Letterle indicates a yield of ~3 gpm was achieved under an applied vacuum of 5 in Hg after seven hours of extraction, and a vapor extraction rate of 54 scfm at 5 in Hg was obtained during the pilot test. A total of 1,100 gallons of groundwater was extracted over the duration of the pilot test. The groundwater influence zone was interpreted to extend 110 feet, extending across 1st Avenue to near the edge of the Allegheny River. A pneumatic radius of influence (ROI) of 60 feet was determined based on the observed response from the surrounding monitoring wells.

The AS pilot testing was performed in conjunction with soil vapor extraction (SVE). During the AS/SVE pilot test, on-property sparge well SP-1 and RW-1 was used for the injecting of air into the subsurface (SP-1) and capturing the injected air and volatized COCs in vadose zone (RW-1). During the AS/SVE pilot test, Letterle indicated that significant back pressure was created by the groundwater table and subsurface materials and that a pressure of 12 pounds per square inch (psi) was required to initiate a flow of 4 scfm and increased to 30 psi to inject at a flow of 8.8 scfm. Reportedly, the back pressure limited the effective influence area of the injection well. Letterle also found that extent of groundwater mounding (greater than 0.10 foot) was limited to 29 feet from injection point. An effective sparge ROI of 13 feet for each injection location was estimated by Letterle based on the observed response from surrounding monitoring wells. Letterle concluded that maximum applied vacuum realized was at 7 in Hg without mounding of groundwater and capture of all injected sparge air during remediation is attainable. Furthermore, Letterle reported that the pilot study vapor extraction rate of 23.4 scfm was greater than 4 times the initial sparge air injection rate of 4 scfm (indicating that sparge air would be captured by the SVE system with some significant safety margin).

The February 2015 RAP prescribes an AS/VEGE system that would include six on-property AS wells and four groundwater and vapor recovery wells, located in the area of the existing gasoline tank field and dispenser island. The number and location of recovery wells was determined based on the VEGE, AS and SVE pilot testing. Letterle's RAP prescribes an AS system combined air injection rate of 24 scfm (4 scfm per AS well x 6 wells) at an applied pressure of 14.5 psi. Letterle's RAP anticipates a soil vapor flow rate of 54 scfm per well under a vacuum of 5 inches of Hg. A groundwater yield of 3 gpm per extraction well is estimated by Letterle under the applied vacuum of 5 in Hg.

It is noted that Letterle's estimated SVE and AS ROI do not extend to upgradient POC well MW-5 and the RAP design does not include any AS and recovery wells near MW-5 where Letterle's data indicates saturated soil and groundwater exceeds SHS and contaminant concentrations do not appear to be significantly attenuating. Additionally, it is unclear if adequate testing has been completed to determine the sizing and effectiveness of the RAP-prescribed clarifier for entrained sediment removal and expected sediment waste production rates in the clarifier and downstream equipment (e.g., particulate filters). The RAP proposes using a catalytic oxidizer to

treat SVE off-gas for the first 6 months of operation followed by GAC but it is unclear if the economics of this alternative have been fully evaluated.

Other Information

To the extent there is any discrepancy between the summary of site conditions provided above and the source documents, bidders shall rely on the source document information. Bidders should carefully consider what information, analyses, and interpretations contained in the background documents can be used in developing their scope of work for their bid in response to this RFB.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the SOW specified herein. PADEP – Southwest Regional Office (SWRO) has **[reviewed or has not reviewed and did not have any comments or PADEP comments addressed in RFB]** on the SOW provided within this RFB.

Objective

The PADEP-approved RAP specifies implementation of a AS/VEGE remedy to address on- and off-property soil and groundwater impacts. The remedial standard to be achieved on- and off-property is the Residential SHS for soil and groundwater.

The PADEP, the Technical Contact, and the PAUSTIF have agreed that one of the following will likely be a technically viable and cost effective remedial approach that can bring this site to the stated cleanup goal:

- 1) Implementation of the AS/VEGE as prescribed in the PADEP-approved RAP (with some limited modifications);
- 2) VEGE-only remedial approach; or
- 3) AS coupled with soil vapor extraction (SVE).

Bidders shall propose one of these three specific remedial approaches in their bid response.

Solicitor seeks competitive, fixed-price bids, for this Bid to Result RFB to complete the ten (10) milestones outlined below intended to take this Site to closure. To be deemed responsive, each bid must respond in detail to each of the milestones, including describing the bidder's understanding of the conceptual site model and how that model relates to the bidder's proposed approach to executing the SOW. "Bid to Result" RFBs identify task goals and rely on the bidders to provide a high level of project-specific detail on how they will achieve the goal. Each bid must detail the approach and specific methods for achieving the milestone objectives. In reviewing the quality of bids submitted under Bid to Result solicitations, there is an increased emphasis placed on technical approach and reduced emphasis on cost (as compared to bids for "Defined Scope of Work" RFBs). The Solicitor has elected to pursue environmental closure based on demonstrating attainment of the PADEP Act 2 used aquifer SHS Medium-Specific Concentrations (MSCs) in a Residential setting for soils and groundwater.

Selecting one of the three remedial approaches as discussed above shall be the basis for preparing a SOW and presenting a competitive fixed-price bid. The selected bidder shall perform pilot testing to confirm that the remedial technology proposed in their bid will be feasible to meet the milestone objectives and remedial goal for this site.

Constituents of Concern (COCs)

The COC for soils, groundwater, and vapors are the post-March 2008 short list for unleaded gasoline, which consist of 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:²

- 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

² As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

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. 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.

Site –Specific Milestones

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 C. 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 property owner. The selected consultant will be responsible for determining and adhering to other restrictions that may apply to the Site or surrounding properties.

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 ICF/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.

