# Request for Bid

**Fixed-Price Bid to Result**

**Remediation to SSS Closure**

## Solicitor

**Lochgen LP**

**Former Rosemergy's Garage AKA D.B.A. The Market at Woodloch**

**1623 Route 590**
**Hawley, Pennsylvania 18428**

**PADEP Facility ID #: 52-01926** **PAUSTIF Claim #: 20110082(I)**

## Date of Issuance

**November 8, 2018**

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

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

## Calendar of Events

| Activity | Date and Time |
|---|---|
| Notification of Intent to Attend Site Visit | November 30, 2018 by 5 p.m. |
| Mandatory Pre-Bid Site Visit | December 4, 2018 at 1 p.m. |
| Deadline to Submit Questions | January 4, 2019 by 5 p.m. |
| Bid Due Date and Time | January 11, 2019 by 3 p.m. |

## Contact Information

| Technical Contact |
| --- |
| **Mr. Joseph Ozog, Jr., P.G.**<br>**Excalibur Group, LLC**<br>**91 Park Avenue**<br>**Windber, PA 15963**<br>joeozog@excaliburgrpllc.com |

All questions regarding this RFB and the subject Site conditions must be directed via email to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be **"Former Rosemergy's Garage AKA Lochgen, Claim #2011-0082(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 "Former Rosemergy's Garage AKA Lochgen, Claim #2011-0082(I) – SITE MEETING ATTENDANCE NOTIFICATION".** The name and contact information of the company participant should be included in the body of the email. Notification of intent to attend is appreciated; however, it is not required. Attendance at the Pre-Bid Site Meeting is mandatory.

### Submission of Bids

To be considered for selection, **one (1) hard copy of the signed bid package and one (1) electronic copy (one (1) PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact and the Solicitor. Bid responses will only be accepted from those companies that attended the Mandatory Pre-Bid Site Meeting. **The ground address for overnight/next-day deliveries is ICF International, 4000 Vine Street, Middletown, PA 17057, Attention: Contracts Administrator. The outside of the shipping package containing the bid must be clearly marked and labeled with "Bid – Claim # 2011-0082(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 has not been independently verified. Bidders may wish to seek out other appropriate sources of information and documentation specific to this Site. If there is any conflict between the general Site background and description provided herein and the source documents within Attachment 3, the bidder should defer to the source documents.

### Background Summary

The former Rosemergy's property encompasses ~1.8 acres on the north side of Hamlin Highway (PA S.R. 590) in Lackawaxen Township, Pike County near the town of Hawley, Pennsylvania. The subject property (or "Site") originally included a residential dwelling in the western portion of the Site along with commercial activities/operations in the eastern portion of the Site that included automotive repair, convenience store, and retail gasoline sales going back to 1965. The USTs & dispensers located in the southeastern portion of the Site were removed in 2011. Sometime during 2012/2013, the Site was purchased from multiple heirs of the Rosemergy family by Lochgen and redeveloped the Site with a new UST field and dispensing operations on a different area of the parcel. The parcel was also redeveloped to include a welcome center, convenience store, deli and offices for Lochgen real estate operations. More specifically, the Lochgen Site improvements included: a one-story commercial structure; a fuel island and canopy; below-grade storm-water infiltration gallery; and asphalt and concrete surfaces. A temporary, leased remediation equipment shed is also currently situated behind the commercial building. Figure 1 (Attachment 3a) shows the current Site development with Lochgen Site improvements along with notations indicating where the former UST system was generally located. Figure 1 also reveals the land use of adjacent properties, which generally consists of vacant undeveloped land with some residential structures.

### Release History

The Site was formerly operated as an automotive repair facility, convenience store, and retail gasoline sales from around 1965 until sometime in 2010 when all operations ceased at the Site. The unleaded gasoline (ULG) release associated with PAUSTIF Claim #2011-0082(I) was discovered in 2011 during a Phase II Environmental Assessment (Phase II). A succession of site investigations followed the 2011 ULG release discovery culminating in remediation via a dual-phase extraction (DPE) system.

There have been other subsurface investigations at the Site that are not associated with the 2011 ULG release, including a Phase II investigation in 1996, soil sampling in 2003, and test pits/soil sampling in 2013.

During the 1996 Phase II, four soil borings were advanced around the former UST system. These soil samples were only analyzed for TPH and lead (no analyses were performed to evaluate the presence of individual petroleum contaminant compounds). Although one of the soil samples appears to have exceeded the PADEP TPH standard existing at the time, it appears no release was reported to PADEP following the 1996 investigation.

A 2002 soil sampling investigation was performed off-property to the south on the opposite of PA S.R. 590 when contaminated soil was reportedly encountered during installation of a potable water line. None of the 2002 soil samples exceeded PADEP's Statewide Health Standards (SHS), and PADEP reportedly did not require any further investigation.

A 2013 and earlier investigations examined environmental conditions outside of the UST area on the northern portion of the Site where automobile parts had reportedly been buried. The buried automobile parts were reportedly removed along with impacted soils in connection with Lochgen's redevelopment in 2012. Confirmation soil samples collected after the automotive parts / soil excavation were reportedly below PADEP's applicable SHS.

2011 Unleaded Gasoline Release (Claim #2011-0082[I])

The 2011 ULG release was discovered during a Phase II investigation performed at the Site in June 2011 in connection with Lochgen's planned acquisition of the parcel. The Phase II investigation included advancing three soil borings (SB-001, SB-002, and SB-003) around the idled UST system in the southeastern portion of the Site. Three soil samples and one grab water sample (SB-001) were collected from these borings and analyzed for ULG contaminants. Petroleum staining and odors were evident in all of the soil borings, with concentrations of benzene, toluene, 1,2,4-trimethybenzne (1,2,4-TMB), and 1,3,5-trimethylbenzene (1,3,5-TMB) exceeding PADEP's SHS in the soil samples collected from SB-001 and SB-003 closest to the UST system. PADEP's SHS were also exceeded for benzene, toluene, ethylbenzene, xylenes (BTEX); naphthalene, and both TMBs in the one grab groundwater sample from SB-001. PADEP was notified of a confirmed unleaded gasoline release, of an unknown quantity and cause, in July 2011.[1] The locations of the 2011 Phase II soil borings triggering the new release declaration are shown on Figure 2 in Attachment 3a.

In September 2011, the idled UST system, consisting of two 2,000-gallon gasoline tanks (Tanks 001 and 002), one 1,000-gallon diesel tank (Tank 003) along with associated piping & dispensing equipment/features, were excavated and removed. During the excavation / removal work, subsurface petroleum impacts were observed throughout including an oily sheen on the water pooled in the excavation pit. The dispensers or piping connections under the dispenser island were identified as likely sources of the subsurface contamination.[2] Approximately 100± tons of

[1] Notification of Reportable Release form, signed July 7, 2011.
[2] UST Closure Report, dated October 14, 2011.

soil were reportedly removed from the Site for disposal. A total of 8 post-excavation soil samples were collected from beneath each of the three tanks. Concentrations of naphthalene and 1,2,4-TMB in the post-UST excavation samples exceeded PADEP SHS.

**Site Characterization & Interim Remedial Activities**

Site characterization associated with PAUSTIF Claim # 2011-0082(I) was initiated in March 2012 by Bluestone Environmental (Bluestone). These activities were continued by Converse Consultants (Converse) when it took over environmental consulting services in 2013. The characterization activities included: advancing 20 on-property soil borings (SB-8 through SB-27); collecting / analyzing soil samples from select soil borings; installing 22 monitoring wells (MW-1 through MW-22)[3]; collecting / analyzing groundwater samples from the 22 monitoring wells on a quarterly basis; installing and sampling three soil vapor points; collecting / analyzing off-property indoor air samples; and collecting / analyzing samples from two off-property private potable water wells. The locations of the 2012 soil borings are shown on Figure 3 in Attachment 3a. Monitoring well locations are provided on Figure 4 (Attachment 3a).

Soil borings advanced to a depth of ~11 to 15 feet below grade reportedly identified unconsolidated deposits that consist mainly of a mix of silt and sand with varying amounts of gravel and containing some clay (glacial till). Wet soil conditions during drilling were reportedly first encountered at a depth of ~4 to 9 feet below grade. Bedrock was not encountered in the advancement of the soil borings, however refusal on cobbles within the glacial till was encountered in some of the borings.

A total of 20 soil samples were collected from on- and off-property soil borings, with all of the soil samples apparently collected from either the periodically saturated zone (or smear zone) or the permanently saturated zone. Concentrations of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5-TMB were found to exceed the PADEP SHS in soil samples collected within the smear zone. Only benzene and 1,2,4-TMB exceeded the PADEP SHS in soil samples collected from the permanently saturated zone. The area where smear zone soil impacts exceed PADEP SHS is generally in the southeastern portion of the Site in the area of the former (pre-2012) UST system, with the highest concentrations located near the right-of-way (ROW) for PA S.R. 590 (Figure 5). Given the location of the identified soil impacts, it appears smear zone soil impacts likely extend beneath PA S.R. 590 where construction and utility worker exposures to the soil and groundwater contamination could occur in the future.

