Request for Bid

Fixed-Price Bid to Result

Site Remediation through Closure
Statewide Health Standard

Solicitor

Harper Oil Company

Seneca Mini Mart
3390 State Route 257
Seneca, Venango County, PA 16346

PADEP Facility ID #: 61-18854 PAUSTIF Claim #: 20150120(I)

Date of Issuance

April 19, 2019

Table of Contents

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

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

Calendar of Events

Activity	Date and Time
Notification of Intent to Attend Site Visit	**May 6, 2019 by 5 p.m.**
Mandatory Pre-Bid Site Visit	**May 8, 2019 at 11 a.m.**
Deadline to Submit Questions	**June 5, 2019 by 5 p.m.**
Bid Due Date and Time	**June 12, 2019 by 3 p.m.**

Contact Information

Technical Contact
Mr. Robert Breakwell, P.G. **Excalibur Group, LLC** **1193 State Road** **Monessen, PA 15062** **rbreakwell@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 **"Seneca Mini Mart, Claim #2015-0120(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 "Seneca Mini Mart, Claim #2015-0120(I) – SITE MEETING ATTENDANCE NOTIFICATION".** The name and contact information of the company participant should be included in the body of the email. Notification of intent to attend is appreciated; however, it is not required. Attendance at the Pre-Bid Site Meeting is mandatory. Changes to the Site meeting date and/or time due to inclement weather conditions or other unexpected circumstances will be posted at https://ustif.pa.gov/bids; and, the Technical Contact may notify via email all companies that provided Site Meeting Attendance Notification.

Submission of Bids

To be considered for selection, **one (1) hard copy of the signed bid package and one (1) electronic copy (one (1) PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact and the Solicitor. Bid responses will only be accepted from those companies that attended the Mandatory Pre-Bid Site Meeting. **The ground address for overnight/next-day deliveries is ICF, 4000 Vine Street, Middletown, PA 17057, Attention: Contracts Administrator. The outside of the shipping package containing the bid must be clearly marked and labeled with "Bid – Claim #2015-0120(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 bid unit cost rates for each expected labor category, subcontractors, other direct costs, and equipment;

2. The bid markup on other direct costs and subcontractors (if any);

3. The bid total cost by task consistent with the proposed SOW identifying all level-of-effort and costing assumptions; and

4. The bid unit rate schedule that will be used for any out of scope work on this project.

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

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

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

Each bid response document must include at least the following:

1. Demonstration of the bidder's understanding of the Site information provided in this RFB, standard industry practices, and objectives of the project.

2. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the Site specific work scope/SCR/RAP

implementation). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW "as is" may result in a bid not being considered. Bids should include enough original language conveying bidder's thought such that the understanding of site conditions, closure approach (if applicable), and approach to addressing the scope of work can be evaluated. Since bidders are not prequalified, the bid response must provide the Bid Evaluation Committee and Solicitor enough information to complete a thorough review of the bid and bidder.

3. A copy of an insurance certificate that shows the bidder's level of insurance consistent with the requirements of the Remediation Agreement. Note: The selected consultant shall submit evidence to the Solicitor before beginning work that they have procured and will maintain Workers Compensation, commercial general and contractual liability, commercial automobile liability, and professional liability insurance commensurate with the level stated in the Remediation Agreement and for the work to be performed.

4. The names and brief resumes/qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)).

5. Responses to the following specific questions:

    a. Does your company employ a Pennsylvania-licensed Professional Geologist or Professional Engineer that is designated as the proposed project manager? How many years of experience does this person have?
    b. How many Pennsylvania Chapter 245 projects is your company currently the consultant for in the PADEP Region where the Site is located? Please list up to 10.
    c. How many Pennsylvania Chapter 245 Corrective Action projects involving an approved SCR, RAP, and RACR has your company and/or the Pennsylvania-licensed Professional Geologist or Professional Engineer closed (i.e., obtained Relief of 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 (i.e., attended the mandatory pre-bid site meeting and submitted the bid in strict accordance with instructions by the designated due date and time) will be evaluated.

   Technical Scoring

   Bids are evaluated for technical viability before bid 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 each of three categories to derive the technical score for this bid-to-result solicitation:

   - Problem Understanding
   - 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)) x 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, Solicitor will receive those bids with numerical scores placing them in the category of meeting Reasonable and Necessary criteria and acceptable for USTIF funding. Solicitor 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 information and documentation provided in Attachment 3. The information and documentation have not been independently verified. Bidders may wish to seek out other appropriate sources of information and documentation specific to this site. If there is any conflict between the general site background and description provided herein and the source documents within Attachment 3, the bidder should defer to the source documents.

Summary of Site Background and Features

The Seneca Mini Mart (Seneca) facility is located at 3390 State Route (SR) 257 in the town of Seneca, Venango County, PA. The property formerly supported retail motor fuel sales and convenience store (c-store) operations followed by a vehicle servicing and repair business. The underground storage tanks (UST) and related product dispensing equipment have been removed from the Seneca property and the building is currently vacant. The property is not owned by Solicitor and is currently only used for sales of previously owned automobiles. However, Solicitor currently manages the property and retains responsibility for the environmental cleanup.

Existing features on this ~0.8-acre, roughly rectangular-shaped parcel consist of a vacant one-story, slab-on-grade c-store / garage building with two service bays located in the northern part of the property. The southern part of the property supports sales of previously-owned automobiles (Seneca Motors). As mentioned above, all UST systems infrastructure has been removed from the property and only the canopy that covered the former single pump island remains intact. A 1,000-gallon off-road diesel fuel above ground storage tank (AST) remains on the property and is located beyond the southwest corner of the c-store / garage building.[1] The Seneca property is paved with asphalt and concrete west of the building. Ground cover across the remainder of the property consists of soil, vegetated soil and gravel.

Land use in the vicinity of the Seneca facility consists of commercial and residential properties. Subsurface utilities beneath and in the vicinity of the Seneca facility include natural gas, municipal water, sanitary sewer and storm sewer. Overhead utility and electric lines extend along the western facility property boundary.

There are 19 on- and off-property shallow overburden groundwater monitoring wells used to test groundwater quality. More specifically, the following groundwater test well network has been installed:

- *On-property*: MW-1, MW-7, MW-8, MW-9 and MW-15;

[1] The AST has been drained and is not currently in use. The product dispenser associated with this AST has reportedly been removed.

- *Off-property (PennDOT right-of-way [ROW])*: MW-2 through MW-6, MW-10, MW-11 and MW-16 through MW-19; and
- *Off-property (Seneca Lawn & Landscape property)*: MW-12, MW-13 and MW-14.

In addition to the groundwater monitoring wells, two soil vapor sampling points, VP-1 and VP-2, were installed near the southwest corner of the vacant c-store / garage building. A Site Plan depicting the general facility layout, monitoring well and soil vapor sampling point locations, subsurface utilities and adjoining parcels can be found in Attachment 3a.

Historical Petroleum Storage and Dispensing Operations, Release History and UST System Closures

Available historical information indicates that retail sales of petroleum products began at least as early as 1977. The facility USTs were formerly located south of the c-store / garage building and dispenser island. They included: i) a 6,000-gallon tank containing unleaded gasoline (Tank #001); ii) a 4,000-gallon tank containing unleaded gasoline (Tank #002); iii) a 10,000-gallon tank containing unleaded gasoline (Tank #003); iv) a 2,000-gallon tank containing diesel fuel (Tank #004); and v) a 1,000-gallon tank containing kerosene (Tank #005).[2] The figure in Attachment 3a depicts the locations of the former USTs, product piping and dispensers.

Tanks #001, #003, #004 and #005, the product conveyance piping and the dispensers were removed from the property in September 2015. The associated February 2016 UST Closure Report can be found in Attachment 3b.[3] [4] During removal of the UST systems, petroleum-stained soil was observed around Tanks #001 and #003 and beneath the dispensers / product lines. A leaking fitting was also found on Tank #003 and holes were observed in the product line from Tank #004. The PADEP was verbally notified of a confirmed petroleum release on 9/14/15 followed by a Notification of Reportable Release form on 9/16/15. As part of the UST closures, a total of approximately 430 tons of soil was excavated & permanently removed from the areas of the USTs, dispenser island and product piping. No groundwater was encountered during the UST removals and soil excavation.

Analytical results provided from the biased post-excavation confirmatory soil samples collected from beneath the four USTs did not exceed the Statewide Health Standard (SHS), Medium Specific Concentrations (MSCs) for the target unleaded gasoline and diesel fuel / kerosene compounds. Multiple soil samples collected beneath the product dispensers and piping exceeded the applicable SHS MSCs for naphthalene, 1,2,4-trimethylbenzene (TMB) and 1,3,5-

[2] A separate dispenser for diesel fuel and kerosene was formerly located south of the facility building and canopy-covered gasoline dispenser island.
[3] Tank #002 was previously removed in February 1999. No UST Closure Report is available.
[4] No evidence of other, undocumented USTs was observed during the site characterization activities.

