

Request for Bid

Fixed-Price Bid to Result

Site Remediation through Closure

Solicitor

Graft Oil Company

Honey Bear Mini Mart

**200 McKean Street
Kittanning, PA 16201**

PADEP Facility ID #: 03-07315 PAUSTIF Claim #: 2002-0197(I)

Date of Issuance

April 12, 2017

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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	May 1, 2017 by 5 p.m.
Mandatory Pre-Bid Site Visit	May 3, 2017 at 11 a.m.
Deadline to Submit Questions	May 26, 2017 by 5 p.m.
Bid Due Date and Time	June 2, 2017 by 3 p.m.

Contact Information

Technical Contact
<p>Mr. Robert Breakwell, P.G. Excalibur Group, LLC 1193 State Road Monessen, PA 15062 rbreakwell@excaliburgrpilc.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 **“Honey Bear Mini Mart, Claim #2002-0197(I) – RFB QUESTION”**. Bidders must neither contact nor discuss this RFB with the Solicitor, PAUSTIF, the Pennsylvania Department of Environmental Protection (PADEP), or ICF unless approved by the Technical Contact. Bidders may discuss this RFB with subcontractors and vendors to the extent required for preparing the bid response.

Requirements

Mandatory Pre-Bid Site Meeting

The Solicitor, the Technical Contact, or their designee will hold a mandatory Site visit on the date and time listed in the Calendar of Events to conduct a Site tour for one (1) participant per bidding company. The Technical Contact will collect questions and respond via email. All questions and answers will be provided via email to all attendees. This meeting is mandatory for all bidders, no exceptions. This meeting will allow each bidding company to inspect the Site and evaluate Site conditions. **A notice of the bidder's intent to attend this meeting is requested to be provided to the Technical Contact via email by the date listed in the Calendar of Events with the subject "Honey Bear Mini Mart, Claim #2002-0197(I) – SITE MEETING ATTENDANCE NOTIFICATION".** The name and contact information of the company participant should be included in the body of the email. Notification of intent to attend is appreciated; however, it is not required. Attendance at the Pre-Bid Site Meeting is mandatory.

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 #2002-0197(I)".** Please note that the use of U.S. Mail, FedEx, UPS, or other delivery method does not guarantee delivery to this address by the due date and time listed in the Calendar of Events for submission. Companies mailing bids should allow adequate delivery time to ensure timely receipt of their bid.

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

Bid Requirements

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

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

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

The bidder shall provide its bid cost using the Bid Cost Spreadsheet (included as Attachment 2) with descriptions for each task provided in the body of the bid document. Please note, if costs are provided within the text of the submitted bid and there is a discrepancy between costs listed in the Bid Cost Spreadsheet and in the text, the costs listed within the Bid Cost Spreadsheet will be used in the evaluation of the bid and in the Remediation Agreement with the selected consultant. Bidders are responsible to ensure spreadsheet calculations are accurate. The technical score for bids will be based solely on those tasks represented as milestones included in the Bid Cost Spreadsheet and the total bid cost. Any optional bidder-defined tasks, milestones, or cost adders that are not requested as part of this RFB will not be considered by the Bid Evaluation Committee in the technical review and technical score for the bid.

In addition, the bidder shall provide:

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

Each bid will be assumed to be valid for a period of up to 120 days after receipt unless otherwise noted. The costs quoted in the Bid Cost Spreadsheet will be assumed to be valid for the duration of the Remediation Agreement.

Please note that the total fixed-price bid must include all costs, including those cost items that the bidder may regard as "variable". These variable cost items will not be handled outside of the total fixed-price quoted for the SOW unless the RFB requests costing alternatives for specific items or services. Any bid that disregards this requirement will be considered non-responsive to the bid requirements and, as a result, will be rejected and will not be evaluated.

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

Each bid response document must include at least the following:

1. Demonstration of the bidder's understanding of the Site information provided in this RFB, standard industry practices, and objectives of the project.
2. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the Site specific work scope/SCR/RAP implementation). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW "as is" may result in a bid not being considered. Bids should

include enough original language conveying bidder's thought such that the understanding of site conditions, closure approach (if applicable), and approach to addressing the scope of work can be evaluated. Since bidders are not prequalified, the bid response must provide the Bid Evaluation Committee and Solicitor enough information to complete a thorough review of the bid and bidder.

3. A copy of an insurance certificate that shows the bidder's level of insurance consistent with the requirements of the Remediation Agreement. Note: The selected consultant shall submit evidence to the Solicitor before beginning work that they have procured and will maintain Workers Compensation, commercial general and contractual liability, commercial automobile liability, and professional liability insurance commensurate with the level stated in the Remediation Agreement and for the work to be performed.
4. The names and brief resumes/qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)).
5. Responses to the following specific questions:
 - a. Does your company employ a Pennsylvania-licensed Professional Geologist or Professional Engineer that is designated as the proposed project manager? How many years of experience does this person have?
 - b. How many Pennsylvania Chapter 245 projects is your company currently the consultant for in the PADEP Region where the Site is located? Please list up to 10.
 - c. How many Pennsylvania Chapter 245 Corrective Action projects involving an approved SCR, RAP, and RACR has your company and/or the Pennsylvania-licensed Professional Geologist closed (i.e., obtained Relief from Liability from the PADEP) using any standard?
 - d. Has your firm ever been a party to a terminated PAUSTIF-funded Fixed-Price (FP) or Pay-for-Performance (PFP) contract without attaining all of the milestones? If so, please explain.
6. A description of subcontractor involvement by task. Identify and describe the involvement and provide actual cost quotations/bids/proposals from all significant specialized subcontracted service (e.g., drilling/well installations, laboratory, etc.). If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk. Added costs resulting from bid errors, omissions, or faulty assumptions will not be considered for PAUSTIF reimbursement.

7. A detailed schedule of activities for completing the proposed SOW including reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the SOW. Each bid must provide a schedule that begins with execution of the Remediation Agreement with the Solicitor and ends with completion of the final milestone proposed in this RFB. Schedules must also indicate the approximate start and end date of each of the tasks/milestones specified in the Scope of Work, and indicate the timing of all proposed key milestone activities (e.g., within 30 days of the contract being executed).
8. A description of how the Solicitor, ICF, and the PAUSTIF will be kept informed as to project progress and developments and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project.
9. A description of your approach to working with the PADEP. Describe how the PADEP would be involved proactively in the resolution of technical issues and how the PADEP case team will be kept informed of activities at the Site.
10. Key exceptions, assumptions, or special conditions applicable to the proposed SOW and/or used in formulating the proposed cost estimate. Please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exceptions may result in the bid response being deemed “unresponsive”.
11. The name and contact information of the person who is to be contacted in the event the bid is selected by the Solicitor and/or a Right to Know request is received by PAUSTIF.

Bid Review and Evaluation

Bid Review and Scoring

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

Technical Scoring

Bids are evaluated for technical viability before cost is considered. Bids that have technical scores that fall within 75% of the highest technical score will advance to cost scoring. Bids with technical scores below 75% of the highest technical score are eliminated from further consideration.

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

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

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

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

Cost Scoring

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

A = the lowest bid cost

B = the bidder's cost being scored

C = the maximum number of cost points available

D = bidder's cost score (points)

If a bid cost is equal to, or greater than, twice the amount of the lowest bid cost, the formula calculation will result in a negative number and the bid will be assigned zero cost points.