There are 21 monitoring wells historically used to evaluate groundwater quality and flow direction consisting of: (a) on-property wells MW-1R, MW-2 through MW-4, MW-5R, MW-7, MW-12 through MW-15, and MW-17 through MW-19 and; (b) off-property wells MW-8 through MW-11, MW-16,

[3] Wells MW-1, MW-5, and MW-6 were destroyed in 2013 during site construction activities. Wells MW-1 and MW-5 were replaced in 2013 with wells MW-1R and MW-5R.

and MW-20 through MW-22. In its Q1 2018 RAPR, Converse requested PADEP's authorization to suspend further sampling of "clean" wells MW-17, MW-18 and MW-19. Subsequently, in a letter dated 6/28/18, PADEP approved the removal of wells MW-17, MW-18, and MW-19 from the quarterly sampling events.

Monitoring wells are variously installed to depths ranging between ~15 and 19 feet below grade. Static groundwater levels within the on-property monitoring wells are highly variable. They have ranged from ~1.5 to 10 feet below top of casing (TOC) in the area of the former UST system in the southeastern portion of the Site and on the adjoining property to the east. They have ranged from ~4 to 16 feet below TOC in other areas of the Site. Water levels to the south, on the opposite side of PA S.R. 590 (off-property) have ranged from ground surface to ~6 feet below TOC.

Groundwater flow has been depicted to be multi-directional from the former UST cavity area in the southeastern corner of the Site presumably associated with groundwater mounding in this backfilled area. Overall groundwater flow appears to be generally in a westerly direction with a hydraulic gradient of ~0.05 foot/foot. Topographically, the site is reportedly located near the saddle point divide that separates surface flow to the north towards Little Teedyuskung Lake located ~1,200 feet from the Site, from surface flow to the southeast and east towards creeks located ~2,200 feet from the Site that drain into the Lackawaxen River (~7,500 feet south of Site).

The dissolved ULG contaminant plumes are generally centered on the former UST / dispensing system area and extend onto the adjoining property to the east and to the south beneath PA S.R. 590 and onto a residential property south of PA S.R. 590. However, significant concentrations of ULG contaminants also have extended west to MW-7 from the former UST / dispensing area suggesting a preferential groundwater / contaminant flow pathway. Monitoring well MW-5R located within the former tank field (source area), and downgradient wells MW-1R and MW-7 have consistently exhibited the highest concentrations of the contaminants of concern (COC), with concentrations of benzene, ethylbenzene (only at MW-5R), MTBE, naphthalene (only at MW-5R), and 1,2,4-TMB exceeding SHS. Other wells surrounding the former UST system (MW-2, MW-3, and MW-10) also are impacted with contaminants exceeding SHS for benzene, MTBE, and 1,2,4-TMB at similar or lower concentrations than at MW-5R, MW-1R, and MW-7. Groundwater in off-property well (MW-9), located to the south on the opposite side of PA S.R. 590, also contains benzene above SHS. The extent of the contaminant plumes for the COC exceeding SHS in the groundwater are shown in the 3rd quarter 2018 Remedial Action Progress Report (RAPR) (see Attachment 3b).

The DPE remediation system was temporarily idled ahead of the Q2 2018 sampling in order to gauge the degree of post-remediation contaminant rebound that might be expected at this Site due to secondary source material. This round of sampling was also expanded to include samples from remediation system DPE wells to provide a better resolution on contaminant distribution. The results of the Q2 2018 groundwater sampling are provided in Attachment 3c. The data show an usually large reduction of dissolved UGL contaminants in many wells, inconsistent with

historical concentrations and trends. These groundwater samples were collected when the groundwater levels were at historically high (shallow) levels and within days of a >1-inch rainfall event during a usually wet spring. The sudden unexpected drop in groundwater UGL contaminant concentrations during Q2 2018 appears to be an artifact of the unusual weather-related hydrogeologic conditions rather than sudden phenomenal remedial progress.

Soil vapor samples were collected from SV-1/VP-1 through SV-3/VP-3 located between the source area and the Site building (SV-1/VP-1 & SV-2/VP-2) and between the source area and the off-property residence to the south (SV-3/VP-3). The sampling points were each sampled twice (2/4/14 and 3/7/14). None of the sampling results exceeded PADEP's soil gas screening levels (pre-2017 Vapor Intrusion Guidance).

Indoor air sampling at the residential property to the south of the Site was conducted on 6/18/14 and 12/16/14. None of the sampling results had exceedances of PADEP indoor air screening levels (pre-2017 Vapor Intrusion Guidance).

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

Ahead of this competitive bid, Solicitor elected to change the cleanup goal from SHS to Site-Specific Standards (SSS) for soil and for groundwater. Solicitor understands and accepts that SSS closure will likely require certain deed restrictions on the subject property (e.g., groundwater use prohibition, vapor intrusion mitigation, soil management plan, etc.) to eliminate exposure pathways, as necessary. However, Solicitor's SSS goal also is for the remedy to sufficiently address dissolved impacts that have encroached on neighboring properties such that post-remedial care monitoring of adjacent property land use (e.g., groundwater wells) is NOT necessary. Therefore, the off-site groundwater will need to be remediated sufficiently that future off-site land uses are not limited or impeded in any way. Solicitor also understands that roadway worker exposures cannot be controlled via institutional controls (e.g., deed restrictions) so remediation will need to be adequate to ensure that the contamination within the roadway right of way will not pose an excessive risk to roadway workers now or in the future.

The previous SHS goal had been established in a March 2016, an Updated Site Characterization Report and Remedial Action Plan (Updated SCR / RAP). This document prescribed installing / operating a DPE remedial system to remediate residual soil and groundwater impacts to non-residential SHS for soils and residential SHS for groundwater. PADEP approved the document (with no comments/modifications) via letter to the Solicitor dated May 5, 2016. The RFB Work Scope (below) includes reporting to PADEP of Solicitor's change of cleanup goals from SHS to SSS.

The DPE system described in the current SCR/RAP was installed during Q2 2016. Testing, trouble-shooting and system modifications occurred over Q3 and Q4 2016. Finally, the DPE system was activated on December 29, 2016.

The DPE system is designed to extract vapors and groundwater from a single vacuum pump via down-well drop tubes at a total of 10 on-property wells, DPE-1 through DPE-8 and MW-1R and MW-4, installed to a depth of 15 feet below grade (Figure 6 in Attachment 3a). Each of the extraction wells are 2-inch diameter PVC, screened from 2.5 to 15 feet below grade, with the drop tubes set at ~12.5 feet below grade in each of the extraction wells with both groundwater and vapor recovery being accomplished by one rotary-lobe vacuum blower. It is noteworthy that the subsurface components of the DPE system (i.e. extraction wells and piping) were installed early during Site redevelopment / construction activities and prior to completing the site characterization or RAP / design.

The DPE system subsurface piping is configured to extract from the 10 wells using two suction "Legs" (Leg A and Leg B) with five extraction wells manifolded to each Leg. Extracted groundwater and vapors are treated via activated carbon[4] prior to discharge, with treated water discharged via a NPDES permit to a subsurface storm water infiltration area underneath a driveway/parking area on the north end of the Site. Steady state total groundwater extraction rates cumulatively from all wells have typically been less than one gallon per minute (gpm) under an applied vacuum of ~11 inches of mercury (inHg). Under this applied vacuum, soil vapors are reportedly extracted at a total flow rate of approximately ~350 standard cubic feet per minute (scfm). The DPE extraction occurs via a 15-HP Howden Roots 45 U-RAI rotary lobe blower.

The remediation equipment shed and equipment inside the shed are currently leased to Solicitor.

[4] Initially, extracted soil vapors were treated using a catalytic oxidizer but the oxidizer was replace with vapor-phase GAC after approximately 6 months.

## Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the SOW specified herein. PADEP – Northeastern Regional Office (NERO) was given the opportunity to review the SOW, and did not provide any comments to the SOW.

**Objective**

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

1) **Alternative 1 – Limited period of additional extraction from the existing network of DPE wells and several strategically placed new DPE wells**. This alternative would include purchasing and installing new above-ground system components and installing strategically placed additional DPE well(s). For the purposes of fixed price bidding, this alternative assumes an operation and maintenance (O&M) timeframe of <u>two full years</u> (85% operational efficiency) after which a demonstration may be made that (a) the groundwater contaminant plumes are stable; (b) off-property soil and groundwater do not pose excessive risk to roadway workers in adjoining roadway; and (c) no post-remedial care monitoring of adjacent off-property locations is necessary, OR;
2) **Alternative 2 – Limited period of additional extraction from the existing network of DPE wells and several strategically placed new DPE wells plus an enhanced aerobic bioremediation program.** This alternative would include purchasing and installing new above-ground system components, and installing additional DPE well(s). Additionally, the DPE remediation would be augmented with oxygen releasing compounds (ORC) injections in both on- and off-property areas. For the purposes of fixed price bidding, this alternative assumes an O&M timeframe of <u>one full year</u> (85% minimum operational efficiency) after which a demonstration may be made that (a) the groundwater contaminant plumes are stable; (b) off-property soil and groundwater impacts do not pose excessive risk to roadway workers in adjoining roadway right-of-way; and (c) no post-remedial care monitoring of adjacent off-property locations is necessary.