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. **ICF and 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 – Supplemental Site Characterization Activities. This milestone provides bidders the opportunity to identify which additional site characterization work that will be completed in advance of finalizing the remedial approach design and moving ahead with its implementation. Conducting supplemental investigative activities under this milestone is mandatory. PAUSTIF will be reimbursing up to \$10,000 for supplemental site characterization and reporting costs under this milestone. Bidders are to describe what supplemental site characterization will be completed, the rationale for the work and how the derived data will be used. For purposes of bidding, and to ensure consistent cost scoring of bids, each bidder will enter exactly \$10,000 as the bid price for Milestone A in the Bid Cost Spreadsheet. PAUSTIF will only reimburse up to \$10,000 of reasonable and necessary costs for those tasks actually performed. The selected bidder must provide time and material documentation in addition to

supporting documentation required (in Exhibit B of the executed Remediation Agreement) to support the requested reimbursement and completion of this milestone.

Bidders may use this opportunity to: 1) confirm any elements of the site characterization completed by a previous consultant; 2) address any perceived data gaps in the existing site characterization work; 3) assist in the evaluation and determination of remedial technologies and system design which are characterization-type activities (e.g. analysis for C₄-C₁₀) assist with refining the cleanup timeframe estimate and/or other reasons related to validating the bidder's remedial approach and design (e.g. additional sampling to better determine mass in place). Note that all tasks and costs related to pilot testing and reporting must be captured under the Pilot Testing and Reporting Milestone, not Supplemental Site Characterization Activities and Reporting. If pilot testing tasks and costs are included in this Site Characterization Milestone, the bidder's technical score will be negatively impacted.

Milestone A activities shall be conducted as soon as possible following execution of the Fixed-Price Agreement.

Each bidder shall describe in detail its scope of work for additional site characterization activities along with corresponding technical justification to support the need for each additional activity. When considering what additional site characterization activities may or may not be necessary, bidders are strongly encouraged to review Letterle's October 2013 ESCR and February 2015 RAP (Attachments 3g and 3f, respectively) and the other documents provided in Attachment 3, rather than relying solely on the summary information presented in this RFB.

Example potential activities for bidders to consider may include tasks such as – advancing additional soil borings to assist in defining the extent of unsaturated soil contamination (i.e. beneath former tanks 006 and 007), further evaluation of inorganics and sediment in groundwater and conducting groundwater treatability study(ies), etc. Any and all Milestone A activities that are proposed with your firm's bid shall be accompanied by the following:

- The purpose and need for each Milestone A activity and an appropriate breakdown;
- A detailed scope description of each activity including the use and incorporation of any pre-existing site data;
- The timing and schedule of each activity relative to the overall project schedule; and
- A description of the anticipated results of each activity and how such results may impact your proposed conceptual remedial action plan.

Following completion of the additional site characterization activities, these Milestone A activities shall be documented as discussed in Milestone C³.

Milestone B – Pilot Testing and Reporting. Pilot testing shall be proposed to support the feasibility and appropriateness of bidder’s proposed remedial technology and approach. More specifically, the purpose of the pilot test is to:

- Confirm that bidder’s proposed technology is technically viable;
- Confirm that bidder’s proposed remedial approach can be expected to be efficient & cost-effective;
- Confirm that bidder’s proposed technology will achieve the remedial objective within a reasonable timeframe; and
- Confirm assumed / establish remedial design criteria.

The bidder shall provide a detailed description of the proposed pilot testing, objectives and rationale including any concerns with project file pilot testing data, perceived existing data gaps, proposed methods, 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. Each bid shall also describe how the data/information would be evaluated. In formulating its pilot testing proposal, bidders shall also consider the following:

- Previous pilot testing indicated that an accumulation of silt into one of the recovery wells created problems with obstructing the pump inlet and required periodic cleaning during the test. As a result, the February 2015 RAP design includes an inclined plate clarifier, without further explanation. There appears to be scant details in the RAP on the degree of sedimentation that could potentially be expected and the effectiveness of the proposed clarifier. Bidders may also want to evaluate other potential modifications (i.e. recovery well screen slot size, additional sediment filters) that might address any excess siltation problem. Additionally, bidders may wish to evaluate the waste production rates that could be expected at various treatment system stages/components (e.g., clarifier, particulate filters, etc.), shedding more light on likely O&M requirements.
- To treat off-gas from the SVE system the RAP proposes initially using a catalytic oxidizer, followed by vapor-phase granular activated carbon (VGAC). However, the RAP does not appear to include a full assessment of the off-gas treatment options to establish the most cost effective option.

For the Milestone B proposal, bidders shall also specify up to five key pilot test outcome criteria that establish whether the bidder’s proposed remedial action is feasible. These “critical criteria” shall be listed with an upper and lower limit that will define the range of acceptable results (i.e., pilot testing results) relevant to bidder’s proposed remedial approach. These critical criteria

³ In order to receive reimbursement under this task, thorough documentation of any additional site characterization activities must be provided to PAUSTIF.

must be tightly-controlled measurements or calculations that could be independently measured or verified by others during the pilot test.

For example, bids shall include language such as, “For our proposed remedial action approach to be successful and for the technology(ies) used thereby to operate as planned and meet our proposed clean up schedule, the Milestone B pilot testing must show:

1. A hydraulic conductivity greater than A, but not more than B;
2. A pumping rate exceeding AA gpm at the end of BB hours of vacuum-enhanced pumping;
3. The capacity to generate a soil vapor extraction vacuum of at least X in the native soil while not exceeding a soil flow rate of Y; and
4. Iron and manganese hardness within groundwater at or below Z milligrams per liter (mg/L).”

This is only an example. Actual bid language and the associated critical criteria will vary by bidder.

The critical criteria identified in each bid and their associated acceptable range of testing results will be evaluated as part of the bid review. Unrealistic critical criteria or critical criteria that are unreasonably narrow will reduce the favorability of the bid.

