

## **Request for Bid**

**Fixed-Price Bid to Result**

**Remediation to SHS Closure**

## **Solicitor**

**Chiquita Holdings, LLC**

**Fuel-On Service Station**

**208 Filbert Street  
Curwensville, Pennsylvania 16833**

**PADEP Facility ID #: 17-31221      PAUSTIF Claim #: 2012-0156(I)**

## **Date of Issuance**

**November 26, 2019**

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The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF), on behalf of the claimant who hereafter is referred to as the Client or Solicitor, is providing this Request for Bid (RFB) to prepare and submit a bid to complete the Scope of Work (SOW) for the referenced Site. The Solicitor is the current owner/operator of the Site. PAUSTIF has determined that the claim reported by the Solicitor is eligible for coverage from the PAUSTIF subject to the applicable statutes and regulations. Reimbursement of Solicitor approved reasonable and necessary costs, not to exceed the claim aggregate limit, for the corrective action work described in this RFB will be provided by PAUSTIF subject to application of any proration. 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	December 12, 2019 by 5 p.m.
Mandatory Pre-Bid Site Visit	December 13, 2019 at 11 a.m.
Deadline to Submit Questions	January 10, 2020 by 5 p.m.
Bid Due Date and Time	January 17, 2020 by 3 p.m.

## Contact Information

Technical Contact
<p><b>Mr. Joseph Ozog, Jr., P.G.</b> <b>Excalibur Group, LLC</b> <b>91 Park Avenue</b> <b>Windber, PA 15963</b> <b>814-467-6359</b> <a href="mailto:joeozog@excaliburgrp.com">joeozog@excaliburgrp.com</a></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 **“Fuel On Service Station, Claim #2012-0156(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 "Fuel On Service Station, Claim #2012-0156(I) – SITE MEETING ATTENDANCE NOTIFICATION"**. The name and contact information of the company participant should be included in the body of the email. Notification of intent to attend is appreciated; however, it is not required. Attendance at the Pre-Bid Site Meeting is mandatory. Changes to the Site meeting date and/or time due to inclement weather conditions or other unexpected circumstances will be posted at <https://ustif.pa.gov/bids>; and, the Technical Contact may notify via email all companies that provided Site Meeting Attendance Notification.

### Submission of Bids

To be considered for selection, **one (1) hard copy of the signed bid package and one (1) electronic copy (one (1) PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact and the Solicitor. Bid responses will only be accepted from those companies that attended the Mandatory Pre-Bid Site Meeting. **The ground address for overnight/next-day deliveries is ICF, 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 # 2012-0156(I)".** Please note that the use of U.S. Mail, FedEx, UPS, or other delivery method does not guarantee delivery to this address by the due date and time listed in the Calendar of Events for submission. Companies mailing bids should allow adequate delivery time to ensure timely receipt of their bid.

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

for submission of bids shall remain the same. Submitted bid responses are subject to the Pennsylvania Right-to-Know Law.

## **Bid Requirements**

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

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

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

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

or cost adders that are not requested as part of this RFB will not be considered by the Bid Evaluation Committee in the technical review and technical score for the bid.

In addition, the bidder shall provide:

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

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

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

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

Each bid response document must include at least the following:

1. Demonstration of the bidder's understanding of the Site information provided in this RFB, standard industry practices, and objectives of the project.
2. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the Site specific work scope/SCR/RAP implementation). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW "as is"

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

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



complete the SOW. Each bid must provide a schedule that begins with execution of the Remediation Agreement with the Solicitor and ends with completion of the final milestone proposed in this RFB. Schedules must also indicate the approximate start and end date of each of the tasks/milestones specified in the Scope of Work, and indicate the timing of all proposed key milestone activities (e.g., within 30 days of the contract being executed).

8. A description of how the Solicitor, ICF, and the PAUSTIF will be kept informed as to project progress and developments and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project.
9. A description of your approach to working with the PADEP. Describe how the PADEP would be involved proactively in the resolution of technical issues and how the PADEP case team will be kept informed of activities at the Site.
10. Key exceptions, assumptions, or special conditions applicable to the proposed SOW and/or used in formulating the proposed cost estimate. Please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exceptions may result in the bid response being deemed “unresponsive”.
11. The name and contact information of the person who is to be contacted in the event the bid is selected by the Solicitor and/or a Right to Know request is received by PAUSTIF.

## Bid Review and Evaluation

### 1. Bid Review and Scoring

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

#### Technical Scoring

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

Numerical values will be assigned to three categories:

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

#### Cost Scoring

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

A = the lowest bid cost

B = the bidder's cost being scored

C = the maximum number of cost points available

D = bidder's cost score (points)

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

### 2. Evaluation of Bids

A committee comprised of at least two members of the USTIF staff, two members of ICF staff, and the TPR who assisted in developing the bid package will score all bids that are administratively qualified based on the above criteria. USTIF recognizes that several bids may be acceptable and receive similar numerical scores. At the conclusion of the scoring process, the claimant will receive those bids whose numerical scores place them in the category of meeting Reasonable and Necessary criteria and acceptable for USTIF

funding. The claimant may select any of the consulting firms that submitted a qualified bid package to implement the tasks described in the bid; however, USTIF will only provide funding up to the highest fixed price of those bids determined to be Reasonable and Necessary for USTIF funding.

## **General Site Background and Description**

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

### **Background Summary**

The Fuel On Service Station facility is on a ~0.74-acre parcel on the west side of Filbert Street (PA S.R. 453) in the town of Curwensville, Pennsylvania. The subject property (or "Site") is developed with a one-story, slab-on-grade building, and two product dispenser islands with an overhead canopy. Much of the Site is paved with either asphalt and concrete. Remaining surfaces are either gravel or are lightly vegetated /landscaped. Current Site business operations consist of retail fuel and convenience store sales. The Site gasoline UST system consists of three 8,000-gallon USTs (Tank #001 through 003), dispensers and associated below-grade product piping. The gasoline USTs are located in a common tank cavity adjoining the south side of the Site building and the associated dispenser islands are positioned in front (east) of the Site building (between Site building and Filbert Street). A 4,000-gallon kerosene UST adjoins the northeast corner of the Site building. Figure 1 (Attachment 3a) shows the Site property boundaries and overall layout, including the positions of the gasoline UST system, and the kerosene UST. Figure 1 also reveals the residential / commercial land use mix of adjacent properties.

### **Release History**

The Site has been used for retail gasoline and convenience store sales since at least the late 1980s, previously operating as Uni-Mart facility (Uni-Mart #04009). The unleaded gasoline (ULG) release associated with the subject PAUSTIF Claim #2012-0156(I) was discovered in 2012 during ULG UST system upgrades that included installing a cathodic protection system on or about 9/25/12. Strong petroleum odors and a product sheen (on the drilling augers) were reported when drilling to install the cathodic system sacrificial anodes on the east side of the UST cavity (side closest to the dispensers). No such odors or sheens were observed when drilling any of the other three other anode borings (on the south, west, and north sides of the UST cavity). A succession of site investigations followed this ULG release discovery in 2012.

The file indicates there was one prior ULG release at the Site. The former facility operator, Uni-Mart Corp. (Uni-Mart) reported this prior release on 4/19/95. Unfortunately, the file contains no information on the source, nature or volume of this earlier release. However, it is known that Uni-Mart prepared and submitted to PADEP a 1/29/97 Site Characterization Report/Remedial Action Plan (SCR/RAP). PADEP responded on 2/7/97 that the Site met SHS for regulated substances and that no further action was required.

## Site Characterization & Interim Remedial Activities

Site characterization for the PAUSTIF Claim # 2012-0156(l) release was initiated by Cribbs & Associates, Inc. (Cribbs) in August 2013. The investigation included: advancing 24 on- and off-property soil borings (SB-1 through SB-24); installing four on-property monitoring wells (MW-1 through MW-4) and three off-property monitoring wells (MW-5 through MW-7); collecting / analyzing soil samples from the soil borings and well borings; collecting / analyzing groundwater samples from the seven monitoring wells on a quarterly basis; measuring water levels and collecting / analyzing groundwater samples from the four UST cavity observation wells; and installing and sampling five soil vapor points (VP-1 through VP-5). Figures 2 and 3 in Attachment 3a show the locations of the soil borings. Figure 3 also includes an overlay showing where excessive soil impacts are surmised to reside. Monitoring well and soil vapor point locations are provided on Figure 4 (Attachment 3a).

Soil borings advanced to a depth of ~4 to 12 feet below grade reportedly identified fill material that consisted of silty to clay rock fragments with sand and wood fragments (timber) extending to a depth of ~4 to 6 feet below grade. The fill is reportedly underlain by natural unconsolidated alluvial soils that consist of a mixture of silty sand with traces of clay and gravel. Wet to saturated conditions were encountered at ~3.5 to 5 feet below grade. No bedrock was encountered during the site characterization activities.

Soil borings SB-3 and SB-4 located in the vicinity of monitoring well MW-3, and SB-7, SB-8, & SB-9 located in the vicinity of MW-1 and MW-2 all encountered refusal at ~4 and 5 feet on wood timbers (SB-3) or “cobble/boulder” (SB-4, SB-7, SB-8, SB-9)<sup>1</sup>. Some of buried timber reportedly exuded a creosote odor. According to Cribb’s account of conversations with local residents, the Site and surroundings was part of a railyard in the 1800s. The area was subsequently filled to raise the ground surface elevation for flood prevention. It has been speculated that the wood fragments may be remnants of old railroad ties.