Evaluation of Bids

A committee comprised of at least two members of the USTIF staff, two members of ICF staff, and the TPR company who assisted in developing the bid package will score all bids that are administratively qualified based on the above criteria. USTIF recognizes that several bids may be acceptable and receive similar numerical scores. At the conclusion of the scoring process, the claimant will receive those bids whose numerical scores place them in the category of meeting Reasonable and Necessary criteria and acceptable for USTIF funding. The claimant may select any of the consulting firms that submitted a qualified bid package to implement the tasks described in the bid; however, USTIF will only provide funding up to the highest fixed price of those bids determined to be Reasonable and Necessary for USTIF funding.

General Site Background and Description

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

Summary of Site Background and Features

The Honey Bear Mini Mart (HBMM) facility is located at 200 McKean Street in the Borough of Kittanning, Armstrong County, Pennsylvania, and is currently operated as a Sunoco-branded retail gasoline service station and convenience store (c-store). Available information indicates that the Solicitor is the property owner and operator of the HBMM facility and is responsible for the environmental cleanup.

Existing features on this approximate 0.2-acre rectangular-shaped parcel consist of a single-story slab-on-grade convenience store building located in the northeast portion of the property, a fuel dispensing island southwest of the c-store building with four product dispensers and canopy cover, a deteriorated railroad tie retaining wall extending beyond the northwest side of the c-store, and four underground storage tanks (UST) installed in a common cavity northwest of the c-store building. Additional information regarding the current and historical facility UST systems is provided in the next subsection of this RFB. Almost the entire ground surface at the HBMM facility is paved with either concrete or asphalt. Bidders should also note that Solicitor has recently purchased the property and building adjacent to the HBMM facility northeast property boundary (see Figure 1 in Attachment 3A).

As part of the previous site characterization activities conducted at the HBMM site, a total of fifteen (15) groundwater monitoring wells were installed including on-property wells MW-1, MW-2, MW-8, MW-8D, MW-9, MW-10, and MW-10D and off-property wells MW-3 through MW-7, MW-11, MW-12 and MW-12D. Five (5) groundwater extraction and injection wells which were installed for previous groundwater pump & treat remediation efforts also remain on the property (EW-1, EW-2, EW-3, IW-1 and IW-2). In addition to the groundwater wells, three (3) soil vapor monitoring points (VP-1, VP-2 and VP-3) are located near the c-store, dispenser island, and southern property corner, respectively. The general facility layout, site features and surrounding parcels are depicted in Figure 1 in Attachment 3A. Photographs of the HBMM facility and surrounding properties are contained in Attachment 3B. In general, land use in the HBMM vicinity consists of commercial and institutional properties.

Overhead and buried utilities are present on and near the HBMM property and include electric service, sanitary sewer, storm sewer, municipal water and natural gas. Locations of overhead and subsurface utilities are depicted on Figure 2 in Attachment 3A.

Historical Petroleum Storage and Dispensing Operations, Release History and UST Systems Closure

The HBMM property has reportedly supported retail gasoline sales since the 1940s along with previous automotive repair services. The facility operated under the Atlantic brand followed by a Big Bear service station before the Solicitor purchased the property in 1989.

Four 4000-gallon unleaded gasoline USTs and associated product piping / dispensers were excavated and removed from the HBMM property in June 2002. These tanks had been installed in a common cavity located northwest of the c-store building and were reportedly the earliest known generation of USTs installed on / removed from the property (installation date for these USTs is unknown).¹ Following their removal in June 2002, these tanks were replaced by four 4,000-gallon unleaded gasoline USTs installed within the same cavity. These tanks are believed to be the ones currently in use today.

During the June 2002 UST removal activities, grossly contaminated soil was observed under the piping at the dispenser island, along the piping trench and at the corner of the UST cavity where the piping trench entered the cavity. The exhumed tanks were reported to be in good condition. However, the unearthed product piping was reportedly found in poor condition and was, therefore, identified as the mechanism for the unleaded gasoline release. Due to obvious extensive soil contamination, excavation of excessively impacted soil was completed as an interim remedial action. Source area soil was reportedly excavated to the extent practical and approximately 473 tons of impacted soil was transported off-property for thermal treatment. Following excavation, five confirmatory soil samples were collected for laboratory analysis. Analytical results indicate that only one sample collected from beneath the former dispenser island contained a target analyte concentration exceeding the applicable SHS MSC (5.3 mg/kg MTBE).² Subsequent site characterization and groundwater monitoring (see below) revealed that significant soil contamination remained in the subsurface after the interim soil excavation

¹ Considering that retail gasoline sales have presumably been ongoing at the property since the 1940s, older generations of UST systems have likely existed at the HBMM property, possibly at different locations. A geophysical survey completed in June 2005 revealed an anomaly in the same location as a historic UST cavity depicted on Sanborn maps. However, it is unclear where, more specifically, this anomaly was located or if it was investigated further.

² Prior to installing the new tanks / dispensers and backfilling the excavations, horizontal slotted piping was installed at the base of the tank cavity (IP1 and IP2) and below the dispenser pad (G1 and G2) apparently to be used as infiltration galleries for the potential injection of amendments. The available site record suggests that these horizontal injection points were never utilized but remain in-place. Their locations are depicted in Figure 2 of Attachment 3a.

work conducted in conjunction with the UST closures. A copy of the July 2002 UST Systems Closure Report is provided in Attachment 3c.

The current consultant of record, Insite Group, Inc. (IGI), initiated site characterization work to further investigate the subsurface contamination discovered during the UST system removals. Following several phases of soil and groundwater investigations beginning in June 2002 through soil vapor sampling in March 2005, IGI submitted a Site Characterization Report (SCR) to the PADEP in September 2006 followed by a Remedial Action Plan (RAP) in November 2006. The remedial approach proposed in the RAP involved continued operation of the groundwater pump and treatment system as an interim remedial action, application of a chemical oxidant (hydrogen peroxide), and application of a site-specific microbial culture to enhance biodegradation of dissolved-phase contamination. Soil vapor extraction (SVE) was also considered given that slotted PVC piping was placed in the vadose zone around the former dispenser island following the UST system removals. As described in more detail later in this summary, the pump and treat system operated for nearly six years (from September 2004 through March 2010). System operation may have been suspended because it was not particularly effective at reducing residual soil and groundwater impacts. There are no indications in the file that the enhanced biodegradation or SVE components were ever implemented.

Although unclear from the available project record, it appears that the September 2006 SCR and November 2006 RAP were disapproved by the PADEP pending additional site characterization data to further assess site soil, groundwater and vapors. After completing supplemental soil and groundwater investigations, and conducting aquifer characterization testing, soil vapor sampling, and a professional survey of the HBMM property, the methods and results for these additional site investigations were documented in IGI's October 2014 Revised SCR / RAP (Attachment 3d). The Revised SCR / RAP was unconditionally approved by the PADEP in a letter dated 11/14/14 (Attachment 3e).

Overview of Site Characterization Activities and Results

Following the discovery of an unleaded gasoline release in June 2002, several phases of site characterization were completed by IGI. The following sections summarize the results obtained from key site investigation activities. Bidders are directed to the October 2014 Revised SCR / RAP in Attachment 3d for additional site characterization information.