Please note that all bidders shall propose to perform a pilot test, even if the bidder is proposing to use exactly the same remedial technology and design as specified in a PADEP approved RAP for the subject site. In the event a bidder proposes exactly the same remedial technology and design as specified in a PADEP approved RAP for the subject site, the bidder will still be expected to perform pilot testing to confirm the data and conclusions presented in the PADEP approved RAP and to confirm that the proposed remedial system and design as proposed in the bid response is feasible, safe and effective.

The Milestone B proposal shall reflect an understanding that selected bidder will prepare a Pilot Test Report and submit it to the Solicitor and PAUSTIF. The Pilot Test Report shall show that the pilot test was conducted according to the selected consultant’s bid and shall constitute documentation for payment of Milestone B regardless of the result. If the results of the pilot testing show that the proposed remedial action is feasible based on the specified critical criteria and ranges, safe and effective, then the selected consultant shall be expected to move forward with the project under the contract. The Milestone B activities shall also be included in the reporting for Milestone C.

“Pilot Test Off-Ramp” – The selected consultant and the Solicitor are protected from being obligated to move forward with a remedial action under the executed Remediation Agreement if the proposed remedial approach cannot be safely or efficiently implemented as proposed in the conceptual design based on critical criteria outside the bidder’s defined ranges from the pilot

test data from Milestone B. Exhibit A of the Remediation Agreement (Attachment 1) will contain a provision that if the selected consultant's proposed remedial approach is not reasonable based solely on pilot test results indicating that it cannot be implemented as proposed in the conceptual design based on critical criteria outside the bidders defined ranges from the pilot test data from Milestone B, then one of the following conditions will apply:

- 1) With advance Solicitor and PAUSTIF approval, the selected bidder may elect to modify the remediation plan and continue with the project at no additional cost; that is, for the same total fixed price found in the bid response or a lesser fixed-cost. If selected consultant's modified plan is approved by Solicitor and by PAUSTIF for funding, the executed Remediation Agreement may be amended, if necessary, to agree with the modified remediation plan and costs; however, the total fixed price of the Remediation Agreement shall not be increased.
- 2) If the Solicitor or PAUSTIF choose not to approve the selected consultant's revised remediation plan adjusting to the new data, the Remediation Agreement for the project will terminate.
- 3) If the selected consultant adequately demonstrates the site conditions revealed by the results of pilot testing performed under Milestone B could not have reasonably been expected prior to conducting the Milestone B activities, the selected consultant may elect to not proceed and to terminate the Remediation Agreement for the project.

If either party elects to cancel the Remediation Agreement, the PAUSTIF will have complete discretion with regard to the use of the information obtained during Milestone B activities and/or in the Pilot Test Report. The PAUSTIF may use the data as the basis for rebidding the project; however, it will be specified that any use that a third party makes of the supplemental site characterization data and/or Pilot Test Report will be at the sole risk of the third party. End of "Pilot Test Off-Ramp" language.

For consistency, bidders shall budget a maximum of 10% of the total bid cost for this Milestone, with a maximum of \$50,000. For example, if the total proposed cost for Milestones A through J (excluding B) is determined to be \$300,000, the fixed-price cost of Milestone B specified in the bid cost spreadsheet shall be up to, but not exceed \$30,000. However, if the total proposed cost for Milestones A through J (excluding B) is determined to be \$550,000, the fixed-price cost of Milestone B specified on the bid cost spreadsheet shall be up to, but not exceed \$50,000.

Milestone C – Documentation of Findings: Augmented RAPR; RAP Addendum; or Revised RAP. Upon completing Milestones A and B described above, there are two possible documentation scenarios for Milestone C. Each bidder shall choose one documentation scenario. The scenarios, triggers for each, and minimum required components are summarized as follows:

- (1) **RAP Addendum.** If a bidder proposes to implement the PADEP-approved RAP with modifications (i.e. removal of the soil excavation component, addition/adjustments of the remediation well layout, adjustments of the remedial treatment design, etc.), then the supplemental site characterization and pilot testing activities conducted under Milestones A and B, respectively, and the remedial approach modifications shall be documented and reported to PADEP in a RAP Addendum to secure PADEP approval. The RAP Addendum shall be first submitted in draft form to the Solicitor and PAUSTIF for review and comment before being finalized and submitted to PADEP. 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.; or
- (2) **Revised RAP.** If a bidder proposes to implement one of the two alternative remedial approaches for the site, then a Revised RAP shall be prepared to document the supplemental site characterization and pilot testing activities/findings, along with the details of the revised remedial approach. This Revised RAP shall contain all necessary information required under 25 PA Code §245.311, and be of sufficient quality and content to reasonably expect PADEP approval. The Revised RAP shall be first submitted in draft form to the Solicitor and PAUSTIF for review and comment before being finalized and submitted to PADEP. 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 applicable document / report shall document, describe, and evaluate all findings provided from Milestones A and B above, updating the conceptual site model (CSM) for the Site and its vicinity based on evaluating the results from the additional site characterization and pilot testing tasks outlined above, and detailing any proposed modifications to the existing PADEP-approved remedial approach. The applicable document / report shall 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.

The applicable document / report 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 RAP Addendum or Revised RAP reports.⁴

Milestone D – Pre-Remediation Quarterly Groundwater Monitoring, Sampling & Reporting. Under this task, bidders shall provide a firm fixed-price to continue with quarterly

⁴ All figures included in the RAP Addendum or Revised RAP (e.g., site plan, remedial design layout, etc.) shall be available in electronic format to the Solicitor upon request.

groundwater monitoring, sampling, and reporting events while performing the supplemental site characterization activities (Milestone A), pilot testing (Milestone B), and design / installation of the remedial system. For the purposes of this RFB, it is assumed the Milestone D activities will be required for two (2) quarters. However, each bid must specify the number of quarterly events that will be needed prior to implementation of the remedial approach (Milestone E) along with supporting rationale. Any additional quarterly monitoring and reporting events, beyond the two quarters specified in this RFB, shall be defined on the Bid Cost Spreadsheet and shall be incorporated in the Remediation Agreement as Optional Cost Adder Milestone K.⁵

Each groundwater monitoring and sampling event shall include all twelve (12) existing on- and off-property monitoring and recovery wells (MW-1 through MW-10, and RW-1 and RW-2)⁶. The conduct and results of each event shall be documented in quarterly Remedial Action Progress Reports (RAPRs). During each quarterly groundwater monitoring and sampling event, the depth to groundwater shall be gauged in all existing available monitoring wells and prior to purging any of the wells for sampling. Groundwater level measurements obtained from the monitoring wells shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient.