Each bidder shall propose one of these two 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 <u>*must*</u> respond <u>*in detail*</u> to each of the milestones, including <u>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</u>. "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 SSS's via pathway elimination for soils and groundwater.

Selecting one of the two remedial approaches as discussed 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 2011 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:[5]

- 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,

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

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:

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

**Field Activities.** All on- and off-site work should be conducted during the normal business days and hours of 8:00 AM to 5:00 PM from Monday through Friday, unless work outside of these

normal business days and hours is authorized by the respective Solicitor / property owner. The selected consultant will be responsible for determining and adhering to the restrictions discussed in this section that apply to the Site.

Summers, weekends, holidays and Tuesdays are particularly busy days at the Site. The selected consultant should, avoid any significant work (i.e. drilling, well installation, excavation/trenching, etc.) during the summer season and on the days identified above and ideally conducting these intrusive activities on Mondays, Wednesdays and Thursdays. In any event, the Solicitor requires that the parking lot on the south side of the Site building needs to be kept open for 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.

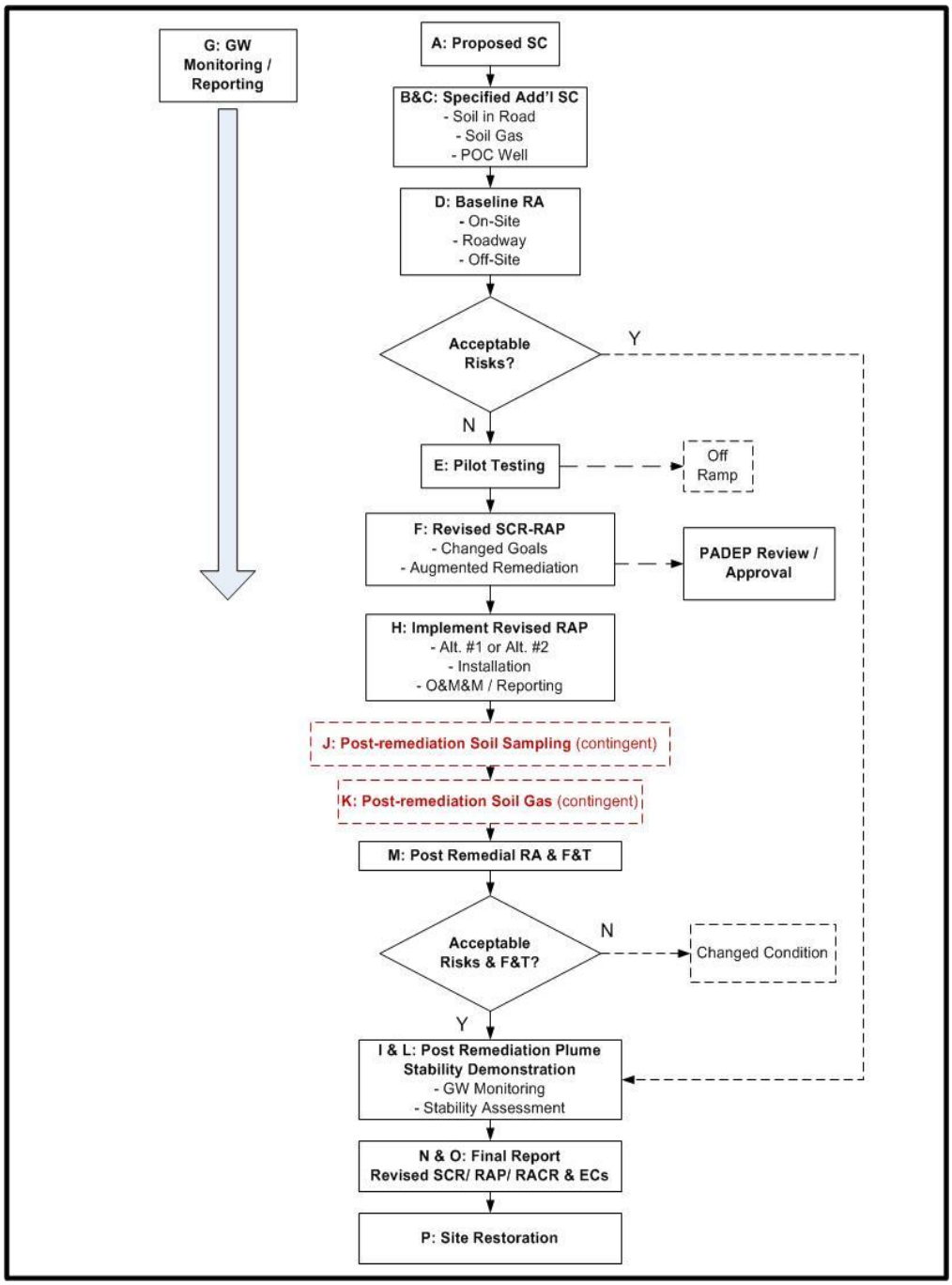
**Investigation Derived Waste Disposal.** The investigation derived waste (including, but not limited to, soil/rock cuttings, used carbon, well development/purging liquids, and groundwater during pilot testing activities) shall be disposed per the instructions included in the “General SOW Requirements” section of the RFB. Bidders will be responsible for arranging any off-site waste disposal (if required) and including costs in their bid response to cover the disposal of all potential waste related to the milestones included in the SOW. Containerized soil and groundwater may be temporarily stored on-site, but should be removed from the site in a timely manner. Bidders will be responsible for including costs in their bid response to cover the disposal of all potential

waste related to the milestones included in the SOW. Each bidder should estimate the volume of waste using its professional opinion, experience and the data provided. **PAUSTIF will not entertain any assumptions from the selected bidder in the Remediation Agreement with regards to a volume of waste. Invoices submitted by the selected bidder to cover additional waste disposal costs as part of activities included under the fixed-price Remediation Agreement for this site will not be paid.**

## Site-Specific Milestones

A flow chart of the RFB milestones is depicted as Figure A. Details for each of the RFB milestones is provided below.

**Figure A**



**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 system design which are characterization-type activities (e.g., analysis for $C_4$-$C_{10}$); 4) assist with refining the cleanup timeframe estimate and/or other reasons related to validating the bidder's remedial approach and design (e.g., additional sampling to better determine mass in place). Note that all tasks and costs related to pilot testing and reporting must be captured under the Pilot Testing and Reporting Milestone, not Supplemental Site Characterization Activities and Reporting. If pilot testing tasks and costs are included in this Site Characterization Milestone, the bidder's technical score will be negatively impacted.

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

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 Converse's March 2016 Updated SCR and RAP (Attachment 3i), and other previous SCRs and July 2015 RAP (Attachments 3k) and the other documents provided in Attachment 3, rather than relying solely on the summary information presented in this RFB.

Example potential activities for bidders to consider may include tasks such as – advancing additional soil borings to assist in defining the extent of unsaturated / smear zone soil contamination (i.e. in area of MW-7) and / or to evaluate remedial progress in the former UST / dispenser area. 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[6] activities shall be documented as discussed in Milestone F. If the baseline risk assessment (Milestone D) has determined that there are no excessive human health risks on- and off-property, then the Milestone A activities shall be discussed in Milestone N.

**Milestone B – Additional Soil Characterization and Installation of Point of Compliance Well.** Bidders shall address this milestone with providing a detailed work scope and fixed price cost for additional soil characterization/delineation within the adjoining roadway (PA S.R. 590) south of the Site and install an additional monitoring well near existing well MW-4. Given the existing soil data, it can be assumed that soil impacts extend beneath adjoining PA S.R. 590; however, the magnitude and extent is unknown, and the additional data is necessary to delineate the soil impacts, evaluate remedial efforts, and evaluate uncontrollable human health exposure risks. Each bid response must explain its approach in detail, rationale, and must show the proposed soil boring locations on a site drawing.

Also, since MW-4 is a designated on-property point-of-compliance (POC) well and is currently being utilized as an extraction well for the existing DPE system, a replacement POC well shall be installed near MW-4. Each bidder shall independently consider the final location relative to utilities; bidder's own interpretation of groundwater flow variations; and configuration of the dissolved-phase plume. Each bidder in their bid response must show the proposed location for the monitoring well on a site drawing. The replacement POC well shall be constructed similar to existing well MW-4 and shall be constructed in general accordance with the PADEP Groundwater Monitoring Guidance Manual. The replacement POC well shall be sampled twice (initial and confirmation event) within two months with the samples analyzed for the COC for ULG. No soil samples will be collected from the well borehole for laboratory analysis.