TMB.[5] Analytical results for the post-excavation confirmatory soil samples are provided in the February 2016 UST Closure Report (Attachment 3b).

In early 2016, Cribbs & Associates (C&A) initiated site characterization work to further investigate the subsurface contamination discovered during removal of the facility UST systems in September 2015. Following several phases of soil and groundwater characterization, C&A prepared and submitted a Site Characterization Report (SCR) to the PADEP in September 2017. A copy of the SCR is provided in Attachment 3c. C&A subsequently submitted a Remedial Action Plan (RAP) to the PADEP in November 2017 calling for the wholesale excavation of impacted soils both on- and off-property coupled with application of oxygen delivery product (ODP) to the open excavation prior to backfilling. A copy of the RAP can be found in Attachment 3d. The site remedial strategy as proposed in the RAP is summarized in more detail below. The SCR and RAP were conditionally approved by the PADEP with modifications in a letter dated 1/8/18 (Attachment 3e).

PADEP's -requested SCR / RAP modifications were:

1. The extent of impacted soil requiring excavation shall not be limited to the roadside curb and shall apply to the area which exceeds the applicable standard.

2. Groundwater shall be monitored for dissolved oxygen (DO) on a quarterly basis to evaluate the effectiveness of the applied ODP.

3. Post-remedial sampling of groundwater shall not apply to the attainment demonstration until the ODP is no longer influencing groundwater based on geochemical analysis.

4. Specific conditions under which a revised SCR and/or RAP must be submitted.

Attachment 3e should be referenced for additional details on these modifications.

Following PADEP conditional approval of the RAP, additional off-property subsurface characterization activities were completed by C&A, in conjunction with PADEP's input, to address PADEP's concerns. In particular, C&A sought to determine the extent and magnitude of soil and groundwater impacts extending beneath SR 257. Findings from these supplemental investigations are included in the below discussions along with a description of RAP modifications necessitated by the supplemental delineation work.

[5] The reported concentrations of 1,3,5-TMB in soil do not currently exceed established standards based on the 4/19/16 SHS MSC revisions.

Overview of Site Characterization Activities and Results

Site Geology, Hydrogeology and Hydrology

Based on available drilling / logging data, unconsolidated materials beneath the Seneca site and vicinity generally consist of a near-surface layer of fill materials composed of a mixture of clay, silt, sand and gravel with some shale and brick fragments and slag. The layer of fill materials appears to be present across most of the Seneca property and the composition is variable depending on location. At the locations of the former UST cavities, the fill materials can exceed a thickness greater than 8 feet. Beyond the locations of the former USTs, the fill materials appear to have an average thickness of about 4 feet. Similar fill materials also extend beyond the Seneca property and beneath SR 257 and the Seneca Lawn & Landscape facility located immediately west of SR-257. Below the fill materials are natural soils comprised predominantly of silty clay containing some sand, gravel and shale fragments. The natural soils also include minor layers of sandy / silty clay, silty sand and silt. Bedrock consisting of weathered shale was encountered in monitoring well boring MW-8 at a depth of 16 ft-bg, and interbedded clay and weathered sandstone was encountered at a depth of approximately 9.5 ft-bg in monitoring well boring MW-15. These two monitoring well borings are located near the Seneca facility's eastern property boundary. Drilling logs for the soil borings and logs / construction details for the monitoring wells are provided in the September 2017 SCR (Attachment 3c). Drilling logs and construction details for soil borings and monitoring wells completed during the supplemental off-property investigations beneath the SR 257 ROW (after PADEP SCR / RAP approval) can be found in the second and third quarter 2018 Remedial Action Progress Reports (RAPRs) in Attachments 3f and 3g, respectively.

Hydrogeologic data for the site has been provided through gauging and testing of the previously identified network of on- and off-property monitoring wells. The depth to the shallow unconfined water table aquifer beneath the site averages about 4 ft-bg. The depth to groundwater is shallowest near the former gasoline dispenser island, averaging only about 1.5 ft-bg in this area[6], whereas the depth to groundwater across the remainder of the site averages about 5 ft-bg. High water table conditions in the former dispenser island area have been attributed to artificial groundwater mounding caused by discharging precipitation from the existing canopy and infiltration into the fill materials where the product dispensers were formerly located. This is supported by the typical concentric groundwater flow configuration originating from a groundwater high centered over the former dispenser island. Beyond this hydraulic influence, normal groundwater flow is expected to be toward the unnamed tributary to Lower Twomile Run located about 90 feet west of the Seneca facility. The horizontal hydraulic gradient has been less than 0.1 ft/ft.

[6] Collective average depth to groundwater for wells MW-1 through MW-5.

Single well aquifer characterization testing (i.e., falling and rising head slug tests) were conducted in monitoring wells MW-1, MW-2, MW-4, MW-10 and MW-11. The estimated geometric mean for hydraulic conductivity at the locations of wells MW-1, MW-2 and MW-4 was approximately 1.1 ft/day in comparison to a geometric mean of approximately 0.13 ft/day in the area of wells MW-10 and MW-11.[7]

Soil Quality

During the various phases of site characterization, a total of 52 soil samples were collected from on- and off-property soil borings and monitoring well borings. All soil samples were submitted for laboratory analysis of the current PADEP short-list of unleaded gasoline compounds. Based on historical depth to groundwater measurements, it appears the majority of soil samples impacted above the SHS were collected from periodically saturated soil (i.e., smear zone soil) with the remainder obtained from permanently saturated soil. Excessively impacted soil was identified within the approximate depth range of 2 to 8 ft-bg.

The soil analytical dataset reveals that the primary constituents of concern (COCs)[8] in site soil appear to be benzene, 1,2,4-TMB and naphthalene. To a lesser extent, soil COCs also include ethylbenzene, toluene, xylenes and 1,3,5-TMB. Maximum concentrations for the primary COCs benzene (101 milligrams per kilogram [mg/kg]), 1,2,4-TMB (895 mg/kg) and naphthalene (119 mg/kg) were reported for the shallow soil sample collected from boring SB-15 within the 3 to 4 ft-bg depth interval.[9] This boring was advanced beyond the northwest corner of the former gasoline dispenser pad.

Observed soil impacts exceeding the SHS are most prevalent adjacent to and downgradient of the former gasoline dispenser pad along the Seneca facility western property boundary. Soil impacts exceeding the SHS were also identified downgradient of the backfilled UST cavities. Only limited soil contamination exceeding the SHS was found beneath SR 257 at the locations of soil borings SB-29 and SB-31. Samples from these borings contained relatively low levels of benzene at 1.93 and 0.77 mg/kg, respectively, that probably reflect smear zone soil impacts based on available groundwater gauging data. Overall, soil contamination exceeding the applicable standard appears to have been reasonably delineated.

Boring logs for the soil borings and monitoring well borings can be found in the September 2017 SCR (Attachment 3c) and in the second and third quarter 2018 RAPRs in Attachments 3f and 3g, respectively. An updated site plan depicting the locations of all soil sampling locations and an updated soil analytical dataset (i.e., including data from the supplemental investigations

[7] The variation in estimated hydraulic conductivity values can possibly be attributed to the proximity of wells MW-1, MW-2 and MW-4 to earth disturbances and more permeable fill materials (i.e., former dispenser pad and USTs area).
[8] Compounds exceeding the PADEP Act 2 non-residential SHS MSCs.
[9] Available depth to groundwater data suggest this sample was collected from permanently saturated soil. However, permanently saturated soil at the 3 to 4 ft-bg sampling depth may not reflect natural conditions and could be the result of artificially induced groundwater mounding beneath the former gasoline dispenser pad location.

conducted post-RAP approval), are provided in Attachment 3a and in the third quarter 2018 RAPR (Attachment 3g).

Groundwater Quality

Groundwater quality has been assessed through a quarterly compliance sampling network consisting of 19 on- and off-property overburden monitoring wells including MW-1 through MW-19. Of these wells, MW-2 through MW-7, MW-9, MW-10, MW-11 and MW-15 are considered points of compliance (POCs) as defined in the PADEP-approved November 2017 RAP (Attachment 3d). Off-property attainment wells consist of MW-12, MW-13, MW-14 and MW-16 through MW-19. All groundwater monitoring well locations are depicted in the figure provided in Attachment 3a. Historical groundwater analytical results through the fourth quarter 2018 can be found in the RAPR provided in Attachment 3h. Drilling logs / construction details for the monitoring wells can be found in the September 2017 SCR (Attachment 3c) and in the second and third quarter 2018 RAPRs in Attachments 3f and 3g, respectively.