Each of the monitoring wells designated for sample collection shall be purged and sampled in accordance with the PADEP Groundwater Monitoring Guidance Manual and standard industry practices. Any well exhibiting a measurable thickness of separate-phase hydrocarbons (SPH) shall not be purged and sampled.⁷ Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP SWRO guidance.

Groundwater samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, cumene, 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.⁸ In addition, each event shall include field measurements for the following parameters: pH, temperature, specific conductance, dissolved oxygen (measured in-situ), oxidation/reduction potential, and total dissolved solids (TDS).

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

⁵ The Remediation Agreement includes a Site Specific Assumption that the pre-remedial quarterly site monitoring, sampling & reporting events will not exceed the two quarters under Milestone D plus any additional quarters under Optional Cost Adder Milestone K.

⁶ The fixed price cost shall also include any additional monitoring well(s) that the bidder proposes to install under Milestones A and B (if any).

⁷ No SPH has been observed in any of the monitoring wells.

⁸ Each bidder's approach to implementing Milestone D shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), QA/QC measures, analytes, purge water management methods, and other key assumptions affecting the bid price.

- A summary of site operations and remedial progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered;
- Groundwater elevation contour maps depicting groundwater flow direction;
- Tabulated historical quantitative groundwater analytical results including results from the current quarter;
- Current quarter laboratory analytical report(s);
- One site-wide iso-concentration contour map for each compound detected in any one well above the SHS during the quarter;⁹
- For each well exceeding SHS, a graphical depiction of historical key contaminant concentrations and groundwater elevations to provide an assessment of correlations between fluctuating water levels / precipitation events and contaminant concentrations;
- For each well exceeding SHS, a graphical depiction of recent key contaminant concentration trends;
- Discussion of the data to offer an updated assessment whether these data are consistent with a stable, shrinking, or expanding plume;
- Treatment and disposal documentation for waste generated during the reporting period; and
- Demonstration of compliance with the required Federal, State, and local permits and approvals.

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

Milestone E – RAP Implementation. Under this milestone, bidders shall provide a fixed price bid inclusive of all the manpower, machinery, materials, and other costs needed to fully implement the remedial solution for the site whether it be the solution described in the existing PADEP-approved RAP, the bidder’s RAP Addendum once approved by PADEP, or the bidder’s Revised RAP (RRAP), once approved by PADEP.

⁹ All figures included in each RAPR (e.g., site plan, groundwater elevation maps, dissolved plume maps, etc.) shall be available in electronic format to the Solicitor upon request.

Existing PADEP-Approved AS/VEGE

Bidders shall prepare a fixed-price cost to implement the AS/VEGE remedial approach described in the February 2015 RAP, or some modified version to this approach as described by the successful bidder in a RAP Addendum. The cost breakdown of the RAP-specified or some modified version to the in-situ remediation system shall follow the format prescribed below.

Milestone E1. Installation of AS Wells and VEGE Recovery Wells. Under this task, bidders shall provide a firm fixed-price cost for installing the five additional AS wells and two additional VEGE recovery wells described in the RAP or an alternative number of wells as the bidder shall detail in the bid response. Proposed locations for the additional AS and VEGE wells (AS-2 through AS-6 and RW-3 and RW-4) are shown on Figure 5 in Attachment 3a. Each bidder shall independently consider the final locations relative to utilities; bidder's own interpretation of groundwater flow variations; evaluation of remedial feasibility testing data; and configuration of the dissolved-phase plume.¹⁰ Each bidder in their bid response must show the proposed locations for the recovery wells on a site drawing. If a bidder believes the remediation wells should be placed elsewhere or that more or fewer wells are needed, the bidder shall identify the alternative location(s) and provide rationale.

The borings for the remediation wells shall be advanced to intersect the shallow water-bearing zone intercepted by nearby on-property monitoring and recovery wells. This interval is expected to be present at depths between ~18 to 24 feet below grade based on the existing water level data. Bidders shall assume examining and described drilling cuttings / soil cores for lithology, groundwater occurrence, and potential staining / odor indicative of hydrocarbon contamination. No soil samples will be collected from the well borehole for laboratory analysis.

The remediation wells shall be constructed in general accordance with the PADEP Groundwater Monitoring Guidance Manual. Each bidder in the bid response shall indicate the drilling methods used to advance boreholes, total depth for each well, and well construction details (i.e. well casing diameter, screened interval, sand pack, etc.). Final construction of the VEGE recovery wells must ensure that the screened interval intersects the water table surface and accounts for seasonal groundwater fluctuations, and able to facilitate remediation of the unsaturated and periodically saturated soil impacts. Final construction of the AS wells must ensure the screened interval remains saturated and always below the lowest seasonal groundwater level.

Each bid response shall describe and include in the fixed-price 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 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

¹⁰ The calculated pneumatic and AS ROI do not extend to upgradient well MW-5 and the RAP design does not include any AS and recovery wells near MW-5 where saturated soil and groundwater exceeded SHS.

development along with supporting documentation (e.g., waste manifests, boring logs and construction details, etc.) shall be documented in a quarterly RAPR (Milestone D).

Milestone E2 – In-situ Remedial System Final Design, Equipment Purchase, and Assembly.