A total of 41 soil samples were collected from on- and off-property soil borings and well borings, with most of the soil samples apparently collected from either the periodically saturated zone (or smear zone) or the permanently saturated zone. Concentrations of benzene, naphthalene, 1,2,4-trimethylbenzene (1,2,4-TMB), and 1,3,5-trimethylbenzene (1,3,5-TMB) were found to exceed the PADEP SHS in soil samples collected from a depth interval of 3 to 4 feet within the smear zone, and 6 to 8 feet below grade (1,2,4-TMB only) in the permanently saturated zone<sup>2</sup>. The area where unsaturated and periodically saturated soil impacts exceed PADEP SHS is surmised to generally encompass the dispenser island vicinity, extending to some degree into the adjoining right-of-way (ROW) for Filbert Street (Figure 3, Attachment 3a).

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<sup>1</sup> Boring logs provided in Appendix A of the 2015 SCR (Attachment 3h).

<sup>2</sup> Bidders are reminded that PADEP considers soil impacts within the permanently saturated zone only a groundwater issue; a demonstration of attainment of soil standards is not required in the zone of permanent saturation.

There are seven monitoring wells historically used to evaluate groundwater quality and flow direction: (a) on-property wells MW-1 through MW-4 and; (b) off-property wells MW-5 through MW-7. Monitoring wells are variously installed to depths ranging between ~10 to 12 feet below grade. Static groundwater levels within the on-property wells have ranged from ~2.5 to 6 feet below top of casing (TOC), with the water levels in the off-property wells ranging from ~4 to 6 feet below TOC. A hydraulic mound, indicated by consistently higher groundwater levels within on-property well MW-1, suggests groundwater flows semi-radially from MW-1 towards MW-2, MW-3, and MW-4; however, the overall groundwater flow in the shallow overburden appears to be generally in a south/southeasterly direction with a hydraulic gradient of ~0.033 feet/foot.

The dissolved ULG contaminant plumes are generally centered in the area of the existing dispenser islands and ULG UST cavity. Similarly, to the soil impacts, the plumes generally extend to the southeast and under the ROW adjacent to Filbert Street. In the ULG UST vicinity there appears to be a flow component to the south toward the adjoining residential property. Historically, the contaminants of concern (COC) in groundwater exceeding the PADEP SHS included benzene, MTBE, naphthalene, 1,2,4-TMB. Monitoring wells MW-1, MW-3, and MW-4 located in the immediate vicinity of the existing dispenser islands (source area) have consistently exhibited the highest concentrations of benzene (MW-1 and MW-3) and 1,2,4-TMB (MW-4). Well MW-2, located adjoining the southern corner of the UST cavity is also impacted with benzene exceeding SHS, but at lower concentrations than MW-1 and MW-3.

As of 2018, benzene and 1,2,4-TMB are the only compounds still present at concentrations exceeding the SHS due to natural attenuation of other ULG compounds. However, the groundwater quality data indicate that the benzene concentrations at wells MW-1, MW-2, and MW-3 are not attenuating and remediation is necessary to attain the selected standard within a reasonable timeframe. Benzene and 1,2,4-TMB impacts are shown on Figure 5 (Attachment 3a) and the figures in the 1<sup>st</sup> quarter and 2<sup>nd</sup> quarter 2018 RAPRs (Attachments 3d and 3c, respectively).

Soil vapor samples were collected from VP-1 through VP-5 installed to depths of 2 to 3.5 feet below grade, and located along the southwest side of the Site building (VP-1), between building and existing gasoline tank field, and off-property on the adjoining property to the southwest (VP-2 and VP-3) and to the southeast across Filbert Street (VP-4 and VP-5). Sampling points VP-1 through VP-4 were each sampled on 6/12/14 and 11/24/14 and sampling point VP-5 was only sampled on 11/24/14. None of the sampling results exceeded the residential screening values identified in the 2017 PADEP Vapor Intrusion (VI) Guidance. However, additional sampling is necessitated by the protocols of the 2017 PADEP VI Guidance. For example, in cases such as exist at the claim site where contamination lies less than five feet below building foundation, external preferential pathways exist (i.e. water line, UST piping) within source area, and contaminated groundwater likely resides in preferential pathways, the 2017 PADEP VI guidance prescribes sub-slab or indoor air sampling in the building(s). PADEP's 2017 VI guidance also

prescribes evaluating future VI concerns in the source area (e.g., vapor intrusion into future buildings). To date, neither sub-slab or indoor air sampling of the existing building or VI sampling in the Site source area where future buildings could be constructed appears to have occurred. For these reasons, this RFB includes a milestone for further VI sampling and evaluations of the Site and adjoining properties ahead of the RACR and PADEP case closure.

### **Solicitor's Selected Closure Standards & Remedial Approach**

Solicitor's chosen closure approach for the Site is the residential, used aquifer, statewide health standards (SHS) for both soil and groundwater. In May 2016, the Solicitor provided PADEP a RAP prescribing air sparge/soil vapor extraction (AS/SVE) to remediate residual soil and groundwater impacts. PADEP subsequently approved the remedial goals and RAP via letter to the Solicitor dated 7/25/16 but with a required modification that source soil excavation be completed in the dispenser area encompassing the contamination around and between MW-3 and SB-1. The Work Scope section of this RFB includes several alternative remedial approaches, each including an excavation component for bidder's consideration in responding to this RFB.

## Scope of Work (SOW)

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

### Objective

The Solicitor, PADEP, the Technical Contact, and the PAUSTIF have agreed that any of the following alternative remedial pathways forward offer a technically viable and cost-effective means of attaining the SHS soil and groundwater cleanup goal:

- 1) **Alternative 1 – Soil Excavation, Oxygen Delivery Product (e.g., ODP or oxygen releasing compounds) Application & Injection followed by Monitored Natural Attenuation (MNA).** This alternative would include excavating an RFB-defined area surrounding the existing dispenser islands and near the UST cavity, a one-time application of an ODP into the completed excavation prior to backfilling, a one-time injection of ODP into unexcavated soil alongside the dispenser islands and MW-2 vicinity, replacing monitoring wells MW-1, MW-3, and MW-4 and MNA of residuals in these wells and MW-2. For the purposes of fixed price bidding, this alternative assumes a post-remedial MNA period of six quarters after which demonstration of attainment for groundwater will begin, OR;
- 2) **Alternative 2 – Soil Excavation, Carbon-Based Sorption / Bioremediation Media Application & Injection followed by MNA.** This alternative would include excavating an RFB-defined area surrounding the existing dispenser islands and near the UST cavity, a one-time application of carbon-based sorption / bioremediation media technology to the completed excavation prior to backfilling, a one-time application of carbon-based injection (CBI) technology into unexcavated soil alongside the dispenser islands and MW-2 vicinity, replacing monitoring wells MW-1, MW-3, and MW-4, and MNA of residuals in these wells and MW-2. For the purposes of fixed price bidding, this alternative assumes a post-remedial MNA period of six quarters after which demonstration of attainment for groundwater will begin, OR;
- 3) **Alternative 3 – RAP-Specified AS/SVE with Limited Soil Excavation.** This alternative would include a more limited soil excavation on the east side of the dispensers (required by PADEP's conditional RAP approval) followed by installation and operation of an air sparging / SVE system as described in the PADEP-approved RAP. For the purposes of fixed price bidding, this alternative assumes an operation and maintenance period for the air sparge system of two years followed directly by commencing groundwater attainment monitoring / demonstration.

Each bidder shall propose one of these three remedial approaches in its bid response.



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

Selecting one of the three remedial approaches outlined above shall be the basis for preparing a SOW and presenting a competitive fixed-price bid.

### **Constituents of Concern (COCs)**

The COCs for soils and groundwater associated with demonstrating attainment for the 2012 ULG release are the short list for ULG (benzene, toluene, ethylbenzene, xylenes (BTEX); MTBE; cumene; naphthalene; 1,2,4-TMB; and 1,3,5-TMB).

### **General SOW Requirements**

The bidder's approach to completing the SOW shall be in accordance with generally accepted industry standards/practices and all applicable federal, state, and local rules, regulations, guidance, and directives. The latter include, but are not limited to, meeting the applicable requirements of the following:

- The Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended);
- Pennsylvania Code, Title 25, Chapter 245 - Administration of the Storage Tank Spill and Prevention Program;
- The Land Recycling and Environmental Remediation Standards Act of 1995 (Act 2), as amended);
- Pennsylvania Code, Chapter 250 - Administration of Land Recycling Program; and
- Pennsylvania's Underground Utility Line Protection Law, Act 287 of 1974, as amended by Act 121 of 2008.