Groundwater samples have historically been analyzed for the current PADEP short list of unleaded gasoline parameters. The COCs in site groundwater (i.e., compounds exceeding the PADEP Act 2 residential SHS MSCs) primarily consist of benzene and 1,2,4-TMB that remain problematic in several wells including MW-1 through MW-5 (gasoline dispenser source area) and MW-17 and MW-18 (downgradient, off-property in SR 257). Benzene concentration trends have been generally flat in MW-2 and MW-3 while apparently increasing in MW-4 and MW-5. Concentrations of 1,2,4-TMB in wells MW-3 and MW-5 also appear to have increasing trends.[10] Other dissolved-phase COCs that continue to be detected in site groundwater include toluene, ethylbenzene, xylenes, MTBE, naphthalene and 1,3,5-TMB. Of these compounds, overall flat to increasing trends are exhibited for ethylbenzene, naphthalene, and xylenes in source area wells MW-3 and MW-5. Flat to increasing concentration trends in the source area wells referenced above are indicative of residual source soil that remains in the area of the former gasoline dispenser island and backfilled UST cavities.

The most severely impacted site well is MW-3 which is located adjacent to the western side (downgradient) of the former gasoline dispenser island. During the fourth quarter 2018 groundwater sampling event, concentrations of the COCs in this well were reported as: benzene (15,800 µg/l), toluene (2,320 µg/l), ethylbenzene (3,520 µg/l), xylenes (18,700 µg/l), MTBE (12.5 µg/l), naphthalene (558 µg/l), 1,2,4-TMB (3,800 µg/l) and 1,3,5-TMB (958 µg/l).

[10] Reliable concentration trends cannot currently be developed for wells MW-17 and MW-18 because these wells have only been sampled three times.

Surface Water Quality

Surface water monitoring points were established along the unnamed tributary to Lower Twomile Run located approximately 90 feet west of the site, across SR 257. The upstream and downstream sampling locations are depicted in the figure provided in Attachment 3a. Surface water samples were collected from each monitoring point on six occasions and analyzed for the current PADEP short-list of unleaded gasoline parameters. Laboratory analytical results indicate that none of the target unleaded gasoline compounds were detected in samples collected from the upstream and downstream monitoring points during the six sampling events.

Separate Phase Hydrocarbons

Measurable thicknesses of separate phase hydrocarbons (SPH) have been observed in Monitoring wells MW-3 and MW-4 installed adjacent to and downgradient of the former gasoline dispenser island. The maximum thickness of SPH historically measured in these wells was approximately 9.8 inches (MW-3) and 0.2 inch (MW-4). Additionally, hydrocarbon sheens have been frequently observed in wells MW-1, MW-2 and MW-5 which are also installed near the former dispenser island. Active SPH removal activities were initiated in October 2016, including bailing and use of absorbent socks, which appear to have been successful in significantly reducing the volume of SPH in the subsurface around the former dispenser island. For example, well MW-3 has exhibited no more than a petroleum sheen since April 2018. The most recent SPH measurement and recovery data is provided in the third quarter 2018 RAPR (Attachment 3g).

Contaminant Fate & Transport Modeling

Analytical contaminant fate & transport (F&T) modeling (PADEP Quick Domenico spreadsheet) was completed for the dissolved-phase COCs benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB assuming a hypothetical, constant, ongoing source of contamination. In general, model development was based on wells containing the highest historical concentrations of these compounds, which served as the continuous contaminant sources, and on the concentric groundwater flow (i.e., contaminant migration) pattern previously discussed. Therefore, F&T modeling for benzene, ethylbenzene, toluene, xylenes, 1,2,4-TMB and 1,3,5-TMB was completed along a transect extending from source well MW-3 to the unnamed tributary to Lower Twomile Run (~107 feet), and MTBE and naphthalene concentrations were modeled along a transect extending from source well MW-5 to the tributary (~85 feet). MTBE concentrations were also modeled from source well MW-8 to the eastern property boundary (~23 feet). It is important to note that because no intermediate impacted wells existed downgradient of the source area wells at the time the F&T modeling was completed, it was not possible to accurately calibrate the models. Therefore, the SCR

considered the modeling results to reflect worst-case scenarios.[11] An overview of the predictions derived from the contaminant F&T modeling is provided below:

Benzene: Separate benzene models were run using the higher average hydraulic conductivity value derived from slug testing within wells MW-1, MW-2 and MW-4, and the lower average hydraulic conductivity value provided from slug testing within wells MW-10 and MW-11. Modeling performed with the higher hydraulic conductivity value predicted that the benzene plume would expand to a length of up to 774 feet before reaching a point of equilibration in 15 years at a concentration below the residential SHS MSC. Using the lower hydraulic conductivity value, the model predicted that the benzene plume would expand to a length of up to 150 feet before reaching a point of equilibration in 20 years at a concentration below the SHS MSC. The results from both model runs suggested that the benzene plume would intersect the unnamed tributary west of the Seneca facility at concentrations exceeding the SHS. However, these uncalibrated model predictions do not seem reliable given that: i) the subsurface release / impacts likely predated the 2015 release discovery, meaning that contamination migration has already been occurring for many years; ii) no benzene has been detected in downgradient off-property wells MW-12, MW-13 and MW-14 located only ~70 to 75 feet beyond the Seneca facility western property boundary; and iii) no benzene has been detected in surface water samples collected from the tributary.

MTBE: Consistent with the benzene F&T modeling, separate MTBE models were run using the lower and higher average hydraulic conductivity values. Modeling completed along a transect extending from source well MW-8 to the eastern facility property boundary using the higher average hydraulic conductivity value predicted that the MTBE plume would expand to a length of up to 94 feet before reaching a point of equilibration after 10 years at a concentration below the residential SHS MSC. Modeling using the lower average hydraulic conductivity value predicted that the MTBE plume would expand to a length of up to 17 feet before reaching a point of equilibration after 10 years at a concentration below the residential SHS MSC. Results from the model run using the higher average hydraulic conductivity value suggest that the adjoining parcel east of the Seneca facility could be impacted by concentrations of MTBE exceeding the residential SHS MSC. Uncalibrated model predictions using the higher average hydraulic conductivity value are questionable considering: i) MTBE was banned as an additive nearly 13 years ago meaning the MTBE plume has had more than a decade to migrate; ii) the high solubility and mobility of MTBE in groundwater; and iii) MTBE has never been detected in well MW-15 located only ~20 feet east of MW-8 (between MW-8 and the eastern property boundary).

F&T modeling for MTBE along a transect extending from source well MW-5 to the unnamed tributary west of the Seneca facility, and using the higher average hydraulic conductivity value,

[11] Although intermediate monitoring wells that could potentially be used for model calibration were subsequently installed in SR 257, updated F&T modeling does not appear to have been performed.

predicted that the MTBE plume would expand to a length of up to 50 feet before reaching a point of equilibration after 5 years where the MTBE concentration would be below the residential SHS MSC. These results suggested that the tributary would not be adversely impacted by the MTBE plume.

In general, F&T modeling predictions for the other COCs ethylbenzene, toluene, total xylenes, naphthalene, 1,2,4-TMB and 1,3,5-TMB using only the higher average conductivity value (to be conservative) indicated that concentrations of these compounds would not reach the unnamed tributary to the west. Additional details regarding the contaminant F&T modeling can be found in the September 2017 SCR (Attachment 3c).

Vapor Intrusion Assessment

As mentioned above, two soil vapor sampling points, VP-1 and VP-2, were installed near the southwest corner of the c-store / garage building. Sampling point VP-1 was constructed through asphalt paving between the building and former dispenser island and VP-2 was constructed through the concrete pad between the building and the former UST cavities. The September 2017 SCR mentions that because VP-1 and VP-2 were installed through "non-permeable" surfaces that extend to the building, these soil vapor sampling points are appropriate for sub-slab vapor sample collection under the PADEP revised Vapor Intrusion (VI) guidance (effective January 2017). Reportedly, the PADEP case manager agreed and indicated that VP-1 and VP-2 can be used for collection of soil vapor samples provided the analytical results are compared to the sub-slab screening values.

Soil vapor samples were initially collected from VP-1 and VP-2 on 10/4/16 followed by a confirmation sampling event performed on 5/3/17. The soil vapor samples were analyzed for the current PADEP short-list of unleaded gasoline compounds. Analytical results from both sampling events indicated that no target vapor-phase constituents exceeded the most stringent non-residential screening values established under the revised VI guidance (sub-slab Site Specific Standard [SSS]).[12] Should a post-remedial VI assessment be required by the PADEP, such an assessment would be completed under Optional Cost Adder Milestone UC1.

The locations of soil vapor sampling points VP-1 and VP-2 are depicted in the Site Plan provided in Attachment 3a. Soil vapor analytical results and construction details for the soil vapor sampling points can be found in the September 2017 SCR (Attachment 3c).

[12] Trace concentrations of benzene, toluene, xylenes, naphthalene, 1,2,4-TMB and 1,3,5-TMB were detected in the vapor samples.