Any equipment¹¹ that has moving parts or part of the electronic control system (e.g. pumps, blowers, gauges, electrical sensors & switches) necessary to implement the RAP (or RAP Addendum) shall be purchased new, and other equipment (e.g. holding tanks, trailer/shed) is not required to be purchased new provided that such used equipment is guaranteed to properly function for the life of the contract. The remedial system shall be pre-assembled and tested as much as possible as a turn-key prefabricated system prior to site deployment. Under this approach, the purchased equipment is to be fully integrated and tested electrically and mechanically inside an enclosure (properly insulated with appropriate lighting, and heating & ventilation systems) before being shipped to the site. After delivery and setting in place, final connections shall be made to the electrical service and subsurface piping / conduits installed as part of the Site Preparation Work (see below). Clear and legible copies of all equipment manuals and warranties shall be provided to Solicitor.

The fixed price shall include the appropriate equipment (i.e. inclined plate clarifier) to address the sediment being captured by the recovery wells. Each bid must explain how captured sediment will be managed.

The PADEP approved RAP does not appear to include equipment to filter recovered groundwater or sequestration to address potential iron fouling of the remedial system. Bidders shall review the iron and manganese data obtained by the current consultant and determine if additional equipment is necessary, and if a bidder does believe that an iron filtration unit is needed, the bidder shall provide the rationale, and the fixed price costs for the purchase, installation, and O&M of this filtration unit or iron sequestration equipment. The successful bidder may use Milestone A to confirm its conclusions and equipment requirements. Bidders that elect to not propose any additional equipment to address the inorganics must provide the technical rationale (basis) for this decision within their bid, and must explicitly state within their bid that they understand and have accounted for iron and other hardness fouling potential in their operational estimates.

Please note that the proposed remedial system shall be equipped with some form of telemetry as indicated in the approved RAP. The selected consultant shall coordinate with the telephone, cable or internet service provider to bring and provide appropriate service to the location of the remediation equipment to allow remote communications and document up-time. Payment of the service connection shall be the responsibility of the selected consultant and shall be accounted for in the quoted fixed-price bid.

¹¹ All equipment purchased under this contract will become the property of the Solicitor. The selected consultant shall be responsible for operating and maintaining the equipment for the specified number of years included within their bid beginning from the date of successful remediation system startup.

Milestone E3. Site Preparation Work. The selected consultant shall obtain all necessary construction and operational permits and/ or permit exemptions and post same as required. Solicitor shall be provided copies of all permits / permit exemptions before field construction activities commence. On-site mark-out of buried utilities shall be completed in advance of any drilling or trenching activities. PA One Call notification shall be made and documented prior to drilling or trenching activities.

The selected consultant shall coordinate with the electrical service provider to bring and provide appropriate electrical service to the location of the remediation equipment. Payment of the electrical service connection shall be the responsibility of the selected consultant and accounted for in the fixed-price bid.

Milestone E4 – In-situ Remediation Equipment Pad, Trenching, Subsurface Piping, Mechanical, and Electrical. The selected consultant shall prepare the area where the remediation equipment will be located as specified in the RAP (or RAP Addendum) or as otherwise directed by the Solicitor, including, if necessary, construction of a concrete pad. Required and appropriately sized piping and electrical conduit/wiring shall be trenched and buried below the frost line extending between the remediation equipment location and the recovery wells. Buried piping shall be installed with tracer wire to facilitate locating the subsurface lines after the trenches have been backfilled. Buried piping shall be tested for integrity and documented before trench backfilling. Buried piping and conduit stub-ups shall be terminated and secured in the remediation equipment area to facilitate final connections to remediation equipment and winterization of the stub-ups. Surface restoration from all trenching and well head completions shall be similar to current conditions.

In the remedial design, bidders are asked to keep trenching / subsurface piping away from existing UST system infrastructure (i.e. tank field, product piping, etc.) in the event that the owner/operator would perform any work or upgrades to the existing UST system.

Milestone E5 – Final Connections and Startup / Trouble-Shooting of the In-situ Remediation System. The selected consultant shall make the final connections between piping/conduit stub ups and power drop/meter and the manifold(s)/conduits on the interior of the pre-assembled and tested treatment system. Any sections of above-grade piping located outside of the equipment enclosure will need to be freeze-protected (e.g., by insulation and heat tracing).

The selected consultant shall start up and demonstrate proper operation of the remediation system equipment, and each bid response shall describe start up / trouble-shooting procedures. At a minimum, such demonstration shall include documentation that: (a) all below- and above-grade equipment is operational; (b) the design parameters are achievable at the treatment system and at the well heads; (c) all safety and control switches function properly; and (d) the system can operate automatically (without manual intervention). The successful bidder shall provide the Solicitor and ICF/PAUSTIF with startup documentation demonstrating proper operation of the system. To the extent problems are identified during the site work preparation

and/or remediation system installation and start-up phases, the successful bidder shall repair these problems and repeat the proper system operation demonstration.

Also as part of this task, the selected consultant shall prepare an operations and maintenance (O&M) Plan, and as part of the O&M Plan, the selected consultant shall also be responsible for developing a checklist to be completed by field technicians during subsequent O&M visits that will provide key information deemed necessary to evaluate remediation performance, permit compliance, and system maintenance on a continuing basis. Each bid response shall include an appropriate example of an O&M checklist that identifies typical minimum data requirements to be recorded during each O&M site visit.

The selected consultant will provide the Solicitor with a copy of the O&M Plan prior to remediation system startup, and a hard copy of as-built drawings for the remediation system upon completion of the successful system startup.

The Solicitor and the PAUSTIF shall have the opportunity to inspect and confirm that the system has been installed as described in the fixed-price agreement and in the remedial system final design and is in daily operation as described in the remedial system final design. The selected consultant shall contact ICF/PAUSTIF immediately following completion of start up / troubleshooting and the system is fully operational.