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 locations using vacuum excavation; (ii) borehole

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

abandonment and surface restoration; (iii) well development activities; (iv) management of IDW; (v) roadway traffic control meeting state and local requirements; and (vi) professional surveying of the new well location and top-of-casing elevations. Boring advancement, well installation and development, along with supporting documentation (e.g., waste manifests, boring logs and construction details, etc.) shall be documented in the combined Revised SCR/RAP (Milestone E) or if Milestone E found not necessary, then the combined revised SCR/RACR (Milestone N).

In addition, within the fixed price for this milestone, bidders shall include the work necessary to negotiate and secure access to off-property locations to complete work within this RFB.

**Milestone C – Vapor Intrusion Evaluation.** Bidders shall provide a firm fixed-price to conduct a re-evaluation of the indoor air exposure pathway to be consistent with the requirements, guidance document, "Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2", dated January 18, 2017. As part of this evaluation, each bid shall include the installation and sampling of three on-property vapor sampling points. Each of the sampling events shall be completed twice and separated by at least 45 days. The samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,3,5-TMB, and 1,2,4-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Results shall be used to determine if excessive indoor air human health risks may exist requiring mitigation and / or land use restrictions. Each bid shall describe their approach in detail, including the installation details for the vapor points, sample locations provided on a drawing, sampling methods and analysis and schedule for when the sampling would be anticipated. Each bidder's approach to implementing this milestone shall clearly identify the number of sampling events, number of samples per event, QA/QC measures and samples, analytes, analytical method, and other key assumptions affecting the bid price.

**Milestone D – Baseline Risk Assessment.** Each bid response shall describe their work scope and provide a fixed price cost for an exposure evaluation and baseline risk assessment relative to contaminants in soil, groundwater, and vapors. A residential / commercial well use survey and evaluation of local groundwater ordinances shall be performed, as well as research concerning zoning ordinances, flood zones, and future land use plans for the properties in the area of concern. Should the exposure pathway analysis determine potentially complete exposure pathways, a risk assessment shall be performed with comparing residual soil and groundwater contaminant levels against applicable soil and groundwater screening criteria[7]. For those soil and groundwater contaminants passing through the screening criteria, the human health exposure risks shall be quantified. If human health risks are excessive (organ-specific HI >1 and /or carcinogenic risk of

[7] Based on discussions with the PADEP, constituent concentrations are to be screened against the USEPA RSLs and not against the PADEP Statewide Health Standards (SHS). Only those constituents that do not screen out against the risk-based screening levels remain as COPCs for the exposure pathway analysis and/for demonstrating attainment of the PADEP SHS or a risk-based numeric Site Specific Standard.

>1 x 10-4), then appropriate land use restrictions for the spill property shall be identified to eliminate the pathway causing the excessive human health risk.

Bidders shall assume that the residual soil and groundwater contaminant risks will need to be separately evaluated for exposures: (a) on the spill property; (b) in the PA SR 590 roadway / right-of-way; and (c) on off-property parcels across SR 590 and to the east.

The risk assessment shall encompass an exposure assessment, toxicity assessment, and risk characterization. The identification of exposure pathways for the Site shall be based upon guidance from the American Society for Testing and Materials (ASTM) and the United States Environmental Protection Agency (USEPA), as required by Act 2, Section 250.404. The risk assessment deliverable shall include separate Exposure Pathway Flowcharts graphics for (a) On-Site; (b) Off-site; and (c) roadway right-of-way to support the risk assessment text. These charts shall graphically depict the thought process in identifying the potentially complete pathways for each of the three areas. The exposure evaluation charts shall include the exposure pathway steps of Constituent Source, Receiving Media, Transport Mechanisms, Exposure Routes and current and future human receptors (i.e., facility workers, construction workers, trespassers, residents, and recreational users and others).

The risk assessment shall identify the site soil and groundwater samples used in the risk assessment, show how the constituents of interest (COI) were identified and present the COI for each contaminated media with a potentially complete pathway to a human receptor. Additionally, the risk assessment shall show how the risk assessment exposure point concentrations (EPCs) were calculated[8] for each contaminated media with a potentially complete human exposure pathway and summarize the calculated EPCs.

For each potentially complete exposure pathway, the level of carcinogenic risk shall be quantified, and the total cumulative carcinogenic risks shall be calculated. Non-carcinogenic risks shall be calculated using the hazard index. Exposure and toxicity assumptions shall be presented and well documented in the risk assessment report along with an uncertainty analysis.

The risks shall be assessed in order to determine what pathway elimination land use restrictions may / may not be required for the spill site prior to completing the remediation. For example, bidders shall determine which of the following on-site restrictions or others would be necessary to reduce the human health risks to acceptable levels (without the benefit of additional remediation).

- No potable water wells;
- No residential land use;

[8] EPCs shall be derived for COIs by statistical analysis (maximum concentrations shall not be used for EPCs).

- Vapor barrier on future building construction;
- Vapor mitigation (engineering control) on existing structures (e.g., radon type venting) if current vapor intrusion risks are excessive[9]; and
- Soil management plan for future digging on excessively contaminated portions of property.

Bidders shall assume that no environmental covenants / land use restrictions will be implemented at adjoining off-property locations and that no post-remedial care inspections of the off-property locations will be needed due to the anticipated successful remediation. Bidders shall also assume that PADEP will provide an environmental covenant waiver with respect to future installation of potable wells in the roadway right-of-way for PA S.R. 590. With respect to vapor intrusion, bidders shall perform the work 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.

Bids shall provide a detailed description of how bidders will evaluate the on- and off-property Construction Worker vapor inhalation pathway including how it will estimate the Construction Worker vapor EPC. If a model is to be used to estimate the vapor concentrations, bidders shall identify the model and the input assumptions that will be used (e.g., trench width and depth dimensions, wind speed / direction, etc.).

In addition, an ecological screening assessment shall be updated to determine if the site poses an unacceptable risk to ecological receptors. The screening assessment shall be conducted in accordance with Section IV.H of the Pennsylvania Land Recycling Program's Technical Guidance Manual and USEPA Region 3 risk assessment screening criteria insofar as is necessary for determining any potential ecological risk.

If the exposure evaluation and risk assessment determine that the institutional controls identified above (if necessary to implement) are sufficient to render the existing contamination safe under current and future site use conditions (restricted as necessary on-property), and there are no excessive human health risks in the PA SR 590 roadway and at off-property locations to the east and on the opposite side of PA SR 590 (i.e., no post-remedial care requirements), then additional remediation (Alternative 1 or Alternative 2) would NOT be implemented (Milestone H). In addition, the pilot testing (Milestone E) and reporting under Milestone F would NOT be implemented, as the remaining work would include quarterly monitoring to demonstrate plume stability and reporting the work completed in Milestones A, B, C, and D in a combined SCR/RACR (Milestone N). See flow chart (Figure A)

[9] If vapor mitigation is required on current commercial buildings, design and implementation of such VI mitigation system would be consider a New Condition under the contract.

Should excessive human health risks exist in the PA SR 590 roadway and at off-property locations east and/or on the opposite side of PA SR 590, then additional remediation (Alternative 1 or Alternative 2) would be implemented (Milestone H). The risk assessment shall identify the media and location-specific numerical contaminant concentrations (exposure point concentrations) that would not present an excessive level of risk as the cleanup goal to be addressed by the RAP (Milestone F). See flow chart (Figure A).

The exposure evaluation and baseline risk assessment shall be first submitted in draft form to the Solicitor and PAUSTIF for review and comment before being finalized and incorporated in to the revised SCR (Milestone F) or if Milestone F is determined not necessary, then be incorporated into the revised SCR for Milestone N. 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.

It is possible that the baseline risk assessment could show that there are no excessive human health risks on- or off-site. If so, the additional remediation and related milestones would not be necessary to implement and not be reimbursable. However, for the purposes of this bid it is assumed that the baseline risk assessment will find excessive human health risks associated with contamination on unrestricted off-site properties and / or the spill site. As such, **each bidder shall provide costs for all the milestone work elements listed in this RFB.**

**Milestone E – Pilot Testing and Reporting.** Each bidder shall submit with its bid a DPE well testing plan / approach and any other testing needs (e.g., buried piping integrity testing) in order to produce the site-specific information, it believes is necessary to move forward with bidder's selected remedial alternative. The testing plan shall describe why each component is necessary relevant to bidder's conceptual augmented DPE conceptual design.

The pilot testing plan shall be designed to confirm / establish:

- The proposed approach is technically feasible;
- The proposed approach can be expected to be meet or exceed the remedial scenario timeframe assumptions; and
- The critical remedial design criteria for the "off-ramp" provision discussed below.