Solicitor's Selected Site Closure Standard

Solicitor intends on pursuing site closure in accordance with the SHS used aquifer non-residential MSCs for soil and residential MSCs for groundwater as specified in the SCR and RAP.[13]

Proposed Remedial Actions

To attain PADEP's SHS-NRUA for soil and RUA for groundwater, the November 2017 RAP (Attachment 3d) prescribes excavating unsaturated, smear zone and permanently saturated source soil with contamination exceeding the standard. The site has many characteristics making it suitable for an excavation remedy including (a) the limited depth of impacts due to the shallow water table; (b) the absence of buried UST system infrastructure obstacles; (c) currently limited site business activities; and (d) relatively lower permeability soil conditions. Prior to backfilling, the RAP calls for ODP to be added to the base and sidewalls of the open excavation to enhance in-situ aerobic biodegradation of contaminant residuals left in the surrounding soil and groundwater.

The RAP-specified dimensions of the excavation were drawn before the soil impacts were better defined as PADEP requested in the Department's conditional approval of the RAP. The additional contamination delineation revealed to C&A that the RAP excavation plan required some revision. More specifically, C&A determined that the excavation would need to expand locally further into the adjoining SR 257 ROW (shoulder and roadway). This updated excavation footprint shared with PADEP in October 2018, is provided in Attachment 3a.

The SOW requested in this RFB calls for site remediation via soil excavation consistent with the PADEP-approved RAP, as modified with the expanded excavation area depicted in the figure provided in Attachment 3a. As explained in more detail under the Scope of Work section below, bidders may choose to implement the modified RAP excavation remediation plan, or may elect to implement either of two alternative variations of the modified RAP approach as described below.

Other Information

Bidders should carefully consider the information, analyses, and interpretations contained in the background documents in developing & articulating a scope of work response to this RFB.

[13] Note that the PADEP's 1/8/18 SCR and RAP approval letter erroneously states that the selected site closure goal is the non-residential MSCs for both soil and groundwater.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors, including approach, methods and costs, to complete the tasks outlined herein. The case manager at the PADEP Northwest Regional Office reviewed the scope of work requested in this RFB and had no comments.

Objective & Remedial Alternatives

The successful bidder will be expected to remediate to achieve PADEP's SHS-NRUA standard for soil and RUA standard for groundwater and secure a Relief of Liability (ROL) for the Seneca site. The PADEP, the Technical Contact and the PAUSTIF have agreed that any of the following remedial approaches offers a technically viable and cost-effective means of attaining the applicable SHS cleanup goals for soil and groundwater:

1) **Alternative #1 – RAP Implementation: Soil Excavation and Enhanced Biodegradation via ODP[14].** Soil excavation shall be conducted on- and off-property to remove subsurface source material within the area defined in the figure provided in Attachment 3a. As previously mentioned, the original RAP excavation plan was subsequently expanded to the area shown in Attachment 3a following supplemental delineation work. It is this expanded excavation that defines where soil is to be dug up and removed. Consistent with the RAP, ODP shall be applied to the base and sidewalls of the open excavation prior to backfilling to enhance aerobic biodegradation of sorbed and dissolved residual impacts. Groundwater testing for enhanced-MNA shall occur at MW-18 and all other site wells for 1 year subsequent to applying the ODP to evaluate performance before commencing the groundwater attainment demonstration. During the excavation, water management will likely be necessary on- and off-property.

2) **Alternative #2 – Soil Excavation and Enhanced Biodegradation via Carbon-based Product (CBP)[15] application (modified-RAP approach).** Soil excavation shall be conducted on- and off-property as described under remedial Alternative #1 except that CBP shall be mixed with the excavation backfill. Bidders selecting Alternative #2 shall propose this modification in a RAP Addendum (RAPA) to be prepared under Milestone B. Groundwater testing for enhanced-MNA shall occur at MW-18 and all other site wells for 1 year subsequent to applying the CBP to evaluate performance before commencing the groundwater attainment demonstration. During the excavation, water management will likely be necessary on- and off-property.

[14] ODP refers to a host of alternative commercially available products designed to impart oxygen to the subsurface in order to enhance aerobic biodegradation and sequential chemical / biological destruction of residuals.
[15] CBP refers to a range of alternative commercially available pulverized / amended activated carbon products designed to sorb and provide surfaces to facilitate in-situ biodegradation of residual organic contaminants.

3) **Alternative #3 – Soil Excavation and Sequential In-Situ Chemical Oxidation (ISCO) & Enhanced Biodegradation via Combined Chemical Oxidant / ODP Application (modified-RAP approach).** Soil excavation shall be conducted on- and off-property as described under remedial Alternatives #1 and #2 except that a combined ISCO / ODP product application will be implemented in lieu of ODP alone or CBP. Bidders selecting Alternative #3 shall propose this modification in a RAPA to be prepared under Milestone B. Groundwater testing for enhanced-MNA shall occur at MW-18 and all other site wells for 1 year subsequent to applying the sequential ISCO / ODP to evaluate performance before commencing the groundwater attainment demonstration. During the excavation, water management will likely be necessary on- and off-property.

Each bidder shall propose one of these three remedial alternatives in its bid response. Common to each alternative is excavating the area delineated in Attachment 3a to a depth of 6 feet and completing 1 year of subsequent groundwater testing of enhanced-MNA. Selecting one of the three remedial alternatives discussed above shall be the basis for preparing a SOW and presenting a competitive fixed-price bid.

Solicitor seeks competitive, fixed-price bids for this Bid to Result RFB to complete the eight (8) milestones outlined below intended to take this site to SHS-closure (NRUA for soil and RUA for groundwater). To be deemed responsive, each bid *must* respond *in detail* to each of the milestones, including describing the bidder's understanding of the conceptual site model and how that model relates to the bidder's proposed approach.

"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).

Constituents of Concern (COCs)

Soil, groundwater and soil vapor samples collected at the Seneca site have been analyzed for the current PADEP Act 2 short-list of unleaded gasoline compounds. Based on these analyses, the COCs (i.e., those constituents exceeding the applicable SHS MSCs) present in site environmental media include the following:

Soil – Contamination exceeding applicable standards has been identified in soil beneath the Seneca property and off-property beneath SR 257. Target unleaded gasoline compounds exceeding the SHS in site soil include benzene, toluene, ethylbenzene, xylenes, naphthalene, 1,2,4-TMB and 1,3,5-TMB. Sustained dissolved-phase contamination indicates that soil remains an ongoing secondary source of groundwater impacts.

Groundwater – Dissolved-phase contaminants exceeding applicable standards have been identified in on- and off-property wells and have historically included all of the target short-list unleaded gasoline compounds except cumene. This is consistent with the most recent groundwater analytical data provided from the fourth quarter 2018 sampling event.

Soil vapor – Soil vapor analytical data provided from the two sampling events conducted at the Seneca facility indicated that no target constituents exceeded the stringent non-residential sub-slab SSS screening values.

General SOW Requirements

The bidder's work approach to fulfilling the requirements of this RFB 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:[16]

- Conduct necessary, reasonable, and appropriate project planning and management activities until the project (i.e., Remediation Agreement) is completed. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control, scheduling, and other activities (e.g., utility location). Project planning and management activities will also include preparing and implementing plans for health and safety, waste management, field sampling/analysis, and/or other plans that are necessary and appropriate to complete the SOW, and shall also include activities related to

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

establishing any necessary access agreements.[17] 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 Solicitor/facility operator with adequate advance notice prior to each visit to the property. The purpose of this notification is to coordinate with the Solicitor/facility operator to ensure that appropriate areas of the property are accessible. Return visits to the Site will not constitute a change in the selected consultant's SOW or result in additional compensation under the Remediation Agreement.

Site-Specific Guidelines

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

On-Property Access. Since business activities no longer occur in the remediation area of the Seneca site, and previously owned car sales is confined to the southern half of the relatively large parcel, bidders may find that maneuverability is not a significant concern. However, vehicle traffic along SR 257 can be heavy at times. As such, bidders shall be mindful that safety precautions (e.g., traffic control measures) prior to and during field activities conducted near, or within the PennDOT ROW will need to be accounted for in responding to this RFB.

[17] C&A previously entered into an access agreement with the owners of an adjacent commercial property (Seneca Lawn & Landscape) for installing / sampling monitoring wells. Bid responses shall assume that reestablishing the access agreement with this property owner will be necessary.

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

Field Activities. All on- and off-property work shall 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 facility operator (Solicitor) / adjacent property owner(s). The selected consultant will be responsible for determining and adhering to other reasonable restrictions that may apply to the Seneca property or surrounding properties (e.g., notification of work in advance).

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

Field Instrumentation. Each bidder should identify in its bid response the key field instrumentation (e.g., pumps, meters, photoionization detectors, etc.) proposed to be used to execute the RFB outlined work. For example, since this is an unleaded gasoline spill site, specified field-screening instrumentation would be expected to be designed to detect volatile petroleum contaminants associated with unleaded gasoline.