Overview of Site Geology, Hydrogeology and Hydrology

Geologic characterization of the site subsurface was determined through advancing 46 on- and off-property soil borings and monitoring / extraction well borings. Beneath the asphalt and concrete surface cover, unconsolidated materials underlying the HBMM property generally consist of a near surface layer of fill that extends to depths of approximately 4 to 6 feet below

grade (ft-bg). Below the fill materials are natural soils comprised of interbedded and mixtures of clay, silt and sand underlain by permeable sand and gravel deposits generally becoming more prevalent below depths of about 16 to 22 ft-bg. The coarse sand and gravel deposits may represent fluvial channel lag terrace material derived from the ancestral Allegheny River. Lithologic logs for soil borings and monitoring / extraction well borings, and figures depicting the boring locations are provided in the October 2014 Revised SCR / RAP provided in Attachment 3d.³

Hydrogeologic data for the site has been provided through the previously mentioned network of monitoring and remediation wells. The depth to the shallow unconfined water table aquifer beneath the site averages about 16 ft-bg. Historical groundwater gauging data is tabulated in the most recent fourth quarter 2016 Remedial Action Progress Report (Attachment 3f). The horizontal hydraulic gradient for the water table aquifer has been reported within the range of 0.0020 to 0.0027 ft/ft for shallow overburden, and 0.014ft/ft for deeper overburden. Groundwater movement within the shallow overburden beneath the site has ranged from south-southwest to south in the general direction of the Allegheny River located approximately 1,000 feet southwest of the site.

Based on available site information, three phases of aquifer testing have been documented by IGI:

- A three hour pumping test was conducted in groundwater extraction well EW-1 (screened from 9 to 29 ft-bg) during August 2003. The hydraulic conductivity was estimated at 70 ft/day and IGI's analysis of the test data indicated that a pumping rate of 4 gpm could be sustained.
- Slug tests were completed in wells MW-2 and EW-1 in September 2003 and in MW-8D, MW-10, MW-12 and MW-12D during October 2013. Estimated hydraulic conductivity values in ft/day were calculated as 2 (MW-2), 10 (EW-1), 3 (MW-10), 0.7 (MW-12), 3 (MW-8D) and 30 (MW-12D).
- Pilot testing for the dual-phase vapor extraction (DPVE) remedial approach proposed in the October 2014 Revised SCR / RAP was conducted in March 2014. During the testing, well IW-1 (screened from 10 to 20 ft-bg) was pumped for approximately 7.4 hours at an average rate of 0.84 gpm and MW-8 (screened from 12 to 22 ft-bg) was pumped for about 7.2 hours at an average rate of 0.10 gpm.

Wells exhibiting the higher hydraulic conductivity values and pumping rates appear to be those that have established effective communication with the deeper sand and gravel deposits.

³ Bedrock was not encountered in any of the on- and off-property environmental borings that were advanced to a maximum depth of 35 ft-bg.

Soil Quality

Soil samples submitted for laboratory analysis have included the five post-excavation confirmatory samples obtained following the June 2002 UST systems removals, and samples collected from 46 on-and off-property soil borings and monitoring / extraction well borings advanced during subsequent phases of site characterization. All soil samples have been analyzed for the PADEP pre-March 2008 short list of unleaded gasoline parameters including benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene and cumene.

All but two of the historical soil samples appear to have been collected from unsaturated and periodically saturated (smear zone) soils. The historical analytical dataset reveals that the primary constituent of concern (COC) in site soil appears to be benzene, and to a lesser extent naphthalene, ethylbenzene, and toluene. Contaminant concentrations in unsaturated soil exceeding applicable standards were primarily identified beneath and extending beyond the northern portion of the product dispenser pad. Excessive impacts in smear zone soil were found over a wider area extending toward the southeast property boundary (see Figure 7 in the Revised SCR / RAP, Attachment 3d). Based on the magnitude and distribution of soil impacts, the potential appears to exist for excessive adsorbed-phase contamination to extend beneath North McKean Street. Overall, however, residual unleaded gasoline contamination in soil appears to be reasonably delineated.

Maximum concentrations for the COCs identified in soil were reported at the following locations and depths:

- benzene: 21 milligrams per kilogram (mg/kg); soil boring SB-4N advanced at northern end of dispenser pad; smear zone sample (15 to 17 ft-bg).
- naphthalene: 82 mg/kg; soil boring SB-1S advanced at northern end of dispenser pad; unsaturated sample (10 to 12.5 ft-bg).
- ethylbenzene: 190 mg/kg; soil boring SB-1S advanced at northern end of dispenser pad; unsaturated sample (10 to 12.5 ft-bg).
- toluene: 200 mg/kg; soil boring SB-8S advanced at northern end of dispenser pad; smear zone sample (15 to 17 ft-bg).

Historical soil sampling locations and analytical results are contained in the Revised SCR / RAP (Attachment 3d).

Groundwater Quality

Historically, groundwater quality had been assessed through a quarterly compliance sampling network consisting of twelve shallow overburden monitoring wells located on-property (MW-1, -2, -8, -9 and -10) and off-property (MW-3, -4, -5, -6, -7, -11 and -12). The quarterly compliance sampling network had also included three deeper overburden wells including MW-8D and MW-

10D (on-property) and MW-12D (off-property). However, quarterly sampling of monitoring wells MW-5, -6, -7, -8D, -10D, -11 and -12D was discontinued following eight or more quarters of results below the residential, used-aquifer SHS.

The shallow overburden wells range in depth from approximately 20 to 26 ft-bg and intersect the upper portion of the water table aquifer. The deeper overburden wells were installed to a depth of about 35 ft-bg for vertical contaminant delineation within the water table aquifer. In addition to the monitoring wells, groundwater samples had previously been collected from remediation and treatability study wells EW-1, EW-2, EW-3 and IP-1 that are not a part of the current compliance sampling program. Groundwater samples have historically been analyzed for the PADEP pre-March 2008 short list of unleaded gasoline parameters including benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and cumene. Locations of the groundwater monitoring wells and other wells currently existing on- and off-property are depicted on the figures contained in Attachment 3a. Boring logs and construction details for the site wells are provided in the Revised SCR / RAP in Attachment 3d.

The most recent groundwater gauging and analytical data available, including tabulated historical data, are provided in the fourth quarter 2016 RAPR (Attachment 3f). As indicated in the fourth quarter 2016 RAPR, the COCs in site groundwater currently consist of benzene, MTBE and naphthalene. During the fourth quarter 2016, benzene concentrations exceeding the residential used aquifer SHS MSC were reported for samples collected from on-property wells MW-1, MW-2, MW-8, MW-9 and MW-10, and from off-property well MW-12. Concentrations of benzene in these wells ranged from 8.6 µg/l (MW-12) to 1,450 µg/l (MW-2). MTBE concentrations exceeded the applicable standard in on-property well MW-8 (131 µg/l), and naphthalene exceeded the applicable standard in on-property wells MW-1 (125 µg/l) and MW-8 (121 µg/l) during the fourth quarter 2016. Concentrations of all other target unleaded gasoline analytes either were not detected or were below the applicable standard for the fourth quarter 2016 sampling event.⁴ Overall, concentration trends for benzene and MTBE in the currently impacted wells have exhibited a slow to very slow decline since their initial sampling. The concentration trends in some wells indicate natural attenuation potentially extending for decades without further remediating the site soil and groundwater (e.g., benzene in on-property well MW-2).