During completion of the milestone objectives specified below and throughout implementation of the project, the selected consultant shall:<sup>3</sup>

- Conduct necessary, reasonable, and appropriate project planning and management activities until the project (i.e., Remediation Agreement) is completed. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control, scheduling, and other activities (e.g., utility location). Project planning and management activities will also include preparing and implementing plans for health and safety, waste management, field sampling/analysis, and/or other plans that are necessary and appropriate to complete the SOW and shall also include activities related to establishing any necessary access agreements. Project planning and management shall include identifying and taking appropriate safety precautions to not disturb Site utilities including, but not limited to, contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.
- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water, shall be disposed in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request. All investigation derived wastes shall be handled and disposed per PADEP's Regional Office guidance. It is the selected consultant's responsibility to conform with current PADEP Regional Office guidance requirements in the region where the Site is located.
- Be responsible for providing the Solicitor and facility operator with adequate advance notice prior to each visit to the property. The purpose of this notification is to coordinate with the Solicitor and facility operator to ensure that appropriate areas of the property are accessible. Return visits to the Site will not constitute a change in the selected consultant's SOW or result in additional compensation under the Remediation Agreement.

### **Site-Specific Guidelines**

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

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<sup>3</sup> As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

**Off-Property Access.** Selected consultant will be responsible for securing off-property access where needed (including private properties and public right-of-ways) to implement the remedial approach. Work required to negotiate, and secure off-property access shall be included within the fixed price for Milestone C. It is reasonable to assume that Claimant will assist, as needed, with this effort.

**Field Activities.** All on- and off-site work should be conducted during the normal business days and hours of 6:00 AM to 6:00 PM from Monday through Friday, unless work outside of these normal business days and hours is authorized by the respective leasee / Site operator and/or Solicitor / property owner. The selected consultant will be responsible for determining and adhering to the restrictions discussed in this section that apply to the Site.

Bidders shall assume the Site operations/activities will continue while the soil excavation is being performed. The excavation shall be performed in a way to allow access to the Site building and at least one side of the dispenser islands is accessible to Site customers.

Each bid response shall acknowledge an understanding of this schedule.

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

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

**Safety Measures.** Each bidder should determine the safety measures necessary to appropriately complete the milestones. Specifically, if a consultant feels that it is appropriate and necessary to complete utility clearance using an air knife, the cost should be included in their fixed-price cost. If a bidder includes costs to conduct specific safety measures or activities, the bidder should specify it in the bid response and discuss why it is appropriate and necessary and indicate which methods will be utilized and to what extent. As discussed in the RFB, cost is not the only factor when evaluating bid responses and other factors are taken into consideration during the bid evaluation process, including appropriate safety measures.

**Investigation Derived Waste Disposal.** The investigation derived waste (including, but not limited to, soil/rock cuttings, used carbon, well development/purging liquids) shall be disposed per the instructions included in the “General SOW Requirements” section of the RFB. Bidders will be responsible for arranging any off-site waste disposal (if required) and including costs in their bid response to cover the disposal of all potential waste related to the milestones included in the SOW. Containerized soil and groundwater may be temporarily stored on-site, but should be removed from the site in a timely manner. Bidders will be responsible for including costs in their bid response to cover the disposal of all potential waste related to the milestones included in the SOW. Each bidder should estimate the volume of waste using its professional opinion, experience and the data provided. **PAUSTIF will not entertain any assumptions from the selected bidder in the Remediation Agreement with regards to a volume of waste. Invoices submitted by the selected bidder to cover additional waste disposal costs as part of activities included under the fixed-price Remediation Agreement for this site will not be paid.**

## Site-Specific Milestones

**Milestone A – Supplemental Site Characterization Activities and Reporting.** This Milestone provides bidders the opportunity to identify the 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 design which are characterization-type activities (e.g., analysis for C<sub>4</sub>-C<sub>10</sub>); 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 geotechnical testing to better assess soil excavation stabilization requirements).

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 rationale supporting 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 Cribb's February 2015 SCR and May 2016 RAP (Attachments 3h and 3g, respectively), and other documents provided in Attachment 3, rather than relying solely on the summary information presented in this RFB.

Example potential activities for bidders to consider may include tasks such as: advancing additional soil borings to assist in waste characterization profiling in advance of soil excavation; conducting testing to better understand groundwater handling requirements associated with the excavation work; or filling other perceived data gaps. 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<sup>4</sup> activities shall be documented as discussed in Milestone C.

**Milestone B – Pilot Testing and Reporting.** If Alternative 3 is chosen, pilot testing must be described and bid. Bidder’s pilot testing shall be designed to support the feasibility and appropriateness of the bidder’s proposed remedial technology and approach. **If a bidder is NOT selecting Alternative 3, then Milestone B does not apply.** More specifically, the purpose of the Milestone B pilot test is to:

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

The bidder shall provide a detailed description of the proposed pilot testing, objectives and rationale including any concerns with project file pilot testing data, perceived existing data gaps, proposed methods, the use of existing or installation of new data monitoring/collection points, proposed equipment to be used, and the data that is proposed to be collected. Each bid shall also describe how the data/information would be evaluated. In formulating the pilot testing work scope and fixed price cost, bidders shall also consider the following:

- The static groundwater is relatively shallow with only a veneer of unsaturated zone for sparge vapor recovery; air sparge pressures and SVE vacuums could further limit opportunity for liquid-less vapor recovery in the unsaturated zone;
- There are buried utilities and other engineered features (e.g., the planned limited soil excavation / backfill) in the target area which would need to be accounted for in a design to avoid vapor migration or pneumatic “short-circuiting”;

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<sup>4</sup> In order to receive reimbursement under this task, thorough documentation of any additional site characterization activities must be provided to PAUSTIF.

- Buried wood encountered at several boring locations might be expected to preferentially sorb contaminants and resist in-situ remediation; and
- Previous air sparge / SVE pilot testing contained some inconsistencies to be resolved in any new testing.

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. An SVE or air sparge pneumatic ROI greater than A, but not more than B;
2. SVE flow of not more than AA cfm at an attained vacuum of not less than BB inches of H<sub>2</sub>O;
3. A demonstrated capacity to maintain vacuum conditions over the combined AS / SVE ROI; 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 proposing Alternative 3 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 AS/SVE 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 bid 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 bidding on Alternative 3 and the Solicitor are protected from being obligated to move forward with a remedial action under the executed Remediation Agreement if the proposed remedial approach cannot be safely or efficiently implemented as proposed in the conceptual design based on critical criteria outside the bidder's defined ranges from the pilot test data from Milestone B. Exhibit A of the Remediation Agreement (Attachment 1) will contain a provision that if the selected consultant's proposed remedial approach is not reasonable based solely on pilot test results indicating that it cannot be implemented as proposed in the conceptual design based on critical criteria outside the bidders defined ranges from the pilot test data from Milestone B, then one of the following conditions will apply:

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

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



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

**Milestone C – Preparation/Submittal of a Revised RAP.** Upon completing Milestones A and B (as applicable) described above, a Revised RAP shall be prepared to document the supplemental site characterization activities/findings and detailing the remedial soil excavation approach, whether remedial Alternative 1, 2 or 3 is chosen. This Revised RAP shall contain all necessary information required under 25 PA Code §245.311 and be of sufficient quality and content to reasonably expect PADEP approval.

The report shall document, describe, and evaluate all findings provided from Milestone A (and Milestone B, if required); 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 this document. The report shall include updating the conceptual site model (CSM) for the Site and its vicinity based on evaluating the results of the site characterization task, and pilot testing, outlined above.

The Revised RAP shall be first submitted in draft form to the Solicitor and PAUSTIF for review and comment before being finalized and submitted to PADEP. Each bidder's project schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft document. The final report shall address comments received from the Solicitor and PAUSTIF on the draft report before it is submitted to the PADEP for its review.

The applicable document / report shall be signed and sealed by a Professional Geologist in the Commonwealth of Pennsylvania and may also require the signature and seal of a Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine if the Professional Engineer seal is required based on the work performed for and documented in the combined report). The fixed-price cost shall also include addressing any PADEP comments on the Revised RAP.<sup>5</sup>

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

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<sup>5</sup> All figures included in the Revised RAP (e.g., site plan, remedial design layout, etc.) shall be available in electronic format to the Solicitor upon request.

**Milestone D – Pre-Remediation Quarterly Groundwater Monitoring, Sampling & Reporting.**

Under this milestone, 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 and reporting (Milestone B), if applicable, and preparation/submittal of the Revised RAP (Milestone C) and waiting on PADEP approval of the Revised RAP. For the purposes of this RFB, it is assumed that this work will be required for two quarters. However, each bid must specify the number of quarterly events that will be needed prior to implementation of Milestone D 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 per event Optional Cost Adder Milestone D3.<sup>6</sup>

Each groundwater monitoring and sampling event shall include the sampling of the existing on-property wells MW-1 through MW-4 and off-property wells MW-5 through MW-7.<sup>7</sup> 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.<sup>8</sup> Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP NCRO guidance.

Groundwater samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Bidders shall specify the analytical methods to be used for the monitoring well samples and potable water well samples. Appropriate quality assurance / quality control (QA/QC) samples shall also be collected during each event and analyzed for the same parameters.<sup>9</sup> In addition, each event shall include field measurements for the following parameters: pH, temperature, specific conductance,

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<sup>6</sup> The Remediation Agreement includes a Provision that the pre-remedial quarterly site monitoring, sampling & reporting events will be limited to the two quarters under Milestone D plus the number of additional events under Optional Cost Adder Milestone D3 as defined in the selected bid. If additional events are required under Milestone D3, pre-approval from Client and PAUSTIF (for funding) is required.