The bidder shall provide a detailed description of the proposed pilot testing, objectives and rationale, including identifying any concerns with the project file pilot testing, perceived existing data gaps, proposed methods, 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 identify problems/concerns with the existing DPE approach and how the proposed pilot testing will investigate these problems/concerns**.

Additionally, the bidder shall specify up to five basic, objective criteria that would be evaluated to determine whether the remedial action proposed in the bid response document 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 the 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 Y pilot testing must show:

1. A hydraulic conductivity greater than A, but not more than B;
2. A groundwater extraction rate exceeding AA gpm at the end of BB hours;
3. A pneumatic radius of influence (ROI) greater than CC and hydraulic ROI of greater then DD;
4. The capacity to generate a soil vapor extraction vacuum of at least X in the native soil while not exceeding a soil flow rate of Y; and,
5. 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 by the bid evaluation committee as part of the technical review. Unrealistic critical criteria or critical criteria that are unreasonable narrow will reduce the favorability of the bid as viewed by the bid evaluation committee.

The 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 E 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, the selected consultant shall move forward on the project. The Milestone E activities shall also be included in the reporting for Milestone F.

**"Pilot Test Off-Ramp"** – The selected consultant and the Solicitor are protected from being obligated to move forward with a remedial action under the executed Remediation Agreement if the proposed remedial approach cannot be implemented as proposed in the conceptual design based on critical criteria outside the bidder's defined ranges from the pilot test data from Milestone E. 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 E, 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 E could not have reasonably been expected prior to conducting the Milestone E 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 E 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 P (excluding E) is determined to be $300,000, the fixed-price cost of Milestone E 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 P (excluding E) is determined to be $550,000, the fixed-price cost of Milestone d specified on the bid cost spreadsheet shall be up to, but not exceed $50,000.

**Milestone F – Preparation/Submittal of a Combined Revised SCR/RAP.** Upon completing Milestones A through E described above, a combined Revised SCR/RAP shall be prepared to document the supplemental site characterization activities/findings, pilot testing, and the details of the revised remedial approach including changing of the closure goals to SSS. This Revised SCR/RAP shall contain all necessary information required under 25 PA Code §245.310 and §245.311 and be of sufficient quality and content to reasonably expect PADEP approval.

The combined report shall document, describe, and evaluate all findings provided from Milestones A through E, incorporate information and relevant findings from the previous site documentation (as necessary), and contain all necessary and appropriate figures, tabulated data, and appendices to comply with the regulatory requirements for and to obtain PADEP approval of these documents. The report shall include updating the conceptual site model (CSM) for the Site and its vicinity based on evaluating the results of the site characterization tasks outlined above and include appropriate fate and transport modeling. For fate and transport modeling, PADEP's New Quick Domenico model may be appropriate for this site because groundwater appears to be present in the unconsolidated natural soils; however, prior to implementing this task, the selected consultant shall contact the PADEP project officer for his/her input on the type of modeling to be performed.[10] Information contained in the prior site investigation reports may also be referenced.

The RAP shall identify the media and location-specific numerical contaminant concentrations (exposure point concentrations) that would not present an excessive level of risk as the cleanup goal to be addressed by the RAP.

At a minimum, whether remedial Alternative 1 or 2 is chosen, modifications to the existing remedial approach shall include replacing the existing above-ground remedial system components, and installation/connection of the additional recovery well(s) proposed by the bidder. Under remedial Alternative 2, the remedial modification would also include ORC injections both on- and off-property.

The combined Revised SCR/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 combined SCR/RAP.[11]

The successful bidder will be eligible to receive payment for 75% of the bid amount for Milestone F when there is proof the document has been completed and submitted to PADEP. The 25%

[10] Should the PADEP subsequently disagree, this new requirement will constitute a "new condition" under the Fixed-Price Agreement.
[11] All figures included in the RAP Addendum or Revised RAP (e.g., site plan, remedial design layout, etc.) shall be available in electronic format to the Solicitor upon request.

balance will be due for reimbursement once proof has been provided that PADEP has approved the Milestone F deliverable document.

**Milestone G – Continue 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), additional soil delineation and well installation (Milestone B), vapor intrusion sampling (Milestone C), baseline risk assessment (Milestone D), and if necessary, pilot testing (Milestone E), preparation/submittal of the combined SCR/RAP (Milestone F), and waiting on PADEP approval of the combined Revised SCR/RAP, and, if required, design and implement modifications to the remedial system (Milestone H). For the purposes of this RFB, it is assumed that this work will be required for four quarters. However, each bid must specify the number of quarterly events that will be needed prior to implementation of Milestone H along with supporting rationale. Any additional quarterly monitoring and reporting events, beyond the four quarters specified in this RFB, shall be defined on the Bid Cost Spreadsheet and shall be incorporated in the Remediation Agreement as Optional Cost Adder Milestone G.[12]

Each groundwater monitoring and sampling event shall include the sampling of the existing on-property wells MW-1R, MW-2 through MW-4, MW-5R, MW-7, and MW-12 through MW-15[13], the eight existing off-property wells MW-8 through MW-11, MW-16, and MW-20 through MW-22, and the replacement POC well installed under Milestone B.[14] 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.[15] Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP NERO guidance.

[12] The Remediation Agreement includes a Site Specific Assumption that the quarterly site monitoring, sampling & reporting events will not exceed the four quarters under Milestone G plus any additional quarters under Optional Cost Adder Milestone G.
[13] On-property wells MW-17 through MW-19 are only to be gauged for water levels since PADEP agreed to suspend sampling these "clean" wells.
[14] The fixed price cost shall also include any additional monitoring well(s) that the bidder proposes to install under Milestone A (if any).
[15] No SPH has been observed in any of the monitoring wells.

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.[16] In addition, each event shall include field measurements for the following parameters: pH, temperature, specific conductance, dissolved oxygen (measured in-situ), oxidation/reduction potential, and total dissolved solids (TDS).

The 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;[17]
- For each well exceeding SHS, a graphical depiction of historical key contaminant concentrations and groundwater elevations to provide an assessment of correlations between fluctuating water levels / precipitation events and contaminant concentrations;
- For each well exceeding SHS, a graphical depiction of recent key contaminant concentration trends;
- Discussion of the data to offer an updated assessment whether these data are consistent with a stable, shrinking, or expanding plume;

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

[17] 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.

- 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 H), or Milestone I if it is determined from the baseline risk assessment (Milestone D) that there are no human health risks and remediation is not necessary. Each RAPR shall be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed and documented in the groundwater attainment demonstration report).

**Milestone H – 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 or 2 described in the bidder's Revised RAP (Milestone F) once approved by PADEP.

Whether bidding on Alternative 1 or Alternative 2, 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 H1 – DPE Remedial System Final Design, Equipment Purchase, and Assembly. Any equipment[18] that has moving parts or 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 a shed enclosure (properly insulated with appropriate lighting, and heating & ventilation systems) meeting applicable NFPA/NEC codes before being shipped to the site. **For this rural site, noise pollution is a significant concern. Therefore, the equipment enclosure shall be insulated, and sound proofed with mufflers on all exhaust and other penetrations to minimize exterior noise.** After delivery and setting in place, final connections shall be made to the electrical service and subsurface piping / conduits existing and already installed as part of the remedial system

[18] The selected consultant shall be responsible for operating and maintaining the equipment for the effective period of the Remediation Agreement.

modifications (Milestone H2). Clear and legible copies of all equipment manuals and warranties shall be provided to Solicitor.

Please note that the proposed remedial system shall be equipped with some form of telemetry. The selected consultant shall coordinate with the telephone, cable or internet service provider to re-connect to the appropriate service already existing at the location of the existing remediation equipment compound to allow remote communications and document up-time. Payment of the service re-connections shall be the responsibility of the selected consultant and shall be accounted for in the quoted fixed-price bid.

Each bidder shall assume that the above-ground remedial system and enclosure will be positioned in the same location as the existing remedial system shed.

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. Permits that have been obtained for the existing remedial system are provided in Attachment 3p. Each bidder will be responsible for determining if new permits would be required.

Milestone H2 – Remedial System Installation, Modifications and Improvements, Start-up. Under this milestone, bidders must identify the remedial system modifications that will be completed to prepare the system for continued operation under Milestone H3. Bidders may notice other issues in their inspection of the existing remedial design that warrant modification for improved performance / efficiency / cost effectiveness. For example, if a bidder proposes to replace and/or install additional extraction wells, all of the work to install extraction well(s), including trench, pipe installation, connections, surface restoration, waste disposal shall be included in the fixed price for this milestone. At a minimum for Alternatives 1 and 2, bidders shall assume that two additional recovery wells shall be installed near / adjacent to PA S.R. 590 in order to adequately treat soil and groundwater impacts adjacent to and beneath the roadway: one installed generally between existing recovery wells DPE-7 and DPE-8; and one installed generally to the southwest of DPE-8. Under this task, each bidder fixed-price cost shall include installing a minimum of two additional DPE wells or more as the bidder shall detail in the bid response. Each bidder shall independently select the final locations based on utilities; bidder's own interpretation of groundwater flow variations; evaluation of remedial feasibility testing data; insufficiently remediated soil contamination beneath / alongside the roadway and the off-site dissolved-phase plume. Each bidder in their bid response must show the proposed locations for the recovery wells on a site drawing. If a bidder believes the remediation wells should be placed elsewhere or that more wells are needed, the bidder shall identify the alternative location(s) and provide rationale.