Milestone E6 – Temporary Operation of a CatOx Unit and Initial Setup of VGAC Units. If required, the selected consultant will be responsible for acquiring any air discharge permit (if applicable), setting up, and operating a CatOx unit for three months to treat the extracted vapor stream. The vapor extracted from the recovery wells shall be treated by a CatOx unit capable of treating the anticipated vapor flow rate and hydrocarbon concentrations. Each bid must explicitly explain the methods to monitor vapor recovery rates and what criteria will be used to trigger the transition from use of the CatOx system to VGAC. If it proves necessary to extend operation of the CatOx unit beyond the initial three months, each additional month will be addressed via Optional Cost Adder Milestone L. At the conclusion of operating the CatOx unit, which is to be based on the selected consultants criteria stated in its bid, the selected consultant will be responsible for removing and returning the CatOx unit and installing the appropriately sized VGAC vessels connected in series, for VGAC treatment of the extracted vapor stream.

Revised RAP Approach Via VEGE Only or AS/SVE

Bidders shall prepare a fixed-price cost to implement the VEGE only or AS/SVE remedial approaches as described by the successful bidder in a Revised RAP. The cost breakdown of the Revised RAP approach shall follow the format described above in Milestones E1 through E6.

Milestone F – Remediation System O&M, Site Monitoring & Sampling, & Reporting. For this milestone, bidders shall provide the Solicitor and PAUSTIF with firm quarterly fixed-price

unit costs that would include the routine O&M of the remedial system;¹² quarterly groundwater, monitoring, and sampling of the on- and off-property monitoring wells; and reporting. The quarterly fixed price cost shall also include responding to any unexpected telemetry-triggered O&M visits.

For the purposes of this RFB, it is assumed the Milestone F activities will be required for 8 quarters (2 years). However, each bid *must* specify the remediation timeframe (i.e., number of O&M quarters) that the bidder's proposed remedial approach will need in order to achieve the project goal of reducing soil and groundwater contaminant concentrations to below residential SHS, enabling initiation of groundwater and soil attainment demonstration.¹³¹⁴ The bidders realistic assessment of remediation timeframe (total number of operating quarters) shall be defined on the Bid Cost Spreadsheet, and shall include the additional number of remediation quarters, beyond 8 quarters specified in this RFB (i.e., if a bidder believes it can complete the remediation in a total of 12 quarters of O&M, the additional number of quarters to be included on the Bid Cost Spreadsheet is four (4) quarters). If the bidder's O&M remediation timeframe exceeds the RFB-specified 8 quarters, the number of quarters exceeding 8 will be incorporated in the Remediation Agreement as Optional Cost Adder Milestone M. Bidders shall assume that the remediation will need to continue until the contaminant concentrations in all of the point of compliance (POC) wells (as defined in Milestone G) are either below the PADEP SHS or "non-detect" for at least two consecutive quarterly monitoring and sampling events. Under these conditions, it is deemed reasonable to initiate the groundwater attainment demonstration. Each bid must explicitly state bidder's understanding of the project goal for when the remedial system would be discontinued and attainment sampling shall begin.

If the Consultant decides to discontinue O&M activities before all 8 Milestone F quarterly events are completed in order to initiate groundwater attainment early, the Consultant will bear some risk if groundwater contaminant concentrations rebound during subsequent attainment monitoring. More specifically, if the remedial system is shut down before all of Milestone F quarterly events are completed, the Consultant will be required to wait a minimum of two months before initiating groundwater attainment activities (Milestone G). If during the first quarter of groundwater attainment, concentrations of contamination rebounds above SHS in any POC well, the Consultant shall be obligated to restart the system within 7 days and continue with the residual quarterly Milestone F activities. Then, **when all 8 quarters of the Milestone F activities have been completed (plus any or all of the Cost Adder Milestone M quarters) and groundwater attainment activities are re-initiated, the Consultant who initially prematurely idled the remediation system will be obligated to perform the first of the restarted series of quarterly attainment events at no cost.** Responsive bids will explicitly

¹² Electric usage; telephone, cable, internet service; and any discharge to local treatment facility will be reimbursed as time and material cost adders to the Remediation Agreement.

¹³ During the bidder's specified timeframe of site operations, maintenance, and monitoring subsequent to remediation system startup, the selected consultant, at its own expense, including all associated labor, shall be responsible for repairing or replacing equipment purchased for the RAP implementation that becomes damaged, destroyed, or defective.

¹⁴ If the groundwater data allows for discontinuing remedial activities prior to reaching the bidders specified timeframe for remedial system operation, the selected consultant will only be reimbursed for O&M events that have been completed.

state an understanding of the possible consequences of early termination of the 8 quarters of O&M under Milestone F.

Each bid must specify the number of site visits to occur each quarter. O&M tasks will be primarily focused on data collection and evaluations to: (1) determine, demonstrate, and document remediation performance; (2) properly maintain the system equipment; and (3) demonstrate compliance with permits and other applicable regulatory requirements.

- *Performance monitoring* shall include data collection and evaluations geared toward evaluating how well the remedial strategy is working and making necessary adjustments to the system operational configuration to optimize system performance. Performance monitoring activities are to include, but not necessarily be limited to, measurements that allow contaminant mass recovery quantification. The selected consultant shall report quarterly concerning its evaluations of system performance and system optimizations performed.
- *System maintenance & monitoring* shall include monitoring and routine maintenance as specified by the equipment manufacturer(s) to ensure warranties are not voided and the equipment is kept in good working order. Operational time shall be logged by system instrumentation and reported quarterly to the Solicitor. The selected consultant is expected to maintain at least an 85% uptime on the system during each quarter. Failure to meet this minimum expectation over two consecutive quarters will constitute, at the Solicitor's sole discretion, a breach of contract and the Solicitor may chose to terminate the contract.
- *Compliance monitoring* shall include system and site sampling needed to demonstrate compliance with permits and other applicable regulatory requirements. Documentation of compliance shall be provided to the Solicitor in quarterly RAPRs and in any other reporting required by permitting agencies (i.e. local POTW).