Soil Vapor Sampling

As mentioned earlier, three soil vapor sampling points exist on the HBMM property (VP-1, VP-2 and VP-3). Soil vapor samples were collected from VP-1 and VP-3 in March 2005 with analytical results reportedly indicating contaminant concentrations less than the PADEP's residential indoor air screening values for the target unleaded gasoline compounds. Another round of soil

⁴ The point of compliance (POC) wells identified in the PADEP-approved Revised SCR / RAP consist of MW-8, MW-9 and MW-10. Off-property wells MW-3, MW-4 and MW-12 are also identified for demonstrating groundwater attainment.

vapor sampling was completed in August 2014 which included VP-1, VP-2 and VP-3. No target unleaded gasoline compounds exceeded the PADEP's residential indoor air screening values during the August 2014 sampling event.

Separate Phase Hydrocarbons and Recovery

Approximately 82 gallons of free-phase hydrocarbons (FPH) were reportedly recovered as an interim remedial action between August 2004 and April 2010. The greatest volume of FPH (approximately 75.5 gallons) was reportedly removed from extraction well EW-2 using passive absorbents. Less significant volumes of FPH were also recovered from injection wells IW-1 (about 1.4 gallons) and IW-2 (about 0.8 gallon). An additional 4.5 gallons of FPH were reportedly removed during a vacuum extraction event performed in October 2004.⁵ The October 2014 Revised SCR / RAP reported that no measurable FPH has been observed in any of these wells since April 2010.

Previous Interim Remedial Actions

As discussed in the above sections, limited excavation of excessively impacted soil during the June 2002 UST systems removals and FPH recovery were performed as interim remedial actions. Additionally, a groundwater pump and treatment (P&T) remediation system was installed and operated by IGI which was also identified as an interim remedial action.

According to the October 2014 Revised SCR / RAP, the groundwater P&T system operated from September 2004 through March 2010. Over the period of system operation, a reported volume of approximately 2,065,728 gallons of impacted groundwater was extracted in total from three recovery wells (EW-1, EW-2 and EW-3) and discharged to the sanitary sewer after carbon treatment. The recovery wells and piping from the groundwater P&T system reportedly remain intact and the well / piping configuration is illustrated in Figure 15 of Attachment 3g. Over the nearly six years of operation, the groundwater P&T system does not appear to have been particularly effective in reducing dissolved-phase contamination, and likely had very little effect on unsaturated & smear zone soil impacts (as further suggested by the results from supplemental soil sampling conducted following system deactivation). Additional information regarding the groundwater P&T system can be found in the Revised SCR / RAP provided in Attachment 3d.

Solicitor's Selected Site Closure Standard

Solicitor intends to pursue site closure for unleaded gasoline constituents in soil and groundwater by demonstrating attainment of the PADEP SHS for a used aquifer in a residential setting with a TDS concentration of less than or equal to 2,500 mg/l.

⁵ It is unclear which well(s) was / were subject to vacuum extraction.

Selected Remedial Approach and Pilot Testing

Based on the site characteristics for this active retail facility, the magnitude and distribution of adsorbed- and dissolved-phase impacts, and the results provided from pilot testing, *in-situ* remediation via installation and operation of a DPVE remediation system was proposed in the October 2014 Revised SCR / RAP. As mentioned earlier, the Revised SCR / RAP was approved without modification in the PADEP's letter dated 11/14/14 provided in Attachment 3e.

Pilot testing for the proposed DPVE remedial technology was performed in March 2014 using shallow overburden wells MW-8 (screened from 12 to 22 ft-bg) and IW-1 (screened from 10 to 20 ft-bg). Pilot testing at each location was completed over a period of approximately 7.2 hours (MW-8) to 7.4 hours (IW-1). Results reported from the pilot testing indicated the following:

- An air flow of approximately 4.5 scfm could be extracted from the test wells at a vacuum of 20 in. Hg.
- Vacuum influence was measured at approximately 63 to 64 feet from each test well.
- Groundwater drawdown was observed approximately 14 feet from MW-8 and 63 feet from IW-1.
- The vapor-phase contaminant mass removal rate from MW-8 was calculated to be 0.40 lbs. of BTEX and MTBE per day and 33 lbs. of TPH-GRO per day.
- The vapor-phase contaminant mass removal rate from IW-1 was calculated to be 0.160 lbs. of BTEX and MTBE per day and 23.7 lbs. of TPH-GRO per day.
- Dissolved-phase contaminant mass removal rates from MW-8 and IW-1 were estimated at 0.050 and 0.42 lbs. per day, respectively.
- MW-8 was pumped at an average rate of 0.10 gpm and IW-1 was pumped at an average rate of 0.84 gpm.
- Based on pilot testing, it was estimated, on average, that 4.5 scfm of soil vapors and 0.5 gpm of groundwater could be extracted per well when a vacuum of approximately 16 inches of mercury is applied.

Additional information regarding the DPVE pilot testing can be found in the Revised SCR / RAP provided in Attachment 3d.⁶ Note that the RFB scope of work defined below affords the bidder the opportunity to develop and conduct its own remedial pilot testing to either verify the above results, or to evaluate the viability of an alternative remedial technology identified under the following Scope of Work section.

⁶ A field treatability study was also completed to assess the potential viability of a remedial approach involving injection of Klozur[®] persulfate compound. However, implementation of the persulfate injection remedy was deemed impractical due to the estimated large volume of product required (approximately 225,000 to 1,200,000 gallons) and number of injection locations (estimated 600 locations) needed to successfully treat soil and groundwater contamination. The methods and results from this treatability study are provided in the Revised SCR / RAP.

Proposed DPVE Remedial System Design and Related Items

The October 2014 Revised SCR / RAP provided as an attachment to this RFB contains detailed information regarding the proposed DPVE remedial system design and system operation, maintenance, monitoring and permitting requirements. Rather than reiterate and summarize this information for the bidder, this section instead focuses on new information which has come to light or has evolved since the Revised SCR / RAP was prepared and approved by the PADEP. Each bidder should consider the following information carefully when preparing its bid response.

Remediation Wells

- The Revised SCR / RAP proposed the installation of seven (7) DPVE remediation wells to address residual soil and groundwater impacts. However, the proposed number and configuration of DPVE wells may be inadequate for effectively targeting remaining adsorbed- and dissolved-phase contamination given pilot study results and past remediation system performance. Consequently, each bidder is encouraged to assess the proposed network of DPVE remediation wells and offer an alternative configuration in its bid response, if deemed appropriate: 1) to provide sufficient pneumatic and hydraulic influence across the treatment area, eliminating gaps; and 2) to offer more operational flexibility given the distribution of unsaturated and periodically saturated soil impacts and the apparent heterogeneity of the subsurface materials (i.e., preferential flow paths). Bidders may choose to alter the well locations, include additional wells, use existing extraction wells (modifying construction, if necessary), etc. to assist with achieving an efficient and cost-effective site cleanup. Each bidder that proposes modifications to the current DPVE well layout as depicted in the Revised SCR / RAP shall provide a site plan in its bid response depicting the proposed / bid modified network of DPVE remediation wells.
- As discussed above, permeable alluvial deposits consisting largely of sand and gravel appear to be increasingly present beneath the HBMM property beginning at depths ranging from approximately 16 to 22 ft-bg. The sand and gravel deposit is often mixed with varying amounts of silt and clay which would likely serve to reduce permeability at locations where these finer grained sediments are more abundant. Due to the suspected higher permeability of this deposit, the Revised SCR / RAP proposed that DPVE wells be limited to a depth of approximately 18 ft-bg due to concerns that penetrating the sand and gravel too far could result in production and treatment of more groundwater with less contamination.