Safety Measures. Each bidder shall determine the safety measures necessary to appropriately complete the RFB milestones and include the costs of safely conducting the work in accordance with OSHA, state, industry and other applicable safety requirements and guidance. For example, if a bidder feels that it is appropriate and necessary to complete utility clearance using an air knife, the cost should be included in its fixed-price cost. If a bidder includes costs to conduct specific safety measures or activities, the bidder shall discuss these in the bid response along with why the proposed measures are appropriate and necessary. As discussed in the RFB, cost is not the only factor when evaluating bid responses and other factors are taken into consideration during the bid evaluation process, including appropriate safety measures.

Waste Disposal. The investigation derived waste (including, but not limited to, soil/rock cuttings, used carbon, well development / purging liquids, groundwater removed during pilot testing activities, etc.) 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 or other non-essential items may be temporarily staged on the Seneca property, but should be removed from the property as quickly as possible. Each bidder shall determine the volume of waste using its professional opinion, experience and the data provided and include associated waste management / disposal costs within applicable milestone bids. **ICF and PAUSTIF will not entertain any assumptions from the selected bidder in the Remediation Agreement with regards to a volume of waste. Reimbursement of separate invoices covering additional waste disposal costs as part of RFB milestone activities will not be considered.**

RFB Milestones

Bidders are requested to bid on each of the RFB milestones described below.

Milestone A - Supplemental Site Characterization Activities. This milestone provides each bidder the opportunity to fill in any data gaps that it has identified in the site characterization and / or that would help the bidder finalize the remedial design ahead of its implementation. The goal is to provide the successful bidder with a chance to confirm existing site data and / or develop an improved understanding of site conditions as it assumes responsibility as the consultant of record.

Conducting some supplemental investigative activities under this milestone is mandatory. PAUSTIF will be reimbursing up to $10,000 for supplemental site characterization and documentation 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 materials (T&M) 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. This is the only RFB milestone that will be reimbursed on a T&M basis.

Bidders may use this opportunity to: 1) confirm any elements of the site characterization completed by a previous consultant; 2) address any perceived data gaps in the existing site characterization work; 3) assist in the evaluation and determination of remedial technologies and system design that are characterization-type activities (e.g. analysis for C_4-C_{12}); or 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 contaminant mass in place).

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

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

Example potential activities for bidders to consider may include tasks such as: i) performing geotechnical sampling / analyses to assist with determining excavation sidewall stability; ii) conducting additional well gauging to refine the vertical limits of unsaturated, smear zone and permanently saturated soils; and / or iii) waste characterization / profile sampling for off-property disposal of excessively impacted soil. Any and all Milestone A activities that are proposed with your firm's bid shall be accompanied by the following:

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

Following completion of the additional site characterization activities, these Milestone A activities shall be documented as discussed in Milestone B.[18]

Milestone B – Documentation of Findings: Preparation, Submittal and PADEP Approval of a RAP Addendum (RAPA). Upon completing Milestone A as described above the successful bidder shall prepare and submit a RAPA to PADEP. The RAPA shall: (a) document C&A's post-RAP supplemental soil delineation and well installation work (presented in the second and third quarter 2018 RAPRs); (b) document the successful bidder's supplemental site characterization work conducted under Milestone A; (c) present C&A's expanded excavation plan (Attachment 3a) as a RAP modification; and (d) if either remedial Alternatives 2 or 3 is selected, present the modification as the new remedial action plan.

The RAPA shall first be submitted in draft form to the Solicitor and PAUSTIF for review and comment before being finalized and submitted to the PADEP. Each bidder's project schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft document. The final

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

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 RAPA shall describe and provide an evaluation of all findings generated under Milestone A above, updating the conceptual site model (CSM) for the Site and its vicinity, and detailing any proposed modifications to the PADEP-approved RAP remedial approach. The RAPA shall incorporate information and relevant findings from the previous site documentation (as necessary), and contain all necessary and appropriate figures, tabulated data and appendices to comply with the regulatory requirements for and to obtain PADEP approval of the RAPA.

The RAPA shall be signed and sealed by the appropriate environmental professional (i.e., a Professional Geologist and / or Professional Engineer, licensed 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 report. The fixed-price cost shall also include addressing any PADEP comments on the RAPA.[19]

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

Milestone C – Pre-Excavation Quarterly Groundwater and Surface Water Monitoring, Sampling & Reporting. Under this task, bidders shall provide a firm fixed-price to continue with quarterly groundwater and surface water monitoring, sampling, and reporting events while performing the supplemental site characterization activities under Milestone A, preparing a RAPA (and PADEP approval) under Milestone B, and completing preparations leading up to implementation of the RAP or RAPA (e.g., scheduling, coordination & site preparation). For the purpose of this RFB, it is assumed the Milestone C activities will be required for two quarters. However, each bid must specify the number of quarterly events that will be needed prior to implementation of the remedial approach (Milestone D) along with supporting rationale. Any additional quarterly monitoring, sampling and reporting events, beyond the two quarters specified in this RFB, shall be defined on the Bid Cost Spreadsheet and shall be incorporated in the Remediation Agreement as per event Optional Cost Adder Milestone C3.[20]

[19] All figures to be included in the RAPA (e.g., site plans, etc.) shall be available in electronic format to the Solicitor upon request.

[20] The Remediation Agreement includes a Provision that the pre-remedial quarterly site monitoring, sampling & reporting events will be limited to the two quarters under Milestone C plus the number of additional events under Optional Cost Adder Milestone C3 as defined in the selected bid. If additional events are required under Milestone C3, pre-approval from Client and PAUSTIF (for funding) is required.

Each quarterly monitoring & sampling event shall include the on- and off-property overburden groundwater monitoring well network currently sampled consisting of MW-1 through MW-19. [21] Also during each quarterly event, surface water samples shall be collected from the established upstream and downstream monitoring points located along the unnamed tributary to Lower Twomile Run. The conduct and results of each event shall be documented in quarterly RAPRs.

During each quarterly event, the depth to groundwater and potential SPH shall be gauged in all existing monitoring wells and before purging the wells designated above for sample collection. Groundwater level measurements shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient.[22]

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.[23] Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with PADEP NWRO guidance. Surface water samples shall be collected consistent with PADEP technical guidance.

Groundwater and surface water samples shall be analyzed for the current PADEP short-list of unleaded gasoline parameters (benzene, toluene, ethylbenzene, xylenes, MTBE, cumene, naphthalene, 1,2,4-TMB and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.[24] In addition, each quarterly event shall include field measurements for the following parameters: pH, temperature, specific conductance, dissolved oxygen (measured in-situ), oxidation/reduction potential, and total dissolved solids (TDS).

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

[21] The fixed price cost shall also include any additional monitoring well(s) that the bidder may propose to install under Milestone A (if any).

[22] Traffic control will be necessary for gauging / sampling the wells located within the SR 257 shoulder and travel lanes.

[23] As mentioned above, measureable SPH has been observed in wells MW-3 and MW-4 and hydrocarbon sheen has often been observed in wells MW-1, MW-2 and MW-5. Active SPH removal activities appear to have been successful in significantly reducing the volume of SPH in the subsurface and no measurable SPH has been observed in any well since 4/11/18 (MW-3) based on the currently available 3Q18 gauging data.

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

- A summary of site operations and remedial progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored points documenting the depth to groundwater and thickness of any free product encountered. This data shall be presented on the same table as the historical quantitative groundwater / surface water analytical results mentioned below;
- A groundwater elevation contour map depicting groundwater flow direction in the overburden;
- Tabulated historical quantitative groundwater and surface water 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;[25]
- 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, contracting, or expanding plume;
- Treatment and disposal documentation for waste generated during the reporting period; and
- Demonstration of compliance with the required Federal, State, and local permits and approvals.

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

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

Milestone D – Implementation of RAPA. Under this milestone, bidders shall provide a fixed-price cost inclusive of all the manpower, machinery, materials, and other costs needed to fully implement the remedial solution for the Seneca site as described in the PADEP-approved RAP as modified by the bidder's RAPA. The cost breakdown for implementing the remedial approach described in the RAPA shall follow the format prescribed by sub-Milestones D1 through D3. For bidder's excavation work scope and cost, bidders shall assume the excavation boundaries and dimensions shown in Attachment 3i. Bid responses shall anticipate that the full lateral and vertical dimensions of the depicted volumes shall be excavated, backfilled and restored under Milestone D. Again, bidders shall bid on implementing one of the three remedial alternatives summarized in "*Objectives and Remedial Alternatives*", above.

Additional information regarding the remedial alternatives and related bid details for implementation of the RAP or RAPA are provided in sub-Milestones D1 through D3 below.

Milestone D1 – Pre-Excavation Preparation Activities. The selected consultant shall complete preparatory activities in advance of the soil excavation. These activities may include coordination and scheduling with subcontractors / vendors, procuring equipment and materials, securing required permits and providing notifications to Solicitor and other stakeholders.