The quarterly groundwater monitoring and sampling events will include all ten (10) existing on- and off-property monitoring wells (MW-1 through MW-10)¹⁵, the two existing recovery wells (RW-1 and RW-2), and the two proposed recovery wells to be installed under Milestone E. If a RAP Addendum is proposed which includes fewer or more remediation wells, this should be explicitly stated in the Milestone F response and accounted for in the bidder's Milestone F quarterly and total cost.

During each event, the depth to groundwater and any potential SPH shall be gauged in all available monitoring wells prior to purging any of the wells for sampling. Groundwater level measurements obtained from the monitoring wells shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient. The conduct and results of each event shall be documented in RAPRs. Any well exhibiting more than a sheen of SPH shall

¹⁵ The fixed price cost shall also include any additional monitoring wells installed under Milestone A.

not be purged and sampled.¹⁶ Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP SWRO guidance.

Groundwater samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, cumene, 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.¹⁷ In addition, each event shall include field measurements for these water quality parameters: pH, temperature, specific conductance, dissolved oxygen (measured in-situ), oxidation/reduction potential, and TDS.

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

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

¹⁶ No SPH has historically been observed in any of the monitoring wells installed on- and off-property.

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

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

- Evaluation of system performance including contaminant mass recovery quantification and system optimizations performed;
- Operational time shall be logged by system instrumentation and reported in the RAPRs. If less than 85% uptime has been achieved, documentation of operations problems shall be provided along with the changes/modifications implemented to improve performance consistency;
- Treatment and disposal documentation for waste generated during the reporting period; and
- Demonstration of compliance with the required Federal, State, and local permits and approvals.

PAUSTIF will only reimburse for the necessary quarterly O&M and groundwater sampling / reporting events actually completed under this milestone (e.g., this milestone shall be considered completed with the initiation of Milestone G). If, in order to achieve the cleanup goals, it is necessary to extend the period of O&M beyond the RFB-specified 8 quarters, each additional quarter, up to the total number of Consultant's bid O&M remedial timeframe, will be addressed via Optional Cost Adder Milestone M. Consultant shall seek and obtain written approval from Solicitor and PAUSTIF to continue operation of the remedial system (Milestone M).¹⁹

Each quarterly RAPR shall be signed and sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed for and documented in the RAPR).

To provide added incentive to the successful bidder to regularly scrutinize remedial system performance and optimize system operations for maximal efficiency in completing the remedial O&M to achieve closure as expeditiously and cost effectively as possible, **10% of each quarterly payment for this milestone (and Optional Cost Adder Milestone M, if implemented) will be withheld and accumulated pending successful completion of remediation and initiation of soil and groundwater attainment activities (Milestones G and H).** When this condition has been met, the accumulation of 10% holdback payments, for the Milestones actually completed, will be reimbursed in one lump sum to the successful bidder.²⁰ The 10% hold-back milestone will not be paid for an in-situ remediation system that has not attained the cleanup goal within the Consultant's bid remediation timeframe.

Milestone G – Groundwater Attainment Demonstration. Under this task, bidders shall provide a firm fixed-price to complete up to eight quarters of groundwater monitoring and

¹⁹ The Remediation Agreement includes a Site Specific Assumption that remediation will be complete and soil and groundwater attainment activities will be initiated within the O&M timeframe Consultant has bid.

²⁰ Lump sum payment request shall be made prior to the on-set of initiating Milestones G and H.

sampling events.²¹ Each groundwater monitoring and sampling event shall include on-property POC wells MW-1, MW-3, MW-4, MW-5, and MW-10; and off-property wells MW-6 through MW-9. The conduct and results of each event shall be documented in quarterly RAPRs.²²

During each quarterly groundwater monitoring and sampling event, the depth to groundwater shall be gauged in all existing available monitoring wells and prior to purging any of the wells for sampling. Groundwater level measurements obtained from the monitoring wells shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient.

Each of the monitoring wells designated for sample collection shall be purged and sampled in accordance with the PADEP Groundwater Monitoring Guidance Manual and standard industry practices. Any well exhibiting a measurable thickness of SPH shall not be purged and sampled. Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP SWRO guidance.

Groundwater samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, cumene, 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.²³ In addition, each event shall include field measurements for the following parameters: pH, temperature, specific conductance, dissolved oxygen (measured in-situ), oxidation/reduction potential, and TDS.

The groundwater attainment demonstration reports describing the sampling methods and results will be provided to the PADEP on a quarterly basis and within 30 days of the receipt of analytical results for each quarter. At a minimum, each attainment demonstration report shall contain the following:

- A summary of site operations and remedial progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered;
- Groundwater elevation contour maps depicting groundwater flow direction;

²¹ Bidders shall include language in their bid that if groundwater data in the POC wells has been either non-detect or below SHS for four consecutive quarters, the PADEP will be petitioned to approve a reduction in the number of groundwater attainment sampling events.

²² If it becomes evident anytime during the groundwater attainment demonstration (initiated subsequent to completing at least the Milestone F eight quarters of remedial O&M) that the attainment demonstration will not be successful within the allotted 8 quarters in one or more of the POC wells (e.g., a greater than 10X result or more than two SHS exceedances, etc.), this will represent a New Condition under the contract.

²³ Each bidder's approach to implementing Milestone G shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), QA/QC measures, analytes, purge water management methods, and other key assumptions affecting the bid price.

- Tabulated historical quantitative groundwater analytical results including results from the current quarter;
- Current quarter laboratory analytical report(s);
- One site-wide iso-concentration contour map for each compound detected in any one well above the SHS during the quarter;²⁴
- For each well exceeding SHS, a graphical depiction of historical key contaminant concentrations and groundwater elevations to provide an assessment of correlations between fluctuating water levels / precipitation events and contaminant concentrations;
- For each well exceeding SHS, a graphical depiction of recent key contaminant concentration trends and results of any qualitative and quantitative analysis;
- Discussion of the data to offer an updated assessment whether these data are consistent with a stable, shrinking, or expanding plume;
- Treatment and disposal documentation for waste generated during the reporting period; and
- Demonstration of compliance with the required Federal, State, and local permits and approvals.