However, as noted above, a wide range of groundwater yields were observed during DPVE pilot testing of wells installed from 20 to 22 ft-bg. For example, a DPVE test completed on MW-8 (installed to 22 feet) only yielded groundwater at an average rate of 0.10 gpm whereas during the DPVE test on IW-1 (installed to 20 feet) the groundwater production rate

was 8 times higher (0.84 gpm), although still relatively low. Setting aside the individual well variability, these tests were completed over a relatively short period (7 hours) so it is unclear how sustainable either flow rate might be or how yields would diminish by extracting from multiple wells in the same area simultaneously. By comparison, the groundwater P&T system appears to have extracted groundwater at an average flow rate of 0.66 gpm over six years (total from three wells, without an applied vacuum).

Restricting remediation well depths to 18 feet as called for in the RAP may indeed reduce the amount of groundwater requiring above-grade treatment and may focus the remediation on the most contaminated soil horizons, but such a strategy may wind up leaving too much contaminant mass at depth to enable a SHS closure. It does not appear that the zone with prevalent sand and gravel has been separately tested for its hydraulic properties and chemistry. It is likely that the hydraulic conductivity and sustainable pumping rate values (and chemistry data) discussed earlier may reflect a composite of the hydraulic properties for the sand and gravel deposit *and* overlying finer grained overburden. Therefore, bidders are encouraged to propose any testing deemed appropriate to better identify optimal depths of recovery wells.

Accordingly, under Milestones A and B below, bidders may wish to consider separately evaluating the chemistry and permeability characteristics of the zone containing sands and gravels to: 1) assist with further characterizing its physical / hydraulic characteristics, vertical and lateral continuity, and degree of petroleum impacts; and 2) finalize the design (i.e., depth) of the extraction wells. For the purposes of the bid, bidders shall assume that the remediation wells can be extended to 22 or 23 ft-bg to efficiently cleanup the site while recognizing the 15.5 to 16 ft-bg historical average depth to groundwater beneath the HBMM property (and an average low water table of about 17.5 ft-bg).

Remediation Trailer, Trenching and Piping

- Given the small size of the HBMM property, Solicitor requires that the remediation system trailer or shed and surrounding equipment / enclosure be positioned on the property so that: 1) business disruptions are minimized and available parking space is maximized; 2) set back distances of 15 feet from the property boundary along McKean Street and five feet from the property line adjacent to the school are maintained as established in the Kittanning Borough code; and 3) partial excavation of the hillside or restructuring of the retaining wall in the northern portion of the property is not required. An example of such a remediation system configuration is depicted in Figure 1 contained in Attachment 3g.
- If a remediation trailer is proposed to house the equipment, bidders shall be aware that Kittanning Borough Code reportedly requires installation of a concrete pad beneath the trailer with five feet of embedded chain per each tie-down point on the trailer frame. This

type of securing is reportedly required for a trailer, even though temporary, because the HBMM property is located within the Allegheny River floodplain.

DPVE System Equipment and Instrumentation

- IGI has reported significant bio-fouling and accumulation of iron deposits when operating the previous groundwater P&T system. Relatively high dissolved and total iron concentrations have been measured in site groundwater (see below). Therefore, bidders shall incorporate iron treatment / sequestration in finalizing the design of the groundwater treatment system. The finalized design shall provide sufficient sequestration and iron treatment / filtration / holding capacity to allow the treatment system to function normally and efficiently through at least 2-week periods (covering intervals between bi-weekly maintenance events). Since buried piping can be expected to also accumulate iron deposits, bids shall also include plans to design / install independent spare groundwater return lines to each extraction well head that would be used only should the primary line become irreversibly blocked and unusable. Available analytical data for iron and manganese in site groundwater is provided in the table below.

Well ID	Date	mg/L	mg/L	mg/L
		Total Iron	Dissolved Iron	Manganese
MW-1	03/27/14	75	62.5	1.5
MW-2	03/27/14	87.5	75	2
MW-3	03/27/14	--	62.5	0.6
MW-4	03/27/14	--	0.1	0.6
MW-8	03/27/14	62.5	50	1.3
MW-8D	03/27/14	0.3	0.1	<0.3
MW-9	03/27/14	100	87.5	10
MW-10	03/27/14	--	75	40
MW-10D	03/27/14	--	0.1	<0.3
MW-11	03/27/14	--	20	7.2
MW-12	03/27/14	--	125	0.6
MW-12D	03/27/14	--	0.2	0.3

- Figure 17 of the Revised SCR / RAP (Proposed DPVE System Process Flow Diagram) depicts an oil / water separator (OWS) as a component of the DPVE system design. However, since measurable FPH has not been observed in any of the site wells since April 2010, it is unclear if an OWS remains necessary. Eliminating the OWS and related transfer pump could reduce the space requirements in the remediation trailer which could allow a shorter trailer to be used taking up less space on this small site. Bids shall clearly identify treatment system components and whether or not an OWS will be included along with rationale.

- The proposed DPVE remediation system design specifies two 500 lb LGAC units (Figure 17 of the Revised SCR / RAP) for treatment of extracted groundwater. Bids shall specify whether the finalized design will include this treatment technology (and size) or an alternative along with rationale given the: 1) bid requirement that system operate with normal efficiency over minimum 2-week intervals; 2) likely average extraction rates not exceeding roughly ~0.5 gpm per extraction well; 3) likely average total dissolved-phase contaminant concentrations in extracted groundwater of roughly 4,000 ug/L; and 4) limited space in the trailer and the trailer on the lot for equipment installation and O&M (e.g., GAC change-outs).
- The laboratory analytical results for the DPVE pilot study extracted air samples indicate that TPH-GRO concentrations ranged from 74,000 to 91,000 mg/m³ for test well MW-8, and from 50,000 to 70,000 mg/m³ for test well IW-1. These concentrations are well above the lower explosive limit for gasoline vapors indicating a potential need for dilution prior to safely processing and a need for vapor treatment equipment that can economically accommodate high vapor concentrations and significant contaminant mass. However, there appears to be an unresolved discrepancy between these laboratory results and the average field PID measurements taken during the pilot study of 489 ppm (MW-8) and 416 ppm (IW-1). Therefore, responsive bidders shall propose completing independent testing (Milestone B) to better understand the likely contaminant concentrations / mass extraction rates that can be expected in vapor phase and to finalize the design. For the purposes of this RFB, bidders shall assume that a catalytic oxidizer (CatOx) unit will be used to treat system off-gas during the initial six months of system operation after which time the CatOx will be replaced with suitably sized GAC vessels.

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. The PADEP case manager at the Department's Southwest Regional Office has reviewed the RFB SOW and did not have any comments.