Before mobilizing to the site, a mark-out of buried utilities or other subsurface features shall be completed within and in the general vicinity of the areas designated for soil excavation and PA One Call notification shall be made and documented. Also, the canopy above the former dispensers shall be removed prior to initiating the soil excavation activities. Once removed, the steel and aluminum from the canopy shall be staged at a location in the rear of the property to be designated by the property owner. Given the overhead utility and electric lines that extend along the western facility property boundary and within the proposed excavation area, care shall be taken not to contact these nearby lines during canopy removal (and during subsequent soil excavation activities). The electric service provider will need to be contacted to determine whether the power lines might require shielding.[26]

Because portions of the excavation footprint will encroach on the SR 257 shoulder and travel lanes, the selected bidder shall secure all necessary permits from PennDOT (i.e., Highway Occupancy Permit [HOP] or Right of Entry Agreement [ROEA]).[27] Such permitting, in part, shall require a traffic control plan developed in accordance with PennDOT guidelines and bidders shall provide costs for necessary traffic control personnel and equipment.

Milestone D2 – Soil Excavation, Transport & Disposal of Impacted Soil, ODP (Alternative #1), CBP (Alternative #2) or chemical oxidant / ODP (Alternative #3) Application and Backfilling. Bidders proposing to implement the RAPA excavation work with ODP application (Alternative

[26] Reportedly, portions of these lines may not be insulated.
[27] The Remediation Agreement shall contain a Provision stating that should PennDOT permiting fees be incurred, these charges will be reimbursed by PAUSTIF on a time & materials basis.

#1), CBP application (Alternative #2) or ISCO & ODP (Alternative #3) shall provide a firm fixed-price cost to complete excavation of soil along with chemical additions, backfilling and surface restoration consistent with pre-existing surface conditions.

Should the horizontal and/or vertical boundaries of one or more of the excavation areas need to be expanded based on field screening / observations, and after written consultation with USTIF / ICF, the costs of the added digging, backfilling, surface restoration and management will be addressed via bid optional unit cost adders (discussed below).

Accumulating groundwater during excavation can be expected and will require proper management. Since the volume of impacted groundwater that would require management for disposal cannot be precisely determined at this time, compensation to the successful bidder will be based on a fixed, per-gallon unit cost for the management, sampling, loading, transportation and disposal (or on-site treatment & regulatory permitted discharge) of impacted groundwater removed from the soil excavations. The successful bidder will only be reimbursed for the actual gallons of water removed from the excavations and properly disposed. The successful bidder is expected to follow normal industry practices when scheduling the work to avoid excessive precipitation events to the extent possible and to conduct the excavation and backfilling work as quickly and efficiently as possible to minimize water production.

As previously mentioned, subsurface utilities beneath and adjacent to the Seneca facility include natural gas, municipal water, sanitary sewer and storm sewer. Given the locations of these underground utilities as depicted in the figure provided in Attachment 3a, and the estimated soil excavation footprints delineated on the figure provided in Attachment 3i, soil removal activities could potentially encounter the main sanitary sewer line that extends along the facility western property boundary if the depth of the excavation needs to be increased. Additionally, although not anticipated, the natural gas service lateral to the vacant site building could be encountered near the northernmost end of the soil excavation area.[28] Should the sanitary sewer line or natural gas lateral need to be temporarily disconnected, cut and repaired, the activities shall be covered under optional cost adder Milestones D2A and D2B, respectively.

The bidder's fixed-price cost for this milestone shall describe how the bidder will apply the ODP, CBP, or chemical oxidant / ODP combination to the excavations including applied volumes / mass and focus zones. Each bid shall provide details regarding the proposed manufacturer and product model / product composition, the volume / mass to be used (and basis), and the basis of design for the material mass proposed to be applied.

Fixed-price bids shall also include backfilling and mechanically compacting in lifts the excavated volumes. As requested by the Solicitor, following the soil excavation, attainment sampling and amendment application, the successful bidder shall place all backfill materials into the

[28] The depth of the sanitary sewer line is reported at approximately 8 ft-bg (it is unclear whether this represents the top of the sewer line or the invert). The depth to the natural gas service lateral is not available.

excavation in 1-foot loose lifts. Each lift shall be compacted to within 95% of the maximum density of the backfill material, as determined through Standard Proctor analysis. In-situ density testing of each individual compacted lift shall be completed by an independent third-party testing company using Nuclear Density Gauge testing methods. Backfill shall consist of a combination of reused "clean" site soil and imported clean fill. Excavated material stockpiled on site for re-use shall be sampled prior to backfilling, and the fixed-price bid shall include costs for the sampling and laboratory work in accordance with PADEP guidance documents. The backfill material characteristics, combined with the placement / compaction methods described above, shall result in a stabilized soil condition capable of supporting normal traffic and use loads at this potential future commercial facility. In general, the backfill materials shall be free of vegetation, stone exceeding gravel dimensions, trash, lumber, and other unsuitable materials. Backfill shall be mechanically compacted by means capable of achieving the compaction criteria specified above (e.g., tamping rollers, sheep foot rollers, pneumatic tire rollers, vibrating rollers, or other mechanical tampers that are appropriate for the material being compacted).

Bids shall also include surface paving and other completion / restoration activities (e.g., revegetation) as necessary, to restore the excavated areas to pre-excavation conditions. On the Seneca property, the asphalt and concrete removed during soil excavation activities shall be replaced with new asphalt. Specifically, the asphalt on the Seneca property shall be replaced using 5-inches of compacted 2A non-asphaltic limestone subbase, 2.5-inches of asphaltic binder, and a 1.5-inch asphaltic top coat. **Bidders should note that backfilling, compaction and road surface restoration in excavated portions of the SR 257 shoulder and travel lanes will need to adhere to PennDOT's specific engineering guidelines and any other conditions specified in the HOP / ROEA. Also, the concrete curb along SR 257 shall be replaced to meet or exceed all PennDOT specifications.**

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

The SOW and fixed-price cost for Milestone D2 shall state / provide the following:

- Only excessively impacted soil (i.e., excavated soil exceeding the stated PID screening threshold) shall be transported and disposed off-site;
- Several monitoring wells are anticipated to be destroyed during the excavation work. Bids shall identify the wells within the excavation footprint to be destroyed. These wells will need to be decommissioned in accordance with PADEP guidance as part of this task prior to initiating the excavation activities. Any destroyed monitoring or observation well shall be replaced at, or as close as possible to its original location. Construction details for the replacement wells shall be identical, or as close as possible to the original wells;

- A detailed discussion regarding the excavation approach; groundwater management; soil screening and segregation techniques (including the PID screening threshold for determining "clean" versus excessively impacted soil); clean fill sampling and plans for reuse; waste management and profiling; plans for soil staging; the possibility for direct loading of excessively impacted soil; type of backfill; backfilling / compaction methods; plans for surface restoration; records keeping, etc.;
- **A comprehensive and complete fixed-price bid for Milestone D2 that shall *only* <u>exclude</u> the costs for (1) contaminated soil transportation and disposal ($/ton); (2) clean fill importation ($/ton); and (3) contaminated water transportation and disposal ($/gal).** Bidders shall provide fixed-cost unit rates for these tasks under Optional Cost Adder Milestones UC3, UC4A / UC4B, and UC5, respectively; and
- A schedule for implementing and completing the excavation work.

In addition to providing a fixed-price bid for excavating, backfilling, restoring the defined excavation area, and well abandonment and replacement activities, bidders shall also provide excavation-related unit costs (included on the Attachment 2, Bid Cost Spreadsheet) to accommodate variable quantities and changes that may be required. These unit costs are:

UC3 Management, loading, transportation and proper off-site disposal of excessively contaminated soils (cost per ton);

UC4A Purchase, transportation and on-site management of clean imported fill to replace exported excessively contaminated soil on Solicitor's property (cost per ton);

UC4B Purchase, transportation and on-site management of clean imported fill to replace exported excessively contaminated soil on PennDOT property (per Department engineering specifications) (cost per ton);

UC5 Management, sampling / analysis, loading, transportation and disposal of impacted groundwater removed from the soil excavation (cost per gallon);

UC6 Additional excavation beyond identified excavation limits and additional backfilling & compaction on Solicitor's property, excluding excessively contaminated soil transportation / disposal costs since these are captured under UC3 (cost per in-place cu yard);[29] It shall also exclude UC4A, UC5, and UC8A cost components as these would be accounted for under these other unit cost factors;

UC7 Additional excavation beyond identified excavation limits and additional backfilling & compaction on PennDOT property (per Department engineering specifications), excluding excessively contaminated soil transportation / disposal costs since these are captured under UC3 (cost

[29] The successful bidder cannot count on reimbursement of excavation beyond the limits depicted in the Figure provided in Attachment 3i without having obtained prior written approval of the supplemental work by Solicitor and PAUSTIF or their agents before completing the supplemental excavation work.

per in-place cu yard);[30] It shall also exclude UC4B, UC5, and UC8B cost components as these would be accounted for under these other unit cost factors;

UC8A Surface restoration of asphalt areas beyond identified target excavation limits on Solicitor's property (cost per square foot); and

UC8B Surface restoration of PennDOT ROW (shoulder and travel lanes per Department engineering specifications) beyond identified target excavation limits (cost per square foot).