Each groundwater attainment demonstration report shall be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed for and documented in the groundwater attainment demonstration report).

Milestone H – Soil Attainment Demonstration. Under this task, bidders shall develop and implement a soil boring program for systematic random soil sampling to demonstrate attainment of the SHS for the periodically saturated soils in the area of the former / existing UST system and other areas on- and off-property where previous site characterization activities have identified soil exceedances of the SHS. Three dimensional attainment sampling shall be completed to demonstrate attainment of this area and each bid must describe in detail their approach at addressing soil attainment, and include the depth interval and a drawing showing the locations where the sampling grid would be applied to demonstrate soil attainment.

The location / depth of the soil samples shall be determined using PADEP's systematic random sampling (SRSS) procedures, assuming one soil sample per boring shall be submitted for laboratory analysis. Alternate SRSS points shall be selected for any primary SRSS sample locations positioned within the existing UST system and any existing below grade utilities (i.e. public water and natural gas). Soil samples shall be analyzed for the PADEP short list for unleaded gasoline parameters (BTEX, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB). Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for

²⁴ All figures included in each RAPR (e.g., site plan, groundwater elevation maps, dissolved plume maps, etc.) shall be available in electronic format to the Solicitor upon request.

laboratory analysis. The soil sampling results shall be analyzed using PADEP's 75%/10x Ad Hoc Rule, which shall be documented in detail in the RACR²⁵.

Milestone I – Preparation, Submission, and PADEP Approval of Remedial Action Completion Report (RACR). Under this milestone, the bidder will prepare a fixed-price cost to prepare a draft and final RACR following the completion of milestones E through H, and related optional cost adder milestones. The RACR shall be prepared in accordance with Section 245.313. At a minimum, the RACR shall provide the details for Tasks A through H, and optional cost adder milestones. The RACR shall also discuss the selected closure criteria for the site, provide proof of soil and groundwater attainment, and request permanent closure for the site for the current release under an Act 2 Relief of Liability (ROL). The project schedule should allow two (2) weeks for Solicitor and PAUSTIF review of the draft RACR before a final version is submitted to the PADEP. The selected consultant shall then prepare and submit the final RACR to the PADEP in accordance with Section 245.313, and be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed for and documented in the RACR). The fixed-price cost shall also include addressing any PADEP comments on the RACR.

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

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

The selected consultant shall determine whether the Solicitor wishes to maintain any components of the remedial system (e.g. treatment building), as applicable, before removing it from the Site.

Optional Cost Adder Milestone K – Additional Pre-Remediation Quarterly Monitoring, Sampling & Reporting. Under this milestone, bidders shall provide the Solicitor and PAUSTIF

²⁵ If the sampling data does not allow for attainment of the selected standard, additional work will be considered an out-of-scope task under the Fixed-Price Agreement, which will require Solicitor and PAUSTIF approval of a work plan and cost estimate before beginning the work.

with a firm quarterly unit fixed-price cost that would include the quarterly groundwater monitoring, sampling / analysis of the all twelve (12) existing on- and off-property monitoring and recovery wells (MW-1 through MW-10, and RW-1 and RW-2),²⁶ and reporting beyond the two quarters specified in Milestone D. The SOW for this unit cost adder milestone should follow Milestone D guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

Optional Cost Adder Milestone L – Additional Monthly Operation of CatOx Unit. Under this milestone, bidders shall provide a firm fixed-price unit cost for each month of CatOx unit rental. The fixed-price cost shall be inclusive of all labor, subcontractor costs, any permitting fees, electrical usage and waste handling / disposal items. Bidder's shall also identify the mass recovery rate threshold / criterion for switching from CatOx treatment to VGAC (e.g., once TPH as gasoline mass recovery rates decrease to below 10 pounds per day, the catalytic oxidizer will be replaced with VGAC).

Optional Cost Adder Milestone M – Additional Remediation System O&M, Site Monitoring, Sampling, & Reporting. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly unit fixed-price cost that would include the routine O&M of the remedial system; quarterly groundwater, monitoring, and sampling of the on- and off-property monitoring and recovery wells; and reporting beyond the timeframe specified in Milestone F. The SOW for this unit cost adder milestone should follow Milestone F guidelines. As described in Milestone F, a 10% holdback will be applied to each Optional Cost Adder Milestone M payment. Each bid must include the rationale for needing to implement this optional cost adder milestone.

Optional Cost Adder Milestone N – VGAC Change-Out. Under this milestone, bidders shall provide a firm fixed-price unit cost for each VGAC change-out event of the “primary” VGAC vessel, placing the vessel with the fresh virgin GAC in the secondary position. Bidders shall detail the scope of work and provide the criteria or “trigger(s)” that would be used in determining when the VGAC needs to be replaced (e.g., once the carbon in the VGAC units has adsorbed 15% of its weight in TPH as gasoline contamination determined by mass recovery calculations). The fixed-price cost shall be inclusive of all labor, subcontractor costs, VGAC replacement, and waste handling / disposal items.

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 tasks identified in the bid. The standard practice of tracking total cumulative costs by milestone will also be required to facilitate invoice review. 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

²⁶ The fixed price cost shall also include any additional monitoring well(s) that the bidder proposes to install under Milestones A and B (if any).

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. All necessary modifications to the executed Remediation Agreement will require the prior 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. Figures 1 through 5
 - b. Remedial Action Progress Report, 2nd Quarter 2016, dated June 2016
 - c. Remedial Action Progress Report, 1st Quarter 2016, dated February 2016
 - d. Remedial Action Progress Report, 3rd Quarter 2015, dated October 2015
 - e. PADEP Site Characterization Report/Remedial Action Plan Approval letter, dated March 5, 2015
 - f. Remedial Action Plan, dated February 2015
 - g. Environmental Site Characterization Report, dated October 2013