Objective

The PADEP-approved RAP specifies installation and operation of a DPVE remediation system to address residual on- and off-property soil and groundwater impacts. The remedial standard to be achieved on- and off-property is the PADEP Act 2 Residential, Used Aquifer SHS Medium Specific Concentrations (MSCs) 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 DPVE remedy as prescribed in the PADEP-approved RAP (with some limited modifications); or
- 2) Implementation of an alternative Vapor Enhanced Groundwater Extraction (VEGE) remedial approach.

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

Solicitor seeks competitive, fixed-price bids for this Bid to Result RFB to complete the eleven (11) 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). As mentioned above, the Solicitor has elected to pursue environmental closure based on demonstrating attainment of the PADEP Act 2 used aquifer SHS MSCs in a Residential setting for soils and groundwater.

Selecting one of the two remedial approaches identified 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 its bid will be feasible to meet the milestone objectives and remedial goal for this site.

Constituents of Concern (COCs)

Soil, groundwater and soil gas samples collected at the Honey Bear Mini Mart (HBMM) site have been analyzed for the PADEP Act 2 pre-March 2008 short-list of unleaded gasoline

compounds (excluding 1,2,4- and 1,3,5-TMBs). Based on these analyses, the COCs in site environmental media include the following:

Soil – benzene, toluene, ethylbenzene and naphthalene.

Groundwater – benzene, MTBE and naphthalene.

Soil gas – To date, all vapor-phase unleaded gasoline compounds have either been non-detect or substantially below the PADEP's residential soil gas / vapor intrusion screening levels.

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:⁷

- 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

⁷ As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

establishing any necessary access agreements. Project planning and management shall include identifying and taking appropriate safety precautions to not disturb Site utilities including, but not limited to, contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.

- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water, shall be disposed in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request. All investigation derived wastes shall be handled and disposed per PADEP's Regional Office guidance. It is the selected consultant's responsibility to conform with current PADEP Regional Office guidance requirements in the region where the Site is located.
- Be responsible for providing the Solicitor and facility operator with adequate advance notice prior to each visit to the property. The purpose of this notification is to coordinate with the Solicitor and facility operator to ensure that appropriate areas of the property are accessible. Return visits to the Site will not constitute a change in the selected consultant's SOW or result in additional compensation under the Remediation Agreement.

Site-Specific Guidelines

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

On-Property Access. Given that the HBMM property is narrow, covers an area of only about 0.2-acre, and is bordered on two sides by busy roadways, maneuverability can be challenging especially during peak business hours. As such, safety precautions should be carefully considered prior to and during any field activities along with an elevated level of attentiveness. Additionally, due to space constraints on the property, any waste drums or other non-essential items will need to be removed as quickly as possible. Should it be necessary to temporarily close or restrict access to the dispenser island to complete any of the milestones within this RFB, the Solicitor requires at least two (2) weeks advance notice and coordination with site personnel.

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-property 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 HBMM property 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 its 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 its 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 removed 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 the HBMM property, but should be removed from the property as quickly as possible due to the space constraints mentioned above. 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 and Reporting. 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 that are characterization-type activities (e.g. analysis for C₄-C₁₀); 4) 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 IGI's October 2014 Revised SCR / RAP (Attachment 3d) 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: i) conducting further investigation of the zone where sand and gravel deposits are more predominant as explained in more detail under the “General Site Background and Description” section above; ii) advancing and sampling additional soil borings in historical hot spots to verify current soil quality given that previous phases of soil sampling were completed about five to fifteen years ago; iii) resampling for inorganics such as iron and manganese to verify historical results; iv) performing follow-up measurements to confirm no FPH sheen, measureable thickness, or emulsion (FPH globules suspended in water column) has reappeared; v) completing contaminant fate & transport (F&T) modeling which does not seem to have been completed previously; or vi) conducting geotechnical sampling / analysis for grain size distribution, bulk density and porosity to assist with F&T modeling and remedial system design including proper screening / filter pack selection for recovery wells, 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 C.⁸

Milestone B – Pilot Testing and Reporting. Pilot testing shall be proposed to support the feasibility and appropriateness of the 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.

⁸ In order to receive reimbursement under this task, thorough documentation of any additional site characterization activities must be provided to PAUSTIF.

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 characterization work and pilot testing does not seem to have examined dissolved contaminant concentrations or hydraulic properties specific to the zone where sand and gravel deposits are more predominant. As a result, there appears to be some question about whether this zone needs to be remediated to enable the strict cleanup standards to be met and, if so, what sustained groundwater yield might be expected from an extraction well network extending into this zone (e.g., down to 22-23 ft-bg). If proposed, such pilot testing might be completed at multiple locations in the contaminated area due to the apparent lithologic variability of the sand and gravel deposits.
- Previous pilot testing results contained some inconsistencies that likely need to be resolved (e.g., concentration of total hydrocarbons in extracted soil vapor).

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 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 K (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 K (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: 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 (e.g., addition/adjustments to the remediation well layout or well depth, adjustments to 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 the 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 the 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 the alternative remedial approach identified for this 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. The Revised RAP shall contain all necessary information required under 25 PA Code §245.311, and shall 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 the 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 describe and provide an evaluation of all findings generated under 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 licensed 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.⁹

Milestone D – Pre-Remediation Quarterly Groundwater Monitoring, Sampling & Reporting. Under this task, bidders shall provide a firm fixed-price to continue with quarterly 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 D3 through Dn.¹⁰

Each groundwater monitoring and sampling event shall include the on-and off-property shallow overburden groundwater monitoring well network currently sampled consisting of MW-1 through

⁹ 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.

¹⁰ 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 D.

MW-4, MW-8, MW-9, MW-10, and MW-12 (eight wells total).¹¹ 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.¹² Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with PADEP SWRO guidance.

Groundwater samples shall be analyzed for the PADEP pre-March 2008 short-list of unleaded gasoline parameters (benzene, toluene, ethylbenzene, xylenes, MTBE, cumene, and naphthalene) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.¹³ 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:

- 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;

¹¹ The fixed price cost shall also include any additional monitoring well(s) that the bidder may propose to install under Milestones A and B (if any).

¹² As mentioned above, no measurable FPH has been observed in any of the site wells since April 2010.

¹³ 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.

- 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;¹⁴
- 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 quarterly RAPRs).

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: (1) the existing PADEP-approved Revised SCR / RAP (or in the bidder's RAP Addendum if the current RAP approach is slightly modified); or (2) the bidder's Revised RAP, once approved by PADEP.

Alternative 1: Proposed PADEP-Approved DPVE Remediation System

Bidders shall prepare a fixed-price cost to implement the DPVE remedial approach as described in the October 2014 Revised SCR / RAP, or a slightly modified version to this approach as described by the successful bidder in a RAP Addendum. The cost breakdown of the RAP-specified or modified version to the in-situ remediation system shall follow the format prescribed below.

¹⁴ 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.

Milestone E1. Installation of Remediation System Wells. Under this task, bidders shall provide a firm fixed-price cost for installing the seven DPVE wells described in the RAP, or an alternative number of wells as the bidder shall detail in its bid response. Locations currently proposed for the seven DPVE wells (EW-1 through EW-7) are depicted in Figure 16 of the Revised SCR / RAP (Attachment 3d). Each bidder shall independently consider the final number and locations of the remediation wells relative to: i) utilities; ii) bidder's own interpretation of groundwater flow variations; iii) evaluation of remedial feasibility testing data; iv) magnitude and distribution of adsorbed-phase contamination; v) configuration of the dissolved-phase plume; and vi) operational flexibility (i.e., cycled well operation).¹⁵ Each bidder in its 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. Bidders may also consider utilizing existing extraction well locations (modifying construction, if necessary).