<sup>7</sup> The fixed price cost shall also include any additional monitoring well(s) that the bidder proposes to install under Milestone A (if any).

<sup>8</sup> No SPH has been observed in any of the monitoring wells.

<sup>9</sup> 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.

dissolved oxygen (measured in-situ), oxidation/reduction potential, and total dissolved solids (TDS).

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

- A summary of site operations and remedial progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered;
- Groundwater elevation contour maps depicting groundwater flow direction;
- Tabulated historical quantitative groundwater analytical results including results from the current quarter;
- Current quarter laboratory analytical report(s);
- One site-wide iso-concentration contour map for each compound detected in any one well above the SHS during the quarter;<sup>10</sup>
- 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

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<sup>10</sup> 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.

state licensing laws to determine which seals are required based on the work performed and documented in the groundwater attainment demonstration report).

**Milestone E – RAP Implementation.** Under this milestone, bidders shall provide a fixed price bid inclusive of all the manpower, machinery, materials, and other costs needed to fully implement the remedial solution for the Site whether it be remedial Alternative 1, 2 or 3 described in the bidder’s Revised RAP (Milestone C) once approved by PADEP.

Whether bidding on Alternative 1, 2, or 3 bidders shall prepare a fixed-price cost to implement that is broken down into the sub-milestone components listed below. Bidders shall clearly identify which alternative is being bid and the bidders work scope shall be detailed within each sub-milestone, including the modifications being made to the remedial system.

Milestone E1. Soil Excavation with UST Field Vacuum Extraction. Each bid response must describe the bidder’s approach in detail and provide a fixed-price inclusive of excavation planning / preparation work (e.g., buried utility location / mark-out, surveying excavation locations, etc.) and excavation and backfilling for the area / volume of the Site as defined on Figure 6 (Attachment 3a) for Alternatives 1 & 2 and as defined on Figure 7 (Attachment 3a) for Alternative 3. The fixed-price costs shall also include performing three one-day vacuum extraction events (e.g., Vacuum Truck) of the tank field observation wells: two events conducted in the days before the excavation commences and one event conducted after completing the excavation (including backfilling and restoration). The purpose of these short-term extraction events is to remove benzene contaminated tank pit water and readily recovered benzene mass on the surfaces of the UST equipment, backfill material and tank pit soil sidewalls. For remedial Alternatives 1 and 2, the pre-excavation extraction events are also intended to reduce hydraulic pressures ahead of the excavation. Bids shall describe the proposed details of this vacuum extraction including how the approach will ensure no adverse impacts to the UST infrastructure.

The unsaturated / “smear” zone and shallow permanently saturated soils in this area contain residual petroleum contaminant mass (e.g., benzene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) sufficient to sustain contaminant concentrations in groundwater. To enable demonstration of attainment of the SHS in soil down to the zone of permanent saturation, and to reduce contaminant concentrations in groundwater, the excavation for all alternatives shall remove impacted soil to a **depth of 7 feet** throughout the alternative-specific excavation footprint. Bidders shall describe a proposed excavation that ensures no disturbance to the UST system and product piping extending between the dispenser islands and UST field. Each bid must include a drawing depicting the area to be excavated, including the proposed setbacks to the existing UST system dispenser island, product piping and UST cavity to prevent damage to the UST system. Such setbacks shall ensure that the permeable backfill (i.e. pea gravel, stone) surrounding the UST components is not breached or allowed to flow into the excavation.

Bidders are to assume that the excavated soil will be field screened with a PID and segregated to separate the “not suspected to be excessively contaminated” and “excessively contaminated” soil. To be deemed responsive to this task, bids must discuss: (a) the photoionization detector (PID)<sup>11</sup> screening value selected somewhere around 50 parts per million (ppm) that will be applied to segregate the “excessively contaminated” and “not excessively contaminated” soil removed from the excavation; and (b) the field screening approach and frequency. All “excessively contaminated” soil shall be removed from the site for off-site disposal and “clean” fill shall be imported to replace the exported soil. Bidders shall assume that the adjoining vacant property to the north (formerly occupied by a garage) can be used for temporary staging of excavated material provided that all necessary and appropriate measures are taken to prevent the leaching or loss of contaminants from the excavated soil onto the vacant property used for staging (e.g., properly lined and covered stockpile). Contaminated soil transportation and off-site disposal and clean fill import costs shall not be included in the fixed price bid for this task as these will be based on unit costs. Fixed-price and unit cost bids for this work task shall be based upon RFB specifications.

The bidder’s fixed cost shall include the costs to perform all work necessary to safely excavate, screen, segregate / manage soil, backfill, and surface restore the area shown / specified on Figure 6 (Attachment 3a) for Alternatives 1 & 2 and Figure 7 (Attachment 3a) for Alternative 3, including contacting / obtaining the required permits that may be needed before initiating this task. The 7-foot excavation reaches about 1 foot beyond the ~6-foot depth to the zone of permanent saturation in order to remove adsorbed contaminants sustaining contaminant concentrations in groundwater. Groundwater depth ranges (~2.5 to 6 feet) in the excavation area monitoring wells and the soil types (i.e. mixture of silts, sands, with clay, gravel, and wood fragments) together suggest that groundwater may tend to accumulate in the excavation. Accumulating groundwater can be expected to require temporary extraction, removal, sampling, loading, transportation and disposal of impacted groundwater.

Within one week prior to initiating the excavation work, two vacuum extraction events shall be performed on the tank field observation wells, and one vacuum extraction event shall be performed the week following completion / restoration of the soil excavation work. The extraction events are intended to assist with remediating the limited benzene impacts in the area of the tank field and for remedial Alternatives 1 and 2, to temporarily dewatering of the area ahead of the excavation. The extraction events shall be performed over an 8-hour period, and each bid response describing the work scope for this work shall identify the method/equipment used, the tank field observation wells to be used for extraction, duration of extraction, and address what measures will be taken to prevent any damage to the UST system infrastructure.

Since the volume of impacted groundwater that would require management for disposal during both (a) the three extraction events and (b) during the soil excavation work cannot be precisely determined at this time, compensation to the successful bidder will be based on a fixed, per gallon

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<sup>11</sup> PID with 10.6 eV bulb calibrated to 100 ppm isobutylene.

unit cost for the management, sampling, loading, transportation and disposal (or on-site treatment and regulatory permitted discharge) of impacted groundwater removed. The successful bidder will only be reimbursed for the actual gallons that are needed to be removed from (a) the extraction events performed at the UST field and (b) the excavation and properly disposed. During the excavation work, the successful bidder is expected to follow normal industry practices when scheduling the work to avoid precipitation events and to conduct the excavation and backfilling work as quickly and efficiently as possible to minimize unnecessary water production.

After the excavation is completed for remedial Alternatives 1 and 2, and prior to backfilling, soil samples shall be collected from the excavation sidewalls, within the depth interval covering the unsaturated and smear zone. The location / depth of the soil samples shall be determined using PADEP's systematic random sampling (SRSS) procedures and shall be performed at the excavation sidewalls within the area as shown on Figure 6 (Attachment 3a). For remedial Alternatives 1 and 2, only the portions of the excavation where soils were identified exceeding PADEP SHS are required to demonstrate attainment. For the purposes of this bid, bidders shall assume that attainment of the soil standards will be successful. However, if the post-excavation sidewall soil data is unable to demonstrate attainment, future post-remedial soil attainment will need to be demonstrated under Milestone G.

After the excavation is completed for remedial Alternative 3, biased soil attainment sampling above the zone of permanent saturation in accordance with Regulation 250.707(b)(1)(iii) shall be performed on the side walls of the excavation (Figure 7, Attachment 3a). Biased soil sampling above the zone of permanent saturation is prescribed (instead of SRSS) because accessible soil impacts will be left in place under this Alternative 3 approach (e.g., north and south sides of the dispenser islands). Irrespective of the results of the Alternative 3 post-excavation soil attainment sampling, supplemental soil attainment demonstration shall be eventually be conducted under this RFB to evaluate the soil cleanup via AS/SVE (Alternative 3 only). This supplemental soil attainment demonstration for Alternative 3 will be a post-remedial soil attainment demonstration conducted under Milestone G following completion of AS/SVE remediation (Milestone E4).

Fixed-price bids shall describe the approach, including a drawing showing where soil attainment sampling will be performed, the depth interval, and the number of soil samples for side wall attainment soil sampling from the completed excavation for the remedial alternative (Alternative 1, 2, or 3) selected by the bidder. Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis.<sup>12</sup> Soil samples shall be analyzed for the PADEP short list for unleaded gasoline parameters (BTEX, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB). The soil sampling results for remedial Alternatives 1 and 2 shall be analyzed using PADEP's 75%/10x Ad Hoc Rule, and sample results for remedial Alternative 3 shall be analyzed using the "No-Exceedence" Rule, which shall be documented in a corresponding RAPR (Milestone E3 or E4F, as applicable) and detail in the RACR.

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<sup>12</sup> Each bidder's approach to the collection of the soil samples shall clearly identify the number of samples, QA/QC measures, analytes, and other key assumptions affecting the bid price.