When evaluating the cost component of bid responses, the bidders unit costs for UC3, UC4A / UC4B, and UC5 will be added to the bidders total fixed-price provided in Attachment 2 assuming 1,300 tons for T&D of impacted soils (assumed fraction of the excavated soil requiring off-property T&D and same amount of clean fill importation) and assuming 10,000 gallons of impacted groundwater disposal for each of the three remedial alternatives.

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

Milestone D3 – Post-Excavation Soil Attainment Sampling. After the soil excavation work has been completed for remedial Alternatives #1, #2 or #3, and prior to backfilling the excavation, soil samples shall be collected from the excavation sidewalls for demonstrating attainment of the SHS. The selected bidder shall develop and implement a program for systematic random soil sampling (SRSS) to be applied along the perimeter of the excavation sidewall and span the depth interval of unsaturated *and* smear zone soils where excessive contamination was found during characterization. The SRSS grid shall not extend into the zone of permanent saturation. Each bidder ***must*** describe in detail its approach to addressing soil attainment, and include the depth interval, a drawing showing the locations where the sampling grid, or grids, would be applied, and the number of samples needed to demonstrate soil attainment.

[30] The successful bidder cannot count on reimbursement of excavation beyond the limits depicted in the Figure provided in Attachment 3i without having obtained prior written approval of the supplemental work by Solicitor and PAUSTIF or their agents before completing the supplemental excavation work.

The location / depth of the soil samples shall be determined using PADEP's SRSS procedures, assuming one soil sample per random grid point shall be submitted for laboratory analysis. Alternate SRSS points shall be selected for any primary SRSS sample location that could possibly encounter an existing below grade utility (e.g., sanitary sewer line) or other possible subsurface obstruction. Soil samples shall be analyzed for the current PADEP short list of unleaded gasoline parameters by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis of the same parameters.[31] The soil sampling results shall be evaluated using PADEP's 75%/10x or 75%/2x Ad Hoc Rules, as appropriate. Soil attainment sampling methods and results shall be documented in the RACR.[32]

Milestone E – Post-Excavation Quarterly Enhanced-MNA Groundwater Monitoring, Sampling & Reporting. Under this milestone, bidders shall provide a firm fixed-price to complete four quarterly groundwater monitoring, sampling and reporting events to assess the effect of the remedial soil excavation and applied amendments on groundwater quality and to determine when / if the groundwater attainment demonstration can be initiated. Each post-excavation groundwater monitoring and sampling event shall include all existing on- and off-property monitoring wells, including the wells requiring replacement following excavation, as previously defined under Milestone C.[33] The conduct and results of each event shall be documented in a quarterly RAPR.

Any additional post-excavation quarterly groundwater monitoring, sampling 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 per-event Optional Cost Adder Milestone E5.[34, 35]

During each quarterly post-excavation groundwater monitoring and sampling event, the depth to groundwater shall be gauged in <u>all existing monitoring wells,</u> and before purging the wells for

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

[32] Should the systematic random soil sampling / statistical analysis find that the SHS-NRUA has not been attained, this condition would be considered out-of-scope and a revised SCR (RSCR) and/or revised RAP (RRAP) shall be prepared on a time & materials basis under a Provision in the Remediation Agreement to meet the PADEP's January 2018 SCR / RAP approval letter requiring that a RSCR and/or RRAP be submitted to the Department within 90 days following receipt of the non-compliant soil analytical results. Before implementing this work, the selected bidder shall provide a scope of work and cost estimate for developing and implementing a RSCR and/or RRAP for ICF / PAUSTIF pre-approval.

[33] Traffic control will be necessary to monitor and sample wells installed within the SR 257 ROW and travel lanes.

[34] The Remediation Agreement includes a Provision that the post-remediation quarterly site monitoring, sampling & reporting events will be limited to the four quarters under Milestone E plus the number of additional events under Optional Cost Adder Milestone E5 as defined in the selected bid. If additional events are required under Milestone E5, pre-approval from Solicitor and PAUSTIF (for funding) is required.

[35] If it becomes evident anytime during the post-excavation quarterly groundwater monitoring, sampling & reporting that initiating the groundwater attainment demonstration will not be possible within the four quarters plus any additional quarters conducted under Optional Cost Adder Milestone E5, this will represent a New Condition under the contract.

sample collection. Groundwater level measurements shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient.

Each of the monitoring points 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 PADEP NWRO guidance.

Groundwater samples shall be analyzed for the current PADEP short list of unleaded gasoline parameters by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.[36] 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.

As mentioned above under the *Summary of Site Background and Featur*es section, the site SCR and RAP were approved by the PADEP in a letter dated 1/8/18 (Attachment 3e) with modifications that, in part, apply to the post-excavation groundwater sampling. Those modifications specifically requested that:

1. "Groundwater shall be monitored for dissolved oxygen on a quarterly basis to evaluate the effectiveness of the oxygen release compound (ORC)" [i.e., applied ODP]. This RAP modification will apply to Remedial Alternatives #1 and #3. Additionally, based on the remedial alternative selected, bid responses shall describe the methods and include costs for monitoring other parameters, as applicable, to assess the effectiveness of the CBP (Alternative #2) or chemical oxidant (Alternative #3).

2. "Post-remedial sampling of groundwater shall not apply to the attainment demonstration until the ORC [i.e., ODP] is no longer influencing groundwater based on geochemical analysis." For the purposes of this RFB, this PADEP requirement will apply equally to all three remedial alternatives. Based on the remedial alternative selected, bid responses shall describe the methods and include in the milestone cost, monitoring / analysis of other parameters, as applicable, to evaluate when the temporary beneficial effects of the amendments have abated.

The post-excavation groundwater monitoring reports describing the sampling methods and results shall be provided to the PADEP on a quarterly basis and within 30 days of the end of each quarter. At a minimum, each quarterly report shall contain the following:

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

- A summary of site operations and remedial progress made during the reporting period;
- Narrative description of the sampling procedures and results;
- Excavation amendment influence monitoring data / observations (e.g., DO and other indicators);
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered. This data shall be presented on the same table as the historical quantitative groundwater analytical results;
- A groundwater elevation contour map depicting groundwater flow direction in the overburden;
- 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;[37]
- 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 post-excavation groundwater monitoring 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 quarterly reports).

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

Milestone F – Groundwater Attainment Demonstration.

Under this task, bidders shall provide a firm fixed-price to complete up to eight quarters of groundwater attainment monitoring, sampling and reporting after the enhanced-MNA groundwater monitoring (Milestone E) has been completed.[38] Each attainment groundwater monitoring and sampling event shall include the POC wells MW-2 through MW-7, MW-9, MW-10, MW-11 and MW-15 as defined in the PADEP-approved November 2017 RAP, and the off-property attainment wells MW-12, MW-13, MW-14, and MW-16 through MW-19.[39] The conduct and results of each event shall be documented in quarterly RAPRs.[40] Any additional quarterly attainment monitoring and reporting events, beyond the eight 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 F9 through F12.

During each quarterly groundwater attainment monitoring and sampling event, the depth to groundwater shall be gauged in all available existing monitoring wells and prior to purging any of the designated monitoring 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 NWRO guidance.

Groundwater samples shall be analyzed for the current PADEP short-list of unleaded gasoline parameters by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate QA/QC samples shall also be collected during each event and

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

[39] The fixed price cost shall also include any additional monitoring well(s) that the bidder may propose to install under Milestone A (if any) that may qualify as a POC or off-property attainment well. Note that POCs MW-2, MW-3, MW-4 and MW-5 monitored during the attainment demonstration will be replacement wells for the originals within the excavation footprint.

[40] If it becomes evident anytime during the groundwater attainment demonstration (initiated subsequent to completing at least the four (4) quarters of post-excavation groundwater sampling / reporting under Milestone E) that the attainment demonstration will not be successful within the allotted 8 quarters (plus any additional quarters under Optional Cost Adder Milestone F) in one or more of the POC or off-property attainment wells (e.g., a greater than 10X result or more than two SHS exceedances, etc.), this condition would be considered out-of-scope and a RSCR and/or RRAP shall be prepared on a time & materials basis under a Provision in the Remediation Agreement to meet the PADEP's January 2018 SCR / RAP approval letter requiring that a RSCR and/or RRAP be submitted to the Department within 90 days following receipt of the non-compliant groundwater analytical results. Before implementing this work, the selected bidder shall provide a scope of work and cost estimate for developing and implementing the RSCR and/or RRAP for ICF / PAUSTIF pre-approval.

analyzed for the same parameters.[41] In addition, each event shall include field measurements for the following parameters: pH, temperature, specific conductance, dissolved oxygen (measured in-situ), oxidation / reduction potential, and TDS.