The borings for the remediation wells shall be advanced to intercept the overburden water table aquifer which is encountered at an average depth of approximately 16 ft-bg beneath the HBMM property based on existing water level data. As described earlier, pilot testing is advised to assist how adequate dewatering and treatment of the contaminated shallow overburden can be most efficiently accomplished in light of increasing sand and gravel components at depth. Bidders shall assume examining and described drilling cuttings / soil cores for lithology, groundwater occurrence, and potential staining / odor indicative of hydrocarbon contamination.

The remediation wells shall be constructed in general accordance with the PADEP Groundwater Monitoring Guidance Manual. Each bid response shall indicate the drilling methods used to advance boreholes, the total depth for each well, and well construction details (i.e. well casing diameter, screened interval, sand pack, etc.). Final construction of the recovery wells must ensure that placement of the screened interval will facilitate remediation of the residual unsaturated and periodically saturated soil impacts via SVE following overburden dewatering. When considering the locations and construction of the remediation wells, bidders must also take precautions to ensure that no short-circuiting will occur to atmospheric air or more permeable backfill materials (e.g., existing UST cavity).

Each bid response shall describe and account for the following in the fixed-price: (i) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call and clearing the borehole locations to a minimum depth of 5 feet using vacuum excavation or hand auger, as necessary; (ii) well development activities; (iii) management of IDW; and (iv) professional surveying of the new well locations and top-of-casing elevations. Well drilling / installation and development along with supporting documentation

¹⁵ As discussed earlier, the number and configuration of DPVE wells proposed in the Revised SCR / RAP appears inadequate for effectively targeting remaining adsorbed- and dissolved-phase contamination.

(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 equipment¹⁶ that has moving parts or is part of the electronic control system (e.g. pumps, blowers, gauges, electrical sensors & switches) necessary to implement the 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). Electrical equipment shall meet NEC classification requirements (e.g., Class I, Div 2, where appropriate). Clear and legible copies of all equipment manuals and warranties shall be provided to Solicitor. Bidders are directed to the “General Site Background and Description” section above for discussions related to treatment system concerns (e.g., OWS, iron fouling, GAC groundwater treatment, off-gas treatment, etc.).

Please note that the proposed remedial system shall be equipped with 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.

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.

¹⁶ 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 E4 – In-situ Remediation Equipment Pad, Trenching, Subsurface Piping, Mechanical, and Electrical. As discussed earlier in the “General Site Background and Description” section, Solicitor requires locating the above-ground remediation system components (trailer or shed, off-gas treatment equipment, etc.) based on the specific criteria defined in that section. An example for locating and configuring the above-ground remedial system components that meet these criteria is illustrated in Figure 1 of Attachment 3g. Also as previously mentioned, Kittanning Borough code requires that a remediation trailer be set on a concrete pad and secured with chain embedded into the concrete. 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. Above-grade piping designed to carry or having the potential to carry water shall be properly winterized to prevent freezing and pipe breakage. Surface restoration from all trenching and well head completions shall be similar to current conditions.

To the extent possible based on the small size of the HBMM property, the remedial design shall consider keeping trenching / subsurface piping away from existing UST system infrastructure (i.e. tank field, product piping, etc.) in the event that the owner/operator may need to perform work or upgrades to the existing UST systems.

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, power drop/meter and the manifold(s)/conduits on the interior of the pre-assembled and tested treatment system. Any sections of above-grade water 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.

Bidders shall assume that Solicitor and the PAUSTIF will 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 bidder shall contact ICF/PAUSTIF immediately following completion of start-up / troubleshooting and when the system is fully operational to schedule an independent inspection visit by PAUSTIF or its agents.

Milestone E6 – Temporary Operation of a CatOx Unit and Initial Setup of VGAC Units. The selected consultant will be responsible for acquiring any air discharge permit (if applicable), setting up, and operating a CatOx unit for the initial six months of system operation 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 M. 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.

Alternative 2: Revised RAP Approach Involving Installation and Operation of a VEGE Remediation System

Bidders shall prepare a fixed-price cost to implement the alternative VEGE remedial approach 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 and Groundwater Monitoring, Sampling & Reporting. For this milestone, bidders shall provide the Solicitor and PAUSTIF with firm

quarterly fixed-price unit costs that would include routine O&M of the remedial system,¹⁷ 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 purpose of this RFB, it is assumed the Milestone F activities will be required for 12 quarters (3 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 demonstrations.^{18,19} 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 12 quarters specified in this RFB (i.e., if a bidder believes it can complete the remediation in a total of 16 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 12 quarters, the number of quarters exceeding 12 will be incorporated in the Remediation Agreement as Optional Cost Adder Milestone F13 through Fn. Bidders shall assume that the remediation will need to continue until the contaminant concentrations in all of the POC wells (as defined in Milestone H) 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 12 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 H). If during the first quarter of groundwater attainment, concentrations of contamination rebound 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 12 quarters of the Milestone F activities have been completed (plus any or all of the Cost Adder Milestone F quarters)**

¹⁷ Electric usage; telephone, cable, internet service; and any discharge to the local treatment facility will be reimbursed as time and material cost adders to the Remediation Agreement.

¹⁸ 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.

¹⁹ 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.

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 state an understanding of the possible consequences of early termination of the 12 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 show the design vacuum and water table drawdown is achieved at the extraction well heads, that the target zone of contamination is being pneumatically and hydraulically influenced and 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 choose 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 shall include the eight on- and off-property wells previously identified under Milestone D (MW-1 through MW-4, MW-8, MW-9, MW-10, and MW-12) and any additional monitoring well(s) the bidder may propose to install under Milestones A and B (if any). Note, however, that the depth to groundwater shall continue to be gauged in all existing and available on- and off-property monitoring wells during each quarterly event.

During each event, the depth to groundwater and any potential FPH 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 not be purged and sampled.²⁰ 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 pre-March 2008 short-list of unleaded gasoline parameters (benzene, toluene, ethylbenzene, xylenes, MTBE, cumene, and naphthalene) 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.²¹ 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 vapor- and dissolved-phase contaminant mass recovery estimates;
- 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;²²
- For each well exceeding SHS, a graphical depiction of historical key

²⁰ No measurable FPH has been observed in any of the site wells since April 2010.

²¹ 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.

²² 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.

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;
- 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 operational 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 H). If, in order to achieve the cleanup goals, it is necessary to extend the period of O&M beyond the RFB-specified 12 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 F13 through Fn. Consultant shall seek and obtain written approval from Solicitor and PAUSTIF to continue operation of the remedial system (Milestone F13 through Fn).²³

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 F13 through Fn, if implemented) will be withheld and accumulated pending successful completion of**

²³ 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.