In addition, prior to backfilling, the fixed-price for this task shall include, and each bid shall detail the approach to the application of ODP (e.g., ORC Advanced® or equivalent for Alternative 1) or a carbon-based sorption / bioremediation technology (Alternative 2) by mixing with the lower four feet of backfill to aid in the bioremediation of any residual impacts per the RAP. Each bid shall specify the quantity of ODP (Alternative 1) or CBI agent (Alternative 2) that is necessary to address residual impacts and discussing how applied to the excavation.

Fixed-price bids shall also include backfilling and mechanically compacting in maximum 8-inch loose lifts the excavated area. The successful bidder shall backfill to within 12 inches of grade using a combination of reused "clean" site soil and imported clean fill (e.g. crushed 2A limestone). Excavated material stockpiled on site for re-use shall be sampled prior to backfilling, and the fixed-price bid shall include costs for the sampling and laboratory work in accordance with PADEP guidance documents. Backfill material and placement/compaction methods shall result in a stabilized condition capable of supporting normal traffic and use loads. The backfill materials shall be free of vegetation, lumps, trash, lumber, and other unsuitable materials. In general, backfill shall be mechanically compacted by means of tamping rollers, sheep foot rollers, pneumatic tire rollers, vibrating rollers, or other mechanical tampers which are appropriate for the material being compacted. Each lift shall be compacted to meet 95% of Standard Proctor as demonstrated via the use of nuclear density gauge testing. The nuclear density gauge testing would only apply to reused "clean" Site soils and imported soil-like material. Imported crushed stone (e.g. 2A limestone) that is used as backfill within the excavation would have each lift mechanically compacted to "non-movement". A minimum of 6 inches of compacted 2A limestone gravel will be placed above the compacted backfill material and shall tested via a proof roll test to "non-movement". Bidders shall properly documented, noting the equipment used for the testing and the subsequent test results. Bids shall also include surface paving and other completion / restoration to restore the area to pre-excavation conditions.

During this excavation work, at least one entrance into to the site and one lane of the fueling island must remain open at all times. Signage shall be provided by the contractor stating that the store and fueling island are open for business. In addition, at all times a minimum of five parking spaces must remain open with adequate access for ingress and egress. Also, this excavation work is expected to significantly impact the business activities; therefore, this work (from the first saw cut to the final paving activities) shall be completed in a period of 3 weeks. Liquidated damages in the amount of \$500 per day shall be paid to the Solicitor for every day the work extends beyond 3 weeks.<sup>13</sup>

As noted earlier, bidders shall investigate and locate any and all below grade utilities that may be encountered before the digging occurs and assume that the UST product piping located in between the dispenser island and UST field shall not be disturbed/removed. The fixed-price cost

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<sup>13</sup> The Remediation Agreement includes a Provision that PAUSTIF will not reimburse the liquidated damages, and that the selected consultant will be fully responsible to make liquidated damages payment to Solicitor.

for this task shall include costs for the management and / or replacement of any utilities that may be identified and encountered in the excavation, including but not limited to, the water line. Costs should also include any temporary repairs made prior to permanent replacements.

Each bidder shall be required to demonstrate that they have a full understanding of OSHA shoring/sloping requirements as they pertain to soil type and moisture conditions. In addition, each bid must provide specific details as to how they intend to protect the Site structures (building, fueling system, canopy, etc.) from damages that could result from sidewall collapse.

Fixed-price bids for the excavation work shall include any waste profiling (including any sampling & laboratory work) and securing waste facility acceptance prior to beginning the soil excavation.

Three existing shallow overburden groundwater monitoring wells, MW-1, MW-3, and MW-4 are located within the proposed excavation footprint for remedial Alternatives 1 and 2, and wells MW-3 and MW-4 within excavation footprint for Alternative 3. These wells will need to be decommissioned in accordance with PADEP guidance as part of this task prior to initiating the excavation. Following completion of the excavation and backfilling, shallow overburden wells MW-1, MW-3, and MW-4 shall be replaced for Alternatives 1 and 2, and only MW-3 and MW-4 for Alternative 3. Locations for the replacement wells shall be at the same as the existing locations. Construction details for the replacement wells shall be identical to existing shallow overburden wells. Each bid response must show the proposed locations for the replacement wells on a drawing and explain the bidder's approach to abandonment of the existing wells and installation details for the replacement wells. In addition, the fixed price shall also include well development, surveying the new wells, and bids must indicate on a drawing the proposed locations for the replacement wells.

The details of the soil removal activities shall be documented in a concurrent quarterly RAPR (Milestone E3 or Milestone E4F, as applicable) and the RACR (Milestone I), and at a minimum shall include the following: scaled drawings depicting the lateral and vertical dimensions of the completed excavation superimposed on the site plan; all field observations and PID readings; the quantity of soil excavated, disposed off-site, used as backfill, and imported for backfill; waste profiling documentation; soil waste disposal manifests and disposal facility; source and amount of imported fill; quantity of added ODP and emplacement details, impacted groundwater management, biased soil sampling locations & depths, laboratory analyses, and disposal (if needed); dated photographs taken before breaking ground, throughout the excavation, and after restoration; and documentation (boring logs / well construction diagrams and survey information) for any replacement monitoring wells. Additionally, the locations and results of the biased soil attainment sampling shall be well detailed and documented in text, photographs and figures.

In addition to providing a fixed-price bid for excavating, backfilling, restoring the defined excavation area, and well abandonment and replacement activities, bidders shall also provide



excavation-related unit costs (included on the Attachment 2, Bid Cost Spreadsheet) to accommodate changes that may be required. These unit costs are:

- UC1 Management, loading, transportation and proper off-site disposal of excessively contaminated soils (cost per ton);
- UC2 Management, sampling / analysis, loading, transportation and disposal of impacted groundwater removed from the soil excavation (cost per gallon);
- UC3 Purchase, transportation and on-site management of clean imported fill to replace exported excessively contaminated soil (cost per ton);
- UC4 Surface restoration of areas beyond identified target excavation limits (cost per square foot);
- UC5 Additional excavation beyond identified excavation limits, excluding excessively contaminated soil transportation / disposal costs since these are captured under UC1 (cost per in-place cu yard);<sup>14</sup> and
- UC6 Additional backfilling and compaction beyond identified limits, excluding clean imported fill costs since these are captured under UC3 (cost per in-place cu yard).

When evaluating the cost component of bid responses, the bidders unit costs for UC1, UC2, and UC3 will be added to the bidders total fixed price provided in Attachment 2 using the following assumed volumes – 1,100 tons (Remedial Alternatives 1 and 2) and 350 tons (Remedial Alternative 3) of T&D of impacted soils (a fraction of the excavated soil requiring off-property T&D and same amount of clean fill importation) and 7,500 gallons (Alternatives 1 and 2) and 2,500 gallons (Alternative 3) of impacted groundwater for disposal.

Milestone E2A. ODP Injections. Under this milestone, if a bidder has chosen remedial Alternative 1, bidders are required to provide a detailed work scope and fixed price cost for the injection of an ODP in the soil left unexcavated around the dispenser islands and in the vicinity of MW-2 / southeast corner of UST field where there is persistent benzene in groundwater. Bidders shall assume that the ODP would be injected after the excavation is completed and applied to the periodic saturated / smear zone, and saturated zone, to aid in reducing contaminant concentrations in both soil and groundwater. Each bid must provide a drawing showing the proposed injection area(s), details regarding the proposed manufacturer and product model / composition, volume of material to be used (and basis), how the ODP will be applied to the subsurface and volume per injection location, the number of injection locations, and depth interval for the injectant. Bidders shall describe how the injection locations / approach would ensure that UST / dispenser / piping system components are not disturbed or affected.

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<sup>14</sup> The successful bidder cannot count on reimbursement of excavation beyond the limits depicted in Figures 6 and 7 (Attachment 3a) without having obtained prior written approval of the supplemental work by Solicitor and PAUSTIF or their agents before completing the supplemental excavation work.

Upon proof of successful delivery / application of the mass of the ODP into the subsurface as bid, the successful bidder will be eligible for reimbursement of the bid price for the application event. For the purposes of this RFB, it is assumed that only one ODP injection event would be required to have groundwater concentrations reduced to below SHS at the POC. However, each bid must specify the timeframe along with supporting rationale for when a second injection event would occur if a second injection event is eventually determined to be necessary prior to implementation of attainment monitoring (Milestone F). Any additional injection event, beyond the one 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 E2A.<sup>15</sup>

Each bid response shall describe and include in the fixed-price for: (i) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call and clearing the borehole location using vacuum excavation; (ii) borehole abandonment and surface restoration; and (iii) management of IDW. Detailed description of this work and any supporting documentation (e.g., waste manifests, etc.) shall be documented in a quarterly RAPR (Milestone E3).

Milestone E2B. In-situ Sorption / Bioremediation via Carbon-based Injection (CBI) Technology. Under this milestone, if a bidder has chosen remedial Alternative 2, bidders are required to provide a detailed work scope and fixed price cost for the injection of a sorption / bioremediation CBI media (e.g. “Trap and Treat”, “Plumestop”, “COGAC”, etc.) in areas left unexcavated around the dispenser islands and near MW-2. More specifically, bidders are to provide a plan for CBI injection in the MW-2 / southeast corner of gasoline UST field vicinity where benzene persists in groundwater. Bidders shall assume that the CBI injectants would be applied after the excavation is completed and applied to the periodic saturated / smear zone, and saturated zone, to aid in reducing contaminant concentrations in both soils and groundwater. Each bid must provide a drawing showing the proposed CBI injection area(s), details regarding the proposed manufacturer and product model / composition, volume of material to be used (and basis), how the injectant will be applied to the subsurface and volume per injection location, the number of injection locations, and depth interval for the injectant. Bidders shall describe how the injection locations / approach would ensure that UST / dispenser / piping system components are not disturbed or affected.