The groundwater attainment demonstration reports describing the sampling methods and results will be provided to the PADEP on a quarterly basis and within 30 days of the end of the current 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. This data shall be presented on the same table as the historical quantitative groundwater analytical results;
- A groundwater elevation contour map depicting groundwater flow direction in the overburden;
- 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;[42]
- 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

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

[42] 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.

- Demonstration of compliance with the required Federal, State, and local permits and approvals.

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

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

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

Milestone H – Site Closure / Restoration Activities. Under this milestone, the bidder shall describe and provide a fixed-price bid for properly closing the site, including: in-place abandonment of monitoring wells and soil vapor sampling points consistent with PADEP guidelines; well head removals; and surface re-vegetation and asphalt repairs, as applicable, for areas that have been disturbed by site characterization or remedial action activities. All excavation backfilling and asphalting work shall be completed as described under Milestone D2 above. This milestone shall also include photo–documenting the site restoration work and completing well abandonment forms to be submitted to the appropriate regulatory agencies. Copies of these photographs and forms shall also be provided for the Solicitor's files.

Each bid shall specify the estimated number of days between PADEP approval of the RACR and initiating the Milestone H site restoration work. Site restoration activities shall be conducted in accordance with standard industry practices and applicable laws, regulations, guidance, and

PADEP directives. Conduct of all site closure / restoration activities shall be coordinated with the Solicitor.

Optional Cost Adder Milestones

A number of optional cost adders may come into play at this site. Therefore, bidders shall provide unit pricing for these contingencies outside the base RFB scope. Note that before any work associated with these unit cost adders is conducted, the selected consultant shall provide a written request and detailed technical explanation for review and consideration by ICF (PAUSTIF Administrator) and/or its technical agent ahead of any written authorization to proceed.

Optional Cost Adder Milestone C3 – Additional Pre-Remediation Quarterly Groundwater Monitoring, Sampling & Reporting. Under this milestone, bidders shall provide Solicitor and PAUSTIF with a firm quarterly fixed-price unit cost that would include the quarterly groundwater monitoring, sampling, analysis and reporting beyond the two quarters specified in Milestone C. The SOW for this unit cost adder milestone shall follow Milestone C guidelines. Technical justification will be required by the selected consultant prior to implementing this optional cost adder milestone.

Optional Cost Adder Milestone D2A – Remove / Replace Affected Section of Sanitary Sewer Line. Encountering the 8-foot deep sanitary sewer line during the 6-foot deep excavation is not anticipated. However, if file information is inaccurate on the depth of the sanitary sewer and/or the excavation unexpectedly needs to be deepened, bidders are requested to provide a firm, comprehensive fixed-price unit cost to remove and replace the affected segment of sanitary sewer line including notifying / securing approval from the local POTW and any subcontractor costs, as necessary.

Optional Cost Adder Milestone D2B – Remove / Replace Affected Section of Natural Gas Service Lateral. A natural gas line to Solicitor's vacant building is located at the far northern end of the planned excavation. The excavation dimensions are designed to terminate prior to this gas line. While encountering the gas line is not anticipated, if file information is inaccurate on the location of the gas line and / or the excavation unexpectedly needs to be expanded to the north, bidders are requested to provide a firm, comprehensive fixed-price unit cost to remove and replace the affected segment of the facility natural gas service lateral including notifying / securing approval from the natural gas provider and any subcontractor costs, as necessary.

Optional Cost Adder Milestone E5 – Additional Post-Excavation Enhanced MNA Groundwater Monitoring, Sampling and Reporting. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly fixed-price unit cost that would include the quarterly groundwater monitoring, sampling, analysis, and reporting beyond the four quarters specified in Milestone E. The SOW for this unit cost adder milestone shall follow

Milestone E guidelines. Technical justification will be required by the selected consultant prior to implementing this optional cost adder milestone.

Optional Cost Adder Milestone F9 through F12 – Additional Groundwater Attainment Demonstration. Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly fixed-price unit cost that would include the quarterly groundwater monitoring, sampling and analysis of the wells defined under Milestone F and reporting beyond the eight quarters specified in Milestone F. The SOW for this unit cost adder milestone shall follow Milestone F guidelines. Technical justification will be required by the selected consultant prior to implementing this optional cost adder milestone.

Optional Cost Adder Milestone UC1 - Post-Remediation Vapor Intrusion Assessment. Under this milestone, bidders shall provide a firm fixed-price to conduct a post-remediation VI assessment if requested by the PADEP. Bidders shall assume that the follow-up VI assessment shall be limited to comparing any post-excavation residual soil and/or groundwater contamination to the screening criteria established in the revised PADEP VI guidance (effective January 2017) to verify that all constituent concentrations are below the screening criteria and pose no human health risk related to VI. Should additional VI evaluation be required by the PADEP (e.g., additional soil vapor sampling), then this would represent a Changed Condition under the Remediation Agreement and would be handled according to those terms and conditions of the contract.

Optional Cost Adder Milestone UC2 – Installation of Additional Off-Property Plume Delineation Well. Under this milestone, bidders shall provide a firm fixed-price to install an additional off-property shallow delineation well if requested by the PADEP. The well shall be constructed consistent with the existing site monitoring wells and according to the PADEP Groundwater Monitoring Guidance Manual. The cost for this milestone shall also include well development, professionally surveying the well location and elevations, and conducting two rounds of groundwater gauging, purging and sample collection consistent with the requirements specified under Milestone C. Because this well would potentially be installed in the PennDOT ROW, bidders shall assume access will be secured under the PennDOT HOP / ROEA permitting to be completed under Milestone D.

Optional Cost Adder Milestone UC3 – Excessively Contaminated Soil Transportation and Disposal. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/ton) for managing, loading, transporting and properly disposing excessively contaminated soil at a facility approved for accepting this waste stream.

Optional Cost Adder Milestone UC4A – Clean Fill Importation, Solicitor's Property. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/ton) for importing clean fill material (purchase, transport and on-site management) for use in backfilling the excavation.

The imported clean fill will be used to supplement any excavated soil that is determined to be suitable for reuse based on sampling and laboratory analysis.

Optional Cost Adder Milestone UC4B – Clean Fill Importation, PennDOT Property. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/ton) for importing clean fill material (purchase, transport and on-site management) for use in backfilling the excavation. The imported clean fill shall meet or exceed PennDOT engineering specifications and will be used to supplement any excavated soil that is determined to be suitable for reuse based on sampling and laboratory analysis.

Optional Cost Adder Milestone UC5 – Contaminated Water Transportation and Disposal. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/gallon) for managing, sampling / analysis, loading, transporting and disposing excessively contaminated excavation water at a facility approved for treating this waste stream.

Optional Cost Adder Milestone UC6 – Expansion of Soil Excavation, Additional Backfilling & Compaction on Solicitor's Property. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/in-place cubic yard) should expansion of the soil excavation beyond the dimensions defined in this RFB become necessary as warranted by field screening and other appropriate observations. The cost for this milestone shall exclude excessively contaminated soil transportation / disposal costs since these are captured under milestone UC3.[43] It shall also exclude UC4A, UC5, and UC8A cost components as these would be accounted for under these other unit cost factors.

Optional Cost Adder Milestone UC7 – Expansion of Soil Excavation, Additional Backfilling & Compaction on PennDOT Property. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/in-place cubic yard) should expansion of the soil excavation beyond the dimensions defined in this RFB become necessary as warranted by field screening and other appropriate observations. The cost for this milestone shall exclude excessively contaminated soil transportation / disposal costs since these are captured under milestone UC3.[44] It shall also exclude UC4B, UC5, and UC8B cost components as these would be accounted for under these other unit cost factors.

Optional Cost Adder Milestone UC8A – Surface Restoration on Solicitor's Property. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/square foot) for surface restoration of areas beyond the designated target excavation limits.

[43] The successful bidder cannot count on reimbursement of excavation beyond the limits depicted in the figure provided in Attachment 3i without having obtained prior written approval of the supplemental work by Solicitor and PAUSTIF or their agents before completing the supplemental excavation work.

[44] The successful bidder cannot count on reimbursement of excavation beyond the limits depicted in the figure provided in Attachment 3i without having obtained prior written approval of the supplemental work by Solicitor and PAUSTIF or their agents before completing the supplemental excavation work.

Optional Cost Adder Milestone UC8B – Surface Restoration on PennDOT Property. Under this milestone, bidders shall provide a firm fixed-price unit cost ($/square foot) for surface restoration of areas beyond the designated target excavation limits in the PennDOT ROW (shoulder and travel lanes per Department engineering specifications).

Additional Information

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

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

List of Attachments

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information / Historic Documents

    a. Site Plan and Updated Post-RAP Excavation Footprint
    b. UST Closure Report_February 2016
    c. Site Characterization Report_September 2017
    d. Remedial Action Plan_November 2017
    e. PADEP SCR – RAP Approval Letter_January 2018
    f. Second Quarter 2018 RAPR
    g. Third Quarter 2018 RAPR
    h. Fourth Quarter 2018 RAPR
    i. Soil Excavation Areas – Remedial Alternatives 1, 2 and 3