During the pre-bid meeting, Bidders will be given an opportunity to inspect the existing remedial system equipment and observe the equipment in operation, noting that the above-grade equipment and shed will be replaced by the successful bidder (bidders can assume that the

existing remediation shed and above-grade equipment will be removed by others). Bidders shall use the opportunity to identify, based on experience, any and all remedial system components that will likely need to be repaired or replaced during the period of performance of the Agreement. As stated in the Agreement, through the effective period of the Agreement, the selected consultant, at its own expense, shall be responsible for all costs for repairing or replacing Client- and Consultant-owned equipment purchased and used for completing the Agreement work scope that may, by any means, have become stolen, damaged, deteriorated, or destroyed over the course of completing the Agreement work scope.

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. Bids shall include all traffic control measures required to complete the remedial system augmentation work in accordance with all applicable state and local DOT and traffic safety requirements.

The borings for the remediation wells shall be advanced to the total depth of the planned supplemental DPE wells. Construction of the new DPE wells shall be generally consistent with the existing DPE wells. The bentonite surface seal on the new DPE wells shall not be disturbed when connecting the vacuum lateral and installing the piping well head box. Bidders shall examine, describe and screen with PID drilling cuttings / soil cores for lithology, groundwater occurrence, and potential staining / odor indicative of hydrocarbon contamination. However, no soil samples will need to be collected from the new DPE well boreholes for laboratory analysis.

The new supplemental DPE wells shall also be constructed in general accordance with the PADEP Groundwater Monitoring Guidance Manual. Each bidder in the bid response shall indicate the drilling methods used to advance boreholes, total depth for each well, and well construction details (i.e. well casing diameter, screened interval, sand pack, etc.). Final construction of the DPE recovery wells must facilitate remediation of the unsaturated and periodically saturated soil impacts within and along the roadway right-of-way.

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) well development activities; (iii) management of IDW; (iv) professional surveying of the new well locations and top-of-casing elevations; and (v) meeting DOT traffic safety requirements while conducting roadway work. 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 G).

Bidders shall describe how the newly installed DPE wells will be connected to the DPE compound via dedicated piping or via connections to existing manifold pipe Legs. Bidders shall include sketches revealing proposed pipe routing, pipe size and burial depth. 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. If dedicated lines are extended to the DPE compound, the new buried piping and conduit stub-ups shall be terminated and secured in the remediation equipment area to facilitate final connections to remediation equipment and winterization of the stub-ups. Surface restoration from all trenching and well head completions shall be similar to current conditions.

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

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

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

The Solicitor and the PAUSTIF shall have the opportunity to inspect and confirm that the augmented DPE system has been installed as described in the fixed-price agreement and in the remedial system final design and is in daily operation as described in the remedial system final design. The selected consultant shall contact ICF/PAUSTIF immediately following completion of startup / trouble-shooting and when the system is fully operational in order to advise that the system is ready for ICF / PAUSTIF inspection.

Milestone H3 – Augmented DPE Remediation System O&M, Site Monitoring, Sampling, & Reporting. For this milestone, bidders shall provide the Solicitor and PAUSTIF with firm quarterly

fixed-price unit costs that would include the routine O&M of the DPE remedial system;[19] 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. Bidders shall identify which wells will be used for extraction, mode of operation and rationale.

For the purposes of this RFB,

- if a bidder chooses remedial Alternative 1, it is assumed the Milestone H3 activities will be required for a full eight quarters (85% minimum operating efficiency); and
- if a bidder chooses remedial Alternative 2, it is assumed the Milestone H3 activities will be required for a full four quarters (85% minimum operating efficiency).

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: a) reducing soil and groundwater contaminant concentrations so that they do not pose a human health risk to both on-property receptors (with land use restrictions) and within the adjoining roadway (with no land use restrictions); b) reducing groundwater concentrations so they do not pose a human health risk at off-property location(s) on the opposite side of the roadway to eliminate the need for any post-remedial care monitoring or deed restrictions; and c) to demonstrate stability of the contaminant plume.[2021] The bidders realistic assessment of remediation timeframe (total number of operating quarters) shall be defined on the Bid Cost Spreadsheet, and shall include the additional number of remediation quarters, beyond eight quarters (Alternative 1) and beyond four quarters (Alternative 2), specified in this RFB (i.e., if a bidder believes it can complete the remediation in a total of 12 quarters of O&M under Alternative 1, 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 eight (Alternative 1) or four (Alternative 2) quarters, the number of quarters exceeding eight or four will be incorporated in the Remediation Agreement as Optional Cost Adder Milestone H3. Bidders shall specify their rationale for when the remedial system can be shut down; however, shall assume that the remediation will need to continue until the contaminant concentrations in the off-property wells on the opposite side of PA S.R. 590 are either below the PADEP SHS or "non-detect" for at least two consecutive quarterly monitoring and sampling events. Under these conditions, and conditions

[19] Electric usage; telephone, cable, internet service; and any discharge to local treatment facility will be reimbursed as time and material cost adders to the Remediation Agreement according to PAUSTIF guidelines (no markup, no late fees).

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

[21] 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.

to eliminate human health risk and demonstrate plume stability, it is deemed reasonable to initiate the post-remediation groundwater monitoring to demonstrate plume stability. 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.

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 is being applied to the well heads that demonstrate that the water table is maintained in depressed condition, reveal pneumatic influence across the target contaminant zone and 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 monthly run-time meter readings for the DPE extraction blower shall be reported in each quarterly RAPR. The selected consultant is expected to maintain system operations for at least an 85% uptime at design vacuum 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 will include the existing on-property wells MW-1R, MW-2, MW-3, replacement well for MW-4 (installed under Milestone B), MW-5R,

MW-7, and MW-12 through MW-15[22], and the eight existing off-property wells MW-8 through MW-11, MW-16, and MW-20 through MW-22.[23] If the Revised RAP proposes the use of fewer or more wells, this should be explicitly stated in the Milestone H3 response and accounted for in the bidder's Milestone H3 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.[24] Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP NERO 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.[25] In addition, each event shall include field measurements for these water quality parameters: pH, temperature, specific conductance, dissolved oxygen (measured in-situ), oxidation/reduction potential, and TDS.

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

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

[22] On-property wells MW-17 through MW-19 are only to be gauged for water levels since PADEP has approved suspending the sampling of these "clean" wells.
[23] The fixed price cost shall also include any additional monitoring wells installed under Milestone A.
[24] No SPH has historically been observed in any of the monitoring wells installed on- and off-property.
[25] Each bidder's approach to implementing Milestone H3 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.

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;[26]
- 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 operations problems shall be provided along with the changes/modifications implemented to improve performance consistency;
- Treatment and disposal documentation for waste generated during the reporting period; and
- Demonstration of compliance with the required Federal, State, and local permits and approvals.

PAUSTIF will only reimburse for the necessary quarterly O&M and groundwater sampling / reporting events actually completed under this milestone (e.g., this milestone shall be considered completed with the initiation of Milestone I). If, in order to achieve the cleanup goals, it is necessary to extend the period of O&M beyond the RFB-specified eight quarters, each additional quarter, up to the total number of Consultant's bid O&M remedial timeframe, will be addressed via Optional Cost Adder Milestone H3. Consultant shall seek and obtain written approval from Solicitor and PAUSTIF to continue operation of the remedial system (Optional Cost Adder Milestone H3).[27]

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

[26] 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.
[27] The Remediation Agreement includes a Site Specific Assumption that remediation will be complete and post-remediation groundwater monitoring activities will be initiated within the O&M timeframe Consultant has bid.

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 H3, if implemented) will be withheld and accumulated pending successful completion of remediation and initiation of post-remedial groundwater monitoring activities (Milestones I).** 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.[28] 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 H4 – ORC Injections. 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 ORC both on- and off-property, along both sides of PA S.R. 590 to enhance aerobic biodegradation of the contaminants. Bidders shall assume that the ORC will be applied during the O&M period of the DPE system, and applied to the periodic saturated or smear zone, and saturated zone, to aid in reducing contaminant concentrations in both soils and groundwater via enhanced aerobic biodegradation. Also, the application shall be applied over two separate events, with the second injection event occurring approximately six months after the first event. Each bid shall provide details regarding the proposed manufacturer and product model / composition of the ORC, the volume of ORC to be used during each event (and basis), how the ORC will be applied to the subsurface and volume per injection location, the number of injection locations, and depth interval for the injectant. Also, each bid must show the injection locations on a site map. Upon proof of application of each application of the stated mass of ORC into the subsurface as bid, the successful bidder will be eligible for reimbursement of the bid price for each application event. If a second ORC application event is not necessary to accomplish the remedial goal, then the successful bidder shall refrain from conducting the second injection under Milestone H4.