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.²⁴ 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 – 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 unsaturated and periodically saturated soils within and surrounding the northern portion of the product dispenser pad, beyond the southwest and southern perimeter of the UST field, and other areas on-property where previous site characterization activities have identified soil exceedances above the SHS. Three dimensional attainment sampling shall be completed to demonstrate attainment of these areas and each bidder *must* describe in detail its approach to addressing soil attainment, and include the depth interval and a drawing showing the locations where the sampling grid, or grids, 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 location that may be positioned within the existing UST systems infrastructure and/or that may encounter any existing below grade utilities (e.g., on-property sanitary sewer line). Soil samples shall be analyzed for the PADEP pre-March 2008 short list of unleaded gasoline parameters (benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and cumene) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis of the same parameters. 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 H – Groundwater Attainment Demonstration. Under this task, bidders shall provide a firm fixed-price to complete up to eight quarters of groundwater attainment monitoring, sampling and reporting.²⁶ Each groundwater monitoring and sampling event shall include the on-property POC wells MW-8, MW-9 and MW-10, and off-property attainment wells MW-3, MW-4 and MW-12 as specified in the PADEP-approved Revised SCR / RAP. The conduct and results of each event shall be documented in quarterly RAPRs.²⁷

²⁴ Lump sum payment request shall be made prior to the on-set of initiating Milestones G and H.

²⁵ If the soil data do 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.

²⁶ 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.

²⁷ If it becomes evident anytime during the groundwater attainment demonstration (initiated subsequent to completing at least the twelve (12) Milestone F quarters of remedial O&M) that the attainment demonstration will not be

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 pre-March 2008 short list of unleaded gasoline parameters (benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and cumene) 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.²⁸ 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;
- 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

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.

²⁸ Each bidder's approach to implementing Milestone H 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.

any one well above the SHS during the quarter;²⁹

- 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 1 – Follow-up Vapor Intrusion Study. In the General Site Background and Description section of this RFB provided above, a brief discussion was included regarding historical soil vapor sampling conducted in March 2005 and August 2014. However, a follow-up vapor intrusion study shall be performed that complies with the requirements of the revised PADEP Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil Under Act 2 that became effective on 1/18/17. The vapor intrusion study shall be implemented post-remediation.

Under this milestone, bidders shall describe and provide a firm fixed-price cost for conducting a supplemental vapor intrusion study consistent with the new PADEP guidance that may include modifying the locations and/or depths of the existing three soil vapor sampling points (VP-1, VP-2 and VP-3) or adding additional sampling points. Each bidder shall provide a detailed description of its proposed methods, sampling techniques, number of sampling points, and number / timing of sampling events along with a site plan depicting the locations of any new soil vapor monitoring point locations, as applicable.

Vapor samples shall be submitted to a PADEP-accredited laboratory for analysis of the PADEP pre-March 2008 short-list of unleaded gasoline parameters using appropriate analytical methods

²⁹ 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.

and detection levels. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters (e.g., blind duplicate, field blank). Results from the supplemental vapor intrusion study shall be incorporated into the RACR to be prepared under Milestone J.

Milestone J – Preparation, Submittal and PADEP Approval of Remedial Action Completion Report (RACR). Under this milestone, the bidder will provide a fixed-price cost to prepare a draft and final RACR following the completion of Milestones E through I, and related optional cost adder milestones, as necessary. The RACR shall be prepared in accordance with Section 245.313. At a minimum, the RACR shall provide the details for Milestones A through I, and any 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 and comment on 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 the 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 RACR). The fixed-price cost shall also include addressing any PADEP comments on the RACR.

Milestone K – 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 wells, remediation wells, and soil vapor sampling points consistent with PADEP guidelines; well head removals; and surface re-vegetation and concrete / asphalt repairs, as applicable, for areas that have been disturbed by site characterization or remedial action activities. This milestone shall also include photo-documenting the site restoration work and completing well abandonment forms to be submitted to the appropriate regulatory agencies. Copies of these photographs and forms shall also be provided for the Solicitor's files.

Each bid shall specify the estimated number of days between PADEP approval of the RACR and initiating the Milestone K site restoration work. Site restoration activities 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, as applicable, before removing them from the Site.

Optional Cost Adder Milestone D3 through Dn – Additional Pre-Remediation Quarterly Groundwater Monitoring, Sampling & Reporting. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly fixed-price unit cost that would include the quarterly groundwater monitoring, sampling and analysis of the eight (8) on- and off-property shallow overburden monitoring wells that are currently sampled (MW-1 through MW-4, MW-8, MW-9, MW-10, and MW-12);³⁰ and reporting beyond the two quarters specified in Milestone D. The SOW for this unit cost adder milestone shall follow Milestone D guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

Optional Cost Adder Milestone F13 through Fn – Additional Remediation System O&M and Groundwater Monitoring, Sampling, & Reporting. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly fixed-price unit cost that would include routine O&M of the remedial system, quarterly groundwater monitoring and sampling of the on- and off-property monitoring 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 F payment. Each bid must include the rationale for needing to implement this optional cost adder milestone.

Optional Cost Adder Milestone H9 through H12 – Additional Groundwater Attainment Demonstration. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly fixed-price unit cost that would include the quarterly groundwater monitoring, sampling and analysis of the on-property POC wells MW-8, MW-9 and MW-10, and off-property attainment wells MW-3, MW-4 and MW-12, and reporting beyond the eight quarters specified in Milestone H. The SOW for this unit cost adder milestone shall follow Milestone H guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

Optional Cost Adder Milestone UF1 through UFn – Monthly Utilities & Discharge Fees. Bidders shall utilize this optional cost adder milestone for invoicing “as-billed” time and materials costs incurred for utilities (e.g., electric, telephone) or POTW discharge fees on either a monthly or quarterly basis, as appropriate.

Optional Cost Adder Milestone UC1 – 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 and operation. The fixed-price cost shall be inclusive of all labor, subcontractor costs, any permitting fees, electrical usage, monthly CatOx rental fee, 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 X pounds per day, the catalytic oxidizer will be replaced with VGAC).

³⁰ 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).

Optional Cost Adder Milestone UC2 – LGAC Change-Out. Under this milestone, bidders shall provide a firm fixed-price unit cost for each LGAC change-out event of the “primary” LGAC vessel, placing the vessel with the fresh virgin GAC in the secondary position. Bidders shall detail the size of the LGAC units (pounds / type of GAC), scope of work and provide the criteria or “trigger(s)” that would be used in determining when the LGAC needs to be replaced (e.g., once the carbon in the LGAC unit 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, LGAC replacement, and waste handling / disposal items.

Optional Cost Adder Milestone UC3 – 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 size of the VGAC units (pounds / type of GAC), 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 unit 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 identified in the executed Remediation Agreement. Actual milestone payments will occur only after successful and documented completion of the work defined for each milestone. The selected consultant will perform only those tasks/milestones that are necessary to reach the Objective identified in this RFB. Selected consultant will not perform, invoice, or be reimbursed for any unnecessary work completed under a milestone.

Any “new conditions”, as defined in Attachment 1, arising during the execution of the SOW for any of the milestones may result in termination of or amendments to the Remediation Agreement. Modifications to the executed Remediation Agreement will require the written approval of the Solicitor and the PAUSTIF (for funding consideration). PADEP approval may also be required.

List of Attachments

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information / Historic Documents
 - a. Figures 1 and 2
 - b. Site Photographs
 - c. July 2002 UST Closure Report
 - d. October 2014 Revised SCR / RAP
 - e. PADEP 11/14/14 Letter Approving Revised SCR / RAP
 - f. Fourth Quarter 2016 RAPR
 - g. Figures – Example Remediation Trailer Compound Layout and Remaining Subsurface Infrastructure from Previous Groundwater P&T System