Upon proof of application of the stated mass of the CBI product into the subsurface as bid, the successful bidder will be eligible for reimbursement of the bid price for the application event. For the purposes of this RFB, it is assumed that only one injection event would be required to have groundwater concentrations reduced to below SHS at the POC. However, each bid must specify the timeframe along with supporting rationale for when a second CBI injection event would occur if a second injection event is eventually determined to be necessary prior to implementation of attainment monitoring (Milestone F). Any additional CBI injection event beyond the one specified

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<sup>15</sup> The Remediation Agreement includes a Site Specific Assumption that the injection events will not exceed the one under Milestone E2A plus the one additional event under Optional Cost Adder Milestone E2A.

in this RFB, shall be defined on the Bid Cost Spreadsheet and shall be incorporated in the Remediation Agreement as Optional Cost Adder Milestone E2B.<sup>16</sup>

Each bid response shall describe and include in the fixed-price for: (i) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call and clearing the borehole location using vacuum excavation; (ii) borehole abandonment and surface restoration; and (iii) management of IDW. Detailed description of this work and any supporting documentation (e.g., waste manifests, etc.) shall be documented in a quarterly RAPR (Milestone E3).

Milestone E3 – Post-Remedial MNA Quarterly Monitoring, Sampling, & Reporting (Alternatives 1 and 2 only). For this milestone, bidders shall provide the Solicitor and PAUSTIF with firm quarterly fixed-price unit costs that would include quarterly groundwater, monitoring, and sampling of the on- and off-property monitoring wells, and reporting. For the purposes of this RFB, it is assumed that Milestone E3 activities will be required for a full six quarters following completion of the soil excavation (Milestone E1) and injections (Milestone E2A or Milestone E2B).

However, whether a bidder chooses remedial Alternative 1 or 2, each bid must specify the post-remedial timeframe (i.e., number of quarters) that the bidder will need in order to achieve the project goal of reducing groundwater contaminant concentrations to below residential SHS, enabling initiation of groundwater attainment demonstration (and, if required, soil attainment demonstration).<sup>17</sup> The bidder's realistic assessment of the total number of post-remedial quarters shall be defined on the Bid Cost Spreadsheet, and shall include the additional number of remediation quarters. For example, beyond six quarters specified in this RFB (i.e., if a bidder believes that eight post-remedial quarters would be needed, the additional number of quarters to be included on the Bid Cost Spreadsheet is two quarters). If the bidder's post-remedial timeframe exceeds the RFB-specified six quarters, the number of quarters exceeding six will be incorporated in the Remediation Agreement as Optional Cost Adder Milestone E3. Bidders shall assume that post-remedial monitoring will need to continue until the contaminant concentrations in all of the POC wells (as defined in Milestone F) 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 post-remedial monitoring would be discontinued, and attainment sampling shall begin.

The quarterly groundwater monitoring and sampling events will include the existing on-property well MW-2 and the replacement wells for MW-1, MW-3, and MW-4 (installed under Milestone E1),

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<sup>16</sup> The Remediation Agreement includes a Site Specific Assumption that the injection events will not exceed the one under Milestone E2B plus the one additional event under Optional Cost Adder Milestone E2B.

<sup>17</sup> If the groundwater data allows for discontinuing post-remedial quarterly monitoring activities prior to reaching the bidders specified timeframe, the selected consultant will only be reimbursed for post-remedial events that have been completed.

and the three existing off-property wells MW-5 through MW-7. If the Revised RAP proposes the use of fewer or more wells, this should be explicitly stated in the Milestone E3 response and accounted for in the bidder's Milestone E3 quarterly and total cost.

During each event, the depth to groundwater and any potential SPH shall be gauged in all available monitoring wells prior to purging any of the wells for sampling. Groundwater level measurements obtained from the monitoring wells shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient. The conduct and results of each event shall be documented in RAPRs. Any well exhibiting more than a sheen of SPH shall not be purged and sampled.<sup>18</sup> Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP NCRO guidance.

Groundwater samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Bidders shall specify the analytical methods to be used for the monitoring well samples and potable water well samples. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.<sup>19</sup> 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;
- 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

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<sup>18</sup> No SPH has historically been observed in any of the monitoring wells installed on- and off-property.

<sup>19</sup> Each bidder's approach to implementing Milestone E3 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.

one well above the SHS during the quarter;<sup>20</sup>

- 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;
- Detailed discussion of the injection event (performed for either for Milestone E2A or E2B);
- 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 F). If, in order to achieve the cleanup goals, it is necessary to extend the post-remedial quarterly monitoring beyond the RFB-specified six quarters, each additional quarter, up to the total number of the selected consultant's bid post-remedial timeframe, will be addressed via Optional Cost Adder Milestone E3. Selected consultant shall seek and obtain written approval from Solicitor and PAUSTIF to continue post-remedial quarterly events (Optional Cost Adder Milestone E3).<sup>21</sup>

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).

Milestone E4. Implementation of AS/SVE System Remediation (Alternative 3). Bidders pursuing Alternative 3 shall describe and specify the proposed AS/SVE system and prepare a fixed-price cost to implement the AS/SVE remedial approach as described in the RAP, or a slightly modified version to this approach as described by the successful bidder in the revised RAP. A response bid for Alternative 3 shall at a minimum include a detailed description of the proposed system operation, a list of major equipment along with specifications, a process flow diagram and Site

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<sup>20</sup> 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.

<sup>21</sup> The Remediation Agreement includes a Site Specific Assumption that post-remedial quarterly monitoring will be complete and attainment activities will be initiated within the timeframe Consultant has bid.

layout plan. The cost breakdown of the RAP-specified or modified version to the in-situ remediation system shall follow the format prescribed below.

Milestone E4A. Installation of Remediation System Wells / Extraction Trenches. Under this task, bidders shall provide a firm fixed-price cost for installing the wells / extraction trenches described in the RAP, or an alternative number of wells as the bidder shall detail in its bid response. 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). Each bid response must show the proposed locations for the remediation 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).

As described earlier, pilot testing is advised to assist how sparge air can be dispersed and captured in the veneer of overburden above the shallow water table. 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 AS/SVE. 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 or backfilled soil excavation).

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 (e.g., waste manifests, boring logs and construction details, etc.) shall be documented in a quarterly RAPR (Milestone E4F).

Milestone E4B. In-situ Remedial System Final Design, Equipment Purchase, and Assembly. Any equipment<sup>22</sup> that has moving parts or is part of the electronic control system (e.g. pumps, blowers, gauges, electrical sensors & switches) necessary to implement the revised RAP 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.

The proposed remedial system shall be equipped with telemetry, and 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 E4C. Site Preparation Work. The selected consultant shall obtain all necessary construction and operational permits and/ or permit exemptions and post same as required. Solicitor shall be provided copies of all permits / permit exemptions before field construction activities commence. On-site mark-out of buried utilities shall be completed in advance of any drilling or trenching activities. PA One Call notification shall be made and documented prior to drilling or trenching activities.

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

Milestone E4D. In-situ Remediation Equipment Pad, Trenching, Subsurface Piping, Mechanical, and Electrical. The selected consultant shall prepare the area where the remediation equipment and enclosure will be located as specified in the revised RAP or as otherwise directed by the Solicitor, including, if necessary, construction of a concrete pad. Each bid must provide the proposed location for the above-ground remedial equipment and enclosure on a site drawing. 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.

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<sup>22</sup> 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.

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, 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 E4E. 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 Administrator (ICF or its technical agent) 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 / trouble-shooting and when the system is fully operational to schedule an independent inspection visit by PAUSTIF's Administrator's technical agent.

The selected consultant will be responsible for acquiring any air discharge permit (if applicable), setting up, and operating a GAC system to treat the extracted vapor stream. The vapor extracted from the recovery wells shall be treated by a GAC system 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 GAC change-out. Costs for GAC change-outs will be handled on a unit cost basis so bidders will need to provide a comprehensive cost for GAC replacement inclusive of labor, equipment materials and disposal under Optional Cost Adder Milestone UC7 on the cost spreadsheet in Attachment 2. 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.

Milestone E4F. Remediation System O&M and Groundwater Monitoring, Sampling & Reporting (Alternative 3 only). 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 AS/SVE remedial system,<sup>23</sup> 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 E4F activities will be required for 8 quarters (2 years). However, each bid *must* specify the remediation timeframe (i.e., number of O&M quarters) that the bidder's proposed remedial approach will need in order to achieve the project goal of reducing soil and groundwater contaminant concentrations to below residential SHS, enabling initiation of groundwater and soil attainment demonstrations.<sup>24,25</sup> The bidders

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<sup>23</sup> 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.

<sup>24</sup> 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 revised RAP implementation that becomes damaged, destroyed, or defective.