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 H3).

**Milestone I – Post-Remediation Groundwater Monitoring.** Under this task, bidders shall

[28] Lump sum payment request shall be made prior to the on-set of initiating Milestone I.

provide a firm fixed-price to complete up to four quarters of groundwater monitoring and sampling events to demonstrate stability of the contaminant plume(s) as part of the SSS closure. Each groundwater monitoring and sampling event shall include existing on-property wells MW-1R, MW-2, MW-3, replacement well for MW-4 (installed under Milestone B), MW-5R, MW-7, and MW-12 through MW-15[29], and the eight existing off-property wells MW-8 through MW-11, MW-16, and MW-20 through MW-22.[30] The conduct and results of each event shall be documented in quarterly RAPRs. If additional quarterly events would be needed beyond four quarters, up to an additional four quarters are incorporated in the Remediation Agreement as Optional Cost Adder Milestone I.[31] Consultant shall seek and obtain written approval from Solicitor and PAUSTIF to continue with quarterly groundwater monitoring/sampling events (Optional Cost Adder Milestone I).

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 NERO 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.[32] 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

[29] On-property wells MW-17 through MW-19 are only to be gauged for water levels since PADEP has approved suspending the sampling of these "clean" wells.
[30] The fixed price cost shall also include any additional monitoring wells installed under Milestone A.
[31] If it becomes evident anytime during the groundwater plume stability demonstration (initiated subsequent to completing Milestone H) that plume stability will not be successful within the four quarters, and up to four additional quarters (Optional Cost Adder Milestone I), this will represent a New Condition under the contract.
[32] Each bidder's approach to implementing Milestone I 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.

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

- A summary of site operations and remedial progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered;
- Groundwater elevation contour maps depicting groundwater flow direction;
- Tabulated historical quantitative groundwater analytical results including results from the current quarter;
- Current quarter laboratory analytical report(s);
- One site-wide iso-concentration contour map for each compound detected in any one well above the SHS during the quarter;[33]
- 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 J – Post-Remediation Soil Sampling.** Under this task, bidders shall develop and implement a soil boring program to collect the soil data necessary for evaluating soil conditions in

[33] 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.

a risk assessment relative to residual contaminants in soil following remediation. It would be appropriate for this investigation to focus on areas on-property and within the ROW of PA SR 590 where previous site characterization activities, and the additional soil sampling performed under Milestones A and B of this RFB, have identified soil exceedances of the SHS. Each bid ***must*** describe in detail their approach, along with the depth interval targeted for sampling, and a drawing showing the locations where the sampling would occur.

Soil samples shall be analyzed for the PADEP short list for unleaded gasoline parameters (BTEX, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB). Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis. The soil sampling results shall be used in the risk assessment evaluation (Milestone M).

**If the baseline risk assessment (Milestone D) determines that soil contamination does NOT present an excessive human health risk with viable institutional controls, then there would be no need for post-remedial soil sampling.** The successful bidder will only be reimbursed for necessary tasks actually performed.

**Milestone K – 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, each bid shall include the sampling of the three on-property soil vapor sampling points installed under Milestone C. Each of the sampling events shall be completed twice post-remediation and separated by at least 45 days. The samples shall be analyzed for the PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,3,5-TMB, and 1,2,4-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Results shall be used to determine if excessive indoor air human health risks may exist requiring mitigation and / or land use restrictions. Each bid shall describe their approach in detail, including the installation details for the soil vapor points, sample locations provided on a drawing, sampling methods and analysis and schedule for when the sampling would be anticipated. Each bidder's approach to implementing this milestone shall clearly identify the number of sampling events, number of samples per event, QA/QC measures and samples, analytes, analytical method, and other key assumptions affecting the bid price.

**If the baseline risk assessment (Milestone D) determines that soil vapor does NOT pose excessive human health risks with viable institutional controls, then there would be no need for performing a post-remedial vapor intrusion evaluation.** The successful bidder will only be reimbursed for necessary tasks actually performed.

**Milestone L – Plume Stability Assessment.** Under this task, bidders shall provide a fixed-price cost and describe their approach in detail for evaluating the groundwater data and demonstrating

contaminant plume stability. This work is anticipated to include evaluating contaminant trends in individual wells and performing both a quantitative (e.g. contaminant fate-and-transport model) and qualitative (e.g. chronological contaminant extent maps, trend lines, etc.) to address all dissolved-phase constituents whose concentrations exceed the non-residential used aquifer SHS.

Bid responses will be expected to describe how the preponderance of data would be used to assess the nature of overall plume stability with the recognition there may be localized perturbation of constituent concentrations (e.g., due to groundwater fluctuations in the plume core) that may or may not be a reflection of the stability of the plume as a whole. Bidders are expected to provide a description of how plume stability will be evaluated qualitatively (e.g., using a sequence of plume limit contours chronologically over the post-remedial period to evaluate if the plume generally remains in the same area over time). Additionally, if quantitative statistics are proposed to be used by bidders (e.g., Mann-Kendall) to supplement a qualitative evaluation, bidders shall describe these techniques and how difference between qualitative analysis and quantitative analysis will be resolved.

**Milestone M – Post-Remediation Risk Assessment with Fate & Transport Modeling.** Under this milestone, each bidder shall provide a detailed work scope and fixed price cost to update the baseline risk assessment (Milestone D) based on **current and forecasted future** residual contaminants in soil, groundwater, and vapors following remediation. As with Milestone D, this task shall include updating the exposure pathway analysis to determine potentially complete and incomplete exposure pathways. This shall be followed by a risk assessment process that begins by comparing current and projected future residual soil & groundwater contaminant levels against applicable soil & groundwater screening criteria[34]. For those soil and groundwater contaminants passing through the screening criteria, the human health exposure risks shall be quantified. If human health risks are excessive (organ-specific HI >1 and /or carcinogenic risk of >1 x 10-4), then appropriate land use restrictions for the spill property shall be identified to eliminate the pathway causing the excessive human health risk. Should excessive human health risks continue to persist on-site, in the roadway or other off-site properties after the remediation, then this would represent a New Condition under the contract. Any further remediation of the site, roadway or other off-site properties would need to be conducted either through a contract modification or through other means. The successful bidder will be responsible for producing a post-remediation risk assessment that is approved by PADEP.

In developing the SOW and costs for this milestone, bidders shall assume that, similarly to the Milestone D Baseline RA, the updated post-remediation residual current and future soil and groundwater contaminant risks will need to be separately evaluated for exposures: (a) on the spill

[34] Based on discussions with the PADEP, constituent concentrations are to be screened against the USEPA RSLs and not against the PADEP Statewide Health Standards (SHS). Only those constituents that do not screen out against the risk-based screening levels remain as COPCs for the exposure pathway analysis and/for demonstrating attainment of the PADEP SHS or a risk-based numeric Site Specific Standard.

property; (b) in the PA SR 590 roadway / right-of-way; and (c) on off-property parcels across SR 590 and to the east. (although it is anticipated that off-property impacts will be fully remediated).

As with the baseline risk assessment of Milestone D, the updated risk assessment shall encompass updating the exposure assessment, toxicity assessment, and risk characterization. The identification of exposure pathways for the Site shall be based upon guidance from the American Society for Testing and Materials (ASTM) and the United States Environmental Protection Agency (USEPA), as required by Act 2, Section 250.404. The risk assessment deliverable shall include separate Exposure Pathway Flowcharts graphics for current and forecast future (a) On-Site; (b) Off-site; and (c) roadway right-of-way to support the risk assessment text. These charts shall graphically depict the thought process in identifying the potentially complete pathways for each of the three areas. The exposure evaluation charts shall include the exposure pathway steps of Constituent Source, Receiving Media, Transport Mechanisms, Exposure Routes and current and future human receptors (i.e., facility workers, construction workers, trespassers, residents, and recreational users and others).

The updated post-remediation risk assessment shall identify the current and forecast future site soil and groundwater samples used in the risk assessment, show how the constituents of interest (COI) were identified and present the COI for each contaminated media with a potentially complete pathway to a human receptor. Additionally, the risk assessment shall show how the risk assessment exposure point concentrations (EPCs) were calculated[35] for each contaminated media with a potentially complete human exposure pathway and summarize the calculated EPCs.

For each potentially complete exposure pathway, the level of carcinogenic risk shall be quantified, and the total cumulative carcinogenic risks shall be calculated. Non-carcinogenic risks shall be calculated using the hazard index. If necessary, the hazard index shall be evaluated on an organ specific basis. Exposure and toxicity assumptions shall be presented and well documented in the risk assessment report along with an uncertainty analysis.

The updated on-site human health risks shall be assessed in order to determine what pathway elimination land use restrictions may / may not be required for the spill site. For example, bidders shall determine which of the following on-site restrictions or others would be necessary to reduce the human health risks to acceptable levels.

- No potable water wells;
- No residential land use;
- Vapor barrier on future building construction;

[35] EPCs shall be derived for COIs by statistical analysis (maximum concentrations shall not be used for EPCs).

- Vapor mitigation (engineering control) on existing structures (e.g., radon type venting) if current vapor intrusion risks are excessive[36]; and
- Soil management plan for future digging on excessively contaminated portions of property.

Bidders shall assume that no environmental covenants / land use restrictions will be implemented at adjoining off-property locations and that no post-remedial care inspections of the off-site properties will be needed due to the anticipated successful remediation. Bidders shall also assume that PADEP will provide an environmental covenant waiver with respect to future installation of potable wells in the roadway right-of-way for PA S.R. 590. With respect to vapor intrusion, bidders shall perform the work 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.

Bids shall provide a detailed description of how bidders will evaluate the on- and off-property Construction Worker vapor inhalation pathway including how it will estimate the Construction Worker vapor EPC. If a model is to be used to estimate the vapor concentrations, bidders shall identify the model and the input assumptions that will be used (e.g., trench width and depth dimensions, wind speed / direction, etc.).

In addition, an ecological screening assessment shall be updated to determine if the site poses an unacceptable risk to ecological receptors. The screening assessment shall be conducted in accordance with Section IV.H of the Pennsylvania Land Recycling Program's Technical Guidance Manual and USEPA Region 3 risk assessment screening criteria insofar as is necessary for determining any potential ecological risk.

Current post-remediation risks for on- and off-site areas shall be evaluated using post-remediation data. Future off-site concentrations of groundwater contamination inputs to the post-remediation risk assessment shall be forecasted using groundwater contaminant fate and transport modeling. Although residual post-remediation human health risks may be found to be within an acceptable range, chemical transport via groundwater could create a future off-site excessive risk. This milestone will determine whether post-remediation migration of on-site contamination would produce an excessive off-site risk in the future. PADEP's New Quick Domenico model may be appropriate for this site because groundwater appears to be present in the unconsolidated natural soils; however, prior to implementing this task, the selected consultant shall contact the PADEP project officer for his/her input on the type of modeling to be performed.[37] The fixed-price cost shall include documenting the plume stability analysis and fate and transport modeling effort in the RACR (Milestone N), including providing all model input/output; providing a thorough

[36] If vapor mitigation is required on current commercial buildings, design and implementation of such VI mitigation system would be considered a New Condition under the contract.
[37] Should the PADEP subsequently disagree, this new requirement will constitute a "new condition" under the Fixed-Price Agreement.

explanation of model construction, justifying all input parameters, and discussing the modeling results and conclusions in detail with respect to assessing current and predicted future plume stability.

After completing the exposure analysis / risk assessment, the selected consultant will present its draft findings to the Solicitor and PAUSTIF for review and comment as a separate deliverable. The project schedule should allow two (2) weeks for Solicitor and PAUSTIF to review the draft Risk Assessment before being finalized and incorporated into the RACR (Milestone N).

**Milestone N – Preparation, Submission, and PADEP Approval of a combined revised SCR / Remedial Action Completion Report (RACR) OR a stand along RACR.** Under this milestone, the bidder will prepare a fixed-price cost to prepare a draft and final combined SCR/RACR following the completion of milestones A through D, G, I, and L; or RACR following the completion of milestones G through M, and any applicable related optional cost adder milestones. The revised SCR/RACR or RACR shall be prepared in accordance with Sections 245.310 and 245.313. At a minimum, the revised SCR/RACR or RACR shall provide the details for Milestones A through M, and optional cost adder milestones. The RACR shall also discuss the selected closure criteria for the site, provide proof of soil and groundwater attainment, and request permanent closure for the site for the current release under an Act 2 Relief of Liability (ROL). The project schedule should allow two (2) weeks for Solicitor and PAUSTIF review of the draft RACR before a final version is submitted to the PADEP. The selected consultant shall then prepare and submit the final revised SCR/RACR or RACR to the PADEP in accordance with Sections 245.310 and 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 revised SCR/RACR or RACR). The fixed-price cost shall also include addressing any PADEP comments on the revised SCR/RACR or RACR.

The successful bidder will be eligible to receive payment for 75% of the bid amount for Milestone N 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 N deliverable document.

**Milestone O – Finalizing / Filing of Environmental Covenants.** Under this task, the bidder shall describe and provide a fixed-price bid for finalizing and filing the Environmental Covenant (EC) associated with the PAUSTIF eligible release. The fixed-price shall include all reasonable and necessary activities and required fees to finalize and file the EC for the subject property, with the local court house and other required entities. The successful bidder will be responsible for coordinating this work with the impacted property owner(s) and their legal counsel(s). Legal fees are not to be included in bid costs. PAUSTIF reimbursement of Client and/or third party legal fees will be considered outside of the executed Remediation Agreement. The fixed price

cost for this task shall also include the work necessary in petitioning PADEP for any relevant EC waivers.

**Milestone P – 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 the remedial system shed and equipment; proper disposal of any remaining wastes; in-place abandonment of remedial system below grade piping; in-place abandonment of all on- and off-property monitoring and recovery 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 P 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 Milestone G – Additional Quarterly Monitoring, Sampling & Reporting.** This supplemental groundwater monitoring may be needed if there are unexpected delays outside of the successful bidder's control ahead of reactivating the DPE operations 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-1R, MW-2 through MW-4, MW-5R, MW-7, and MW-12 through MW-15[38], the eight existing off-property wells MW-8 through MW-11, MW-16, and MW-20 through MW-22, and the well installed under Milestone B, and reporting beyond the four quarters specified in Milestone G.[39] The SOW for this unit cost adder milestone should follow Milestone G guidelines. Each bid must include the rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone H3 – Additional Remediation System O&M, Site Monitoring, Sampling, & Reporting.** This supplemental milestone maybe necessary for various reasons, including if the post-remediation residual risk assessment finds there remains uncontrollable excessive human health risks on-site, under the roadway or at other off-property parcels, which may also be a New Condition. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly unit fixed-price cost that would include the routine O&M of the remedial system; quarterly groundwater, monitoring, and sampling of the existing on-property

[38] On-property wells MW-17 through MW-19 are only to be gauged for water levels.
[39] The fixed price cost shall also include any additional monitoring well(s) that the bidder proposes to install under Milestone A (if any).

wells MW-1R, MW-2 through MW-4, MW-5R, MW-7, and MW-12 through MW-15[40], the eight existing off-property wells MW-8 through MW-11, MW-16, and MW-20 through MW-22, the new well installed under Milestone B, and reporting beyond the timeframe specified in Milestone H3.[41] The SOW for this unit cost adder milestone should follow Milestone H3 guidelines. As described in Milestone H3, a 10% holdback will be applied to each Optional Cost Adder Milestone H3 payment. Each bid must include the rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone I – Additional Post-Remediation Groundwater Monitoring.** This supplemental milestone may be necessary if post remediation stability is not adequately demonstrated to PADEP satisfaction during the base work scope necessitating further monitoring. 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 on-property wells MW-1R, MW-2, MW-3, replacement well for MW-4 (installed under Milestone B), MW-5R, MW-7, and MW-12 through MW-15[42], the eight existing off-property wells MW-8 through MW-11, MW-16, and MW-20 through MW-22, and reporting beyond the timeframe specified in Milestone I.[43] The SOW for this unit cost adder milestone should follow Milestone I 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.

[40] On-property wells MW-17 through MW-19 are only to be gauged for water levels.
[41] The fixed price cost shall also include any additional monitoring wells installed under Milestone A (if any).
[42] On-property wells MW-17 through MW-19 are only to be gauged for water levels.
[43] The fixed price cost shall also include any additional monitoring wells installed under Milestone A (if any).

## List of Attachments

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information/Historic Documents
    a. Figures 1 through 6
    b. 3rd Quarter 2018 RAPR, dated Oct. 2018
    c. 2nd Quarter 2018 RAPR, dated July 2018
    d. 1st Quarter 2018 RAPR, dated April 2018
    e. 4th Quarter 2017 RAPR
    f. 3rd Quarter 2017 RAPR
    g. 2nd Quarter 2017 RAPR
    h. 1st Quarter 2017 RAPR
    i. Updated SCR and RAP, dated March 2016
    j. SCR, dated December 2015
    k. RAP, dated July 2015
    l. SCR, dated August 2014
    m. SCR, dated June 2014
    n. UST Closure Report, dated October 2011
    o. 2011 Phase II Information
    p. Other Information (Permits, PADEP Correspondence, Piezometer Logs/Construction Details, stormwater drainage drawing)