<sup>25</sup> 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.

realistic assessment of remediation timeframe (total number of operating quarters) shall be defined on the Bid Cost Spreadsheet, and shall include the additional number of remediation quarters, beyond 8 quarters specified in this RFB (i.e., if a bidder believes it can complete the remediation in a total of 12 quarters of O&M, the additional number of quarters to be included on the Bid Cost Spreadsheet is four quarters). If the bidder's O&M remediation timeframe exceeds the RFB-specified 8 quarters, the number of quarters exceeding 8 will be incorporated in the Remediation Agreement as Optional Cost Adder Milestone E4F. Bidders shall assume that the remediation will need to continue until the contaminant concentrations in all of the POC wells (as defined in Milestone F) 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 selected consultant decides to discontinue O&M activities before all 8 Milestone E4F 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 E4F quarterly events are completed, the selected consultant will be required to wait a minimum of two months before initiating groundwater attainment activities (Milestone F). If during the first quarter of groundwater attainment, concentrations of contamination rebound above SHS in any POC well, the selected consultant shall be obligated to restart the system within 7 days and continue with the residual quarterly Milestone E4F activities. Then, **when all 8 quarters of the Milestone E4F activities have been completed (plus any or all of the Optional Cost Adder Milestone E4F quarters) and groundwater attainment activities are re-initiated, the selected consultant who initially pre-maturely 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 8 quarters of O&M under Milestone E4F.

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 air injection rates are achieved at the 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 existing on-property wells MW-1 and MW-2, the replacement wells for MW-3 and MW-4 (installed under Milestone E1), and the three existing off-property wells MW-5 through MW-7.<sup>26</sup> If the Revised RAP proposes the use of fewer or more wells, this should be explicitly stated in the Milestone E4F response and accounted for in the bidder's Milestone E4F quarterly and total cost.

During each event, the depth to groundwater and any potential SPH shall be gauged in all available monitoring wells prior to purging any of the wells for sampling. Groundwater level measurements obtained from the monitoring wells shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient. The conduct and results of each event shall be documented in RAPRs. Any well exhibiting more than a sheen of SPH shall not be purged and sampled.<sup>27</sup> Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP NCRO 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.<sup>28</sup> In addition, each event shall include field measurements

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<sup>26</sup> The fixed price cost shall also include any additional monitoring well(s) that the bidder proposes to install under Milestone A (if any).

<sup>27</sup> No measurable SPH has been observed in any of the site wells.

<sup>28</sup> Each bidder's approach to implementing Milestone E4F 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.

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;<sup>29</sup>
- 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;
- 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

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<sup>29</sup> 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.

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 F). If, in order to achieve the cleanup goals, it is necessary to extend the period of O&M beyond the RFB-specified 8 quarters, each additional quarter, up to the total number of the selected consultant's bid O&M remedial timeframe, will be addressed via Optional Cost Adder Milestone E4F. Consultant shall seek and obtain written approval from Solicitor and PAUSTIF to continue operation of the remedial system under Optional Cost Adder Milestone E4F.<sup>30</sup>

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 E4F, if implemented) will be withheld and accumulated pending successful completion of remediation and initiation of soil and groundwater attainment activities (Milestones F and G).** 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.<sup>31</sup> 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 E4G – Engineering Performance Evaluation (Alternative 3).** The selected bidder shall complete a performance evaluation of the remedial approach proposed in its PADEP-approved RAP. The performance evaluation shall determine if the remedial approach is efficiently and effectively remediating residual adsorbed- and dissolved-phase contamination and achieving the intent of the RAP design. The remedial performance evaluation shall be conducted after 2 to 3 months after the selected bidder has fully implemented the proposed site remedy. Milestone E4G shall culminate in a written report presenting the testing performed, conclusions reached and recommendations to address all discovered deficiencies and to improve remediation effectiveness. Recommendations may include both changes to operations and modifications /

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<sup>30</sup> 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.

<sup>31</sup> Lump sum payment request shall be made prior to the on-set of initiating Milestones F and G.

augmentations to the remedial design. All recommendations shall include estimated costs to implement and Solicitor may decide to accept or reject any or all recommendations. Should the selected consultant identify deficiencies and recommend actions to optimize remedial effectiveness, and the stakeholders agree with the necessity and appropriateness of one or more of the recommendations, then enabling contracting mechanisms will be explored at that time.

More specifically, the purposes of the performance evaluation shall include a critical analysis of:

- Sparge and SVE pneumatic influence measurements, as applicable, for the operating in-situ remediation system to ensure the RAP design is being achieved;
- Quantified dissolved- and vapor-phase contaminant mass recovery estimates, as applicable;
- Changes in groundwater quality and chemistry; and
- How the remedial approach is working relative to the plan and any deficiencies / planned corrective measures.

The bidder shall provide a detailed description of the: i) proposed performance evaluation and rationale for testing; ii) proposed methods; iii) use of existing or installation of new data monitoring/collection points; iv) proposed equipment to be used; and v) data that is proposed to be collected. Each bid shall also describe how the data/information would be evaluated.

Please note that all bidders of Alternative 3 shall propose conducting of a remedial performance evaluation for the selected site remedy.

The Milestone E4G proposal shall reflect an understanding that the selected bidder will prepare a draft and final version of the Remedial Performance Evaluation Report (RPER) for Solicitor and PAUSTIF Administrator's (ICF and its technical agent's) review and comment. The final RPER shall show that the performance evaluation testing was conducted according to the selected consultant's bid and shall constitute documentation for payment of Milestone E4G. As previously discussed, the RPER shall include recommended actions to address any operational deficiencies or remedial ineffectiveness / inefficiencies along with implementation capital and operational cost addition or reduction estimates. The written report shall be provided to Solicitor and ICF for technical review within three months of completing the remedial performance evaluation and shall serve as the basis for making decisions on the need for optimization of the remedial approach. Again, if the stakeholders agree that one or more of the recommendations are reasonable, necessary and appropriate, enabling contracting mechanisms will then be considered. The Milestone E4G activities shall also be reported in a concurrent RAPR.

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

events.<sup>32</sup> Each groundwater monitoring and sampling event shall include the sampling of on-property POC well MW-2 and replacement POC wells for MW-3 and MW-4, replacement interior monitoring well for MW-1, and off-property wells MW-5, MW-6, and MW-7. The conduct and results of each event shall be documented in quarterly RAPRs. If additional quarterly attainment events would be needed beyond eight quarters, the number of quarters exceeding eight will be incorporated in the Remediation Agreement as Optional Cost Adder Milestone F.<sup>33</sup> Consultant shall seek and obtain written approval from Solicitor and PAUSTIF to continue with quarterly groundwater attainment events (Optional Cost Adder Milestone F).

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 NCRO guidance.

Groundwater samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Bidders shall specify the analytical methods to be used for the monitoring well samples and potable water well samples. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.<sup>34</sup> 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:

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<sup>32</sup> 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.

<sup>33</sup> If it becomes evident anytime during the groundwater attainment demonstration (initiated subsequent to completing Milestone E3 or E4F) that the attainment demonstration will not be successful within the 8 quarters, and up to 4 additional quarters (Optional Cost Adder Milestone F) 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.

<sup>34</sup> 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.

- A summary of site operations and remedial progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered;
- Groundwater elevation contour maps depicting groundwater flow direction;
- Tabulated historical quantitative groundwater analytical results including results from the current quarter;
- Current quarter laboratory analytical report(s);
- One site-wide iso-concentration contour map for each compound detected in any one well above the SHS during the quarter;<sup>35</sup>
- 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 G – Post-Remediation Soil Attainment Demonstration.** Bidder's shall describe and provide a fixed price cost for soil attainment demonstration in the event that the post-excavation sampling conducted under Milestone E1 failed to demonstrate attainment, or if bidder has decided to propose Alternative 3 with its more limited soil excavation.

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<sup>35</sup> 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 G1. Post-Remediation Soil Attainment Demonstration (Remedial Alternatives 1 and 2).

This attainment sampling event would account for additional in-situ remediation induced by the ODP (Alternative 1) or CBI (Alternative 2) applied to the excavation and unexcavated areas. In this case, the successful bidder will need to demonstrate soil attainment in the areas surrounding the remedial excavation where the site characterization had identified excessive soil impacts above SHS for the unsaturated and periodically saturated soils on-property and in the roadway ROW for Filbert Street. Bidders shall describe using 2-dimensional systematic random sampling of the vertical space along the outside the perimeter of the excavated area. For the unexcavated area around the dispensers, bidders shall also describe using a 3-dimensional systematic random sampling of this area. The attainment sampling shall be completed to demonstrate attainment of these areas and each bid *must* describe in detail their approach at addressing soil attainment and include the depth interval and a drawing showing the locations where the sampling grid would be applied to demonstrate soil attainment.

The location / depth of the soil samples shall be determined using PADEP's systematic random sampling (SRSS) procedures, assuming one soil sample per boring shall be submitted for laboratory analysis. Alternate SRSS points shall be selected for any primary SRSS sample locations positioned within the clean backfill of the remedial excavation, the footprint of the dispensers / other UST equipment and the footprint any below grade utilities (i.e. UST infrastructure, public sewer, electric, natural gas). Soil samples shall be analyzed for the PADEP short list for ULG parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB). Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis. The soil sampling results shall be analyzed using PADEP's 75%/10x Ad Hoc Rule, which shall be documented in detail in the RACR.<sup>36</sup> Bidders are expected to describe the statistical methods available to determine whether the systematic random soil sampling results demonstrates attainment of the SHS.

**If the post-excavation soil sampling completed in Milestone E1 was able to demonstrate attainment for soils, then there would be no need for the supplemental post-remedial soil sampling outlined by this milestone.** The successful bidder will only be reimbursed for necessary tasks actually performed.

Milestone G2. Post-Remediation Soil Attainment Demonstration (Remedial Alternative 3). This attainment sampling event would account for additional in-situ remediation via the AS/SVE system that followed the limited excavation performed in Milestone E1. In this case, the successful bidder will need to demonstrate soil attainment in the areas surrounding the limited remedial excavation where the site characterization had identified excessive soil impacts above SHS for the unsaturated and periodically saturated soils on-property and in the roadway ROW for Filbert Street. Bidders shall describe using 3-dimensional systematic random sampling of the remaining soil impacts remediated via the AS/SVE system outside the limits of the soil excavation (i.e. north

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<sup>36</sup> The Remediation Agreement includes a Site Specific Assumption that the soil sampling data will allow for attainment of the selected standard.

and south of the dispenser island and roadway ROW). The attainment sampling shall be completed to demonstrate attainment of these areas and each bid *must* describe in detail their approach at addressing soil attainment and include the depth interval and a drawing showing the locations where the sampling grid would be applied to demonstrate soil attainment.

The location / depth of the soil samples shall be determined using PADEP's systematic random sampling (SRSS) procedures, assuming one soil sample per boring shall be submitted for laboratory analysis. Alternate SRSS points shall be selected for any primary SRSS sample locations positioned within the clean backfill of the remedial excavation and any existing below grade utilities (i.e. UST infrastructure, public sewer, electric, natural gas). Soil samples shall be analyzed for the PADEP short list for ULG parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB). Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis. The soil sampling results shall be analyzed using PADEP's 75%/10x Ad Hoc Rule, which shall be documented in detail in the RACR.<sup>37</sup> Bidders are expected to describe the statistical methods available to determine whether the systematic random soil sampling results demonstrates attainment of the SHS.

**Milestone H – Post-Remedial Vapor Intrusion Evaluation.** Bidders shall provide a firm fixed-price to conduct an evaluation of the indoor air exposure pathway post-remediation, which shall be consistent with the requirements, guidance document, “Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2”, dated January 18, 2017. As part of this evaluation, given the shallow depth of two feet for existing soil vapor sampling point VP-1, each bid shall include the abandoning of existing VP-1 and installing a sub-slab vapor monitoring point through the existing building floor and twice sampling the new sub-slab vapor point and each of the four existing soil vapor sampling points (VP-2 through VP-5). Since the benzene plume may extend to some degree onto the adjacent residential lot to the south, bidders shall re-examine vapor intrusion sampling requirements for the residential lot under the 2017 VI guidance and determine if the existing vapor sampling point (VP-2) is adequate and appropriate.<sup>38</sup> The adjacent lot's residential structure may have a basement but appears to lie further than 30 feet from MW-2.

Each of the five sampling locations shall be sampled twice post-remediation with each sampling event separated by at least 45 days. The samples shall be analyzed for the PADEP short-list of UGL parameters (BTEX, MTBE, cumene, naphthalene, 1,3,5-TMB, and 1,2,4-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Each bid shall include the location of the sub-slab sampling point on a drawing, describe their approach to installing the sub-slab sampling point in detail, sampling methods and analysis, screening values to be used, and schedule for when the sampling would be anticipated. Each bidder's approach to implementing this milestone shall clearly identify the number of sampling events, number of

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<sup>37</sup> The Remediation Agreement includes a Site Specific Assumption that the soil sampling data will allow for attainment of the selected standard.

<sup>38</sup> The Remediation Agreement includes a Site Specific Assumption that VP-2 can be used for vapor sampling.

samples per event, QA/QC measures and samples, analytes, analytical method, and other key assumptions affecting the bid price.

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

**Milestone J – Site Closure / Restoration Activities.** Under this milestone, the bidder shall describe and provide a fixed-price bid for properly closing the site, including: removal and recycling/disposal of remedial system components and in-place abandonment of below grade system piping (if remedial Alternative 3 implemented), proper disposal of any remaining wastes; in-place abandonment of all on- and off-property monitoring and remediation wells, and vapor monitoring points consistent with PADEP guidelines; well head removals; and re-vegetation, concrete / asphalt repairs, as necessary, for areas that have been disturbed by site characterization or remedial action activities. This task shall also include photo-documenting the site restoration work and completion / submittal of the well abandonment forms. Copies of these photographs and forms shall be provided for the Solicitor's files.

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

### **Optional Cost Adder Milestones**

A number of optional cost adders may come into play during the execution of the work under the contract associated with this RFB. Therefore, bidders shall provide unit pricing for these contingencies that are outside the base RFB scope. Note that before any work associated with these unit cost adders is conducted, the selected consultant shall provide a written request and detailed technical explanation for the USTIF Administrator's (ICF's and its technical agent's)

review and consideration. No Optional Cost Adders shall be implemented without prior written authorization from USTIF or USTIF's Administrator to proceed.

**Optional Cost Adder Milestone D – Additional Pre-Remediation Quarterly Groundwater Monitoring, Sampling & Reporting.** This supplemental groundwater monitoring may be needed if there are unexpected delays outside of the successful bidder's control ahead of, and during, PADEP's review/approval of the Revised RAP under this contract. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly unit fixed-price cost that would include the quarterly groundwater monitoring, sampling / analysis of the existing on-property wells MW-1 through MW-4 and existing off-property wells MW-5 through MW-7, and reporting beyond the two quarters specified in Milestone D.<sup>39</sup> The SOW for this unit cost adder milestone should follow Milestone D guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone E2A – Additional In-situ ODP Injection.** If a bidder has chosen remedial Alternative 1, this milestone will only be for one additional injection event of an ODP compound in the unexcavated dispenser island area and MW-2 vicinity. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm fixed price cost for one additional ODP injection event. The SOW for this unit cost adder milestone should follow Milestone E2A guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone E2B – Additional In-situ Carbon-based Sorption / Bioremediation Media Injection.** If a bidder has chosen remedial Alternative 2, this milestone will only be for one additional injection of a CBI agent (e.g. "Trap and Treat", "Plumestop", "COGAC", etc.) in the areas of the unexcavated soil around the dispensers and about MW-2. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm fixed price cost for one additional injection event. The SOW for this unit cost adder milestone should follow Milestone E2B guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone E3 – Additional Post-Remedial MNA Quarterly Groundwater Monitoring, Sampling, & Reporting (Alternative 1 & 2 only).** Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly unit fixed-price cost that would include the quarterly groundwater, monitoring, and sampling of the existing on-property well MW-2 and replacement wells for MW-1, MW-3, and MW-4, and existing off-property wells MW-5 through MW-7, and reporting beyond the timeframe specified in Milestone E3.<sup>40</sup> The SOW for this unit cost adder milestone should follow Milestone E4 guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

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<sup>39</sup> The fixed price cost shall also include any additional monitoring well(s) that the bidder proposes to install under Milestone A (if any).

<sup>40</sup> The fixed price cost shall also include any additional monitoring wells installed under Milestone A (if any).

**Optional Cost Adder Milestone E4F. Remediation System O&M and Groundwater Monitoring, Sampling & Reporting (Alternative 3 only).** 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 on-property wells MW-1 and MW-2, replacement wells for MW-3 and MW-4, and existing off-property wells MW-5 through MW-7, and reporting beyond the timeframe specified in Milestone E4F. The SOW for this unit cost adder milestone should follow Milestone E4F guidelines. As described in Milestone E4F, a 10% holdback will be applied to each Optional Cost Adder Milestone E4F payment. Each bid must include the rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone F – Additional Groundwater Attainment Demonstration.** Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly unit fixed-price cost that would include the quarterly groundwater, monitoring, and sampling of the on-property POC well MW-2 and replacement POC wells for MW-3 and MW-4, replacement interior well for MW-1, and off-property wells MW-5 through MW-7; and reporting beyond the timeframe specified in Milestone F. The SOW for this unit cost adder milestone should follow Milestone F guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

### **Additional Information**

In order to facilitate PAUSTIF's review and reimbursement of invoices submitted under this claim, the Solicitor requires that project costs be invoiced by the milestone identified in the executed Remediation Agreement. Actual milestone payments will occur only after successful and documented completion of the work defined for each milestone. The selected consultant will perform only those tasks/milestones that are necessary to reach the Objective identified in this RFB. Selected consultant will not perform, invoice, or be reimbursed for any unnecessary work completed under a milestone.

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

## List of Attachments

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information/Historic Documents
  - a. Figures 1 through 7
  - b. October 2019 Third Quarter 2019 RAPR
  - c. July 2018 Second Quarter 2018 RAPR
  - d. April 2018 First Quarter 2018 RAPR
  - e. January 2018 Fourth Quarter 2017 RAPR
  - f. October 2017 Third Quarter 2017 RAPR
  - g. May 2016 RAP
  - h. February 2015 SCR
  - i. Boring Logs and PADEP SCR & RAP approval letter
  - j. PENNDOT HOP Extension & Other Drawing