Request for Bid

Fixed-Price Defined Scope of Work

Additional Site Characterization Activities & Reporting

Solicitor

Robert and Beverly Benkowski

Former Wayne Pumps

1194 Wayne Avenue

Indiana, Indiana County, PA 15701

PADEP Facility ID #: 32-81999 PAUSTIF Claim #: 1998-0529(F)

Date of Issuance

February 3, 2014

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 has an open claim with the PAUSTIF and the corrective action work will be completed under this claim. Reimbursement of Solicitor-approved, reasonable and necessary costs up to claim limits 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 http://www.insurance.pa.gov.

Calendar of Events

Activity	Date and Time
Notification of Intent to Attend Site Visit	February 17, 2014
Mandatory Pre-Bid Site Visit	February 20, 2014, 11:00 AM
Deadline to Submit Questions	February 27, 2014; by 5:00 PM EST
Bid Due Date and Time	March 6, 2014, 3:00 PM EST

Contact Information

ICF International	Solicitor	Technical Contact
Ms. Bonnie Mackewicz Claim Investigator ICF International 4000 Vine Street Middletown, PA 17057	Ms. Beverly Benkowski 4303 West Lake Drive Cambridge, NE 69022-6112	Mr. Joseph Ozog, Jr., P.G. Excalibur Group, LLC 91 Park Avenue Windber, PA 15963 joeozog@excaliburgrpllc.com

All questions regarding this Request for Bid (RFB) and the subject site conditions must be directed via e-mail to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be **"[insert site name and claim number provided on cover page] – RFB QUESTION"**. Bidders must neither contact nor discuss this RFB with the Solicitor, PAUSTIF, the Pennsylvania Department of Environmental Protection (PADEP), or ICF International (ICF) unless approved by the Technical Contact. Bidders may discuss this RFB with subcontractors and vendors to the extent required for preparing the bid response.

Requirements

Mandatory Pre-Bid Site Meeting

The Solicitor, the Technical Contact, or their designee will hold a mandatory site visit on the date and time listed in the calendar of events to answer questions and conduct a site tour for one participant per bidding company. **This meeting is mandatory for all bidders, no exceptions**. This meeting will allow each bidding company to inspect the site and evaluate site conditions. **A notice of the bidder's intent to attend this meeting is requested to be provided to the Technical Contact via email by the date listed in the calendar of events with the subject "[insert site name and claim number provided on cover page] – SITE MEETING ATTENDANCE NOTIFICATION".** The name and contact information of the company participant should be included in the body of the e-mail.

Submission of Bids

To be considered for selection, **one hard copy of the signed bid package and one electronic copy (one PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact and the Solicitor. Bid responses will only be accepted from those companies that attended the mandatory pre-bid site meeting. **The ground address for overnight/next-day deliveries is ICF International, 4000 Vine Street, Middletown, PA 17057, Attention: Contracts Administrator. The outside of the shipping package containing the bid must be clearly marked and labeled with "Bid – Claim # [insert claim number provided on cover page]".** Please note that the use of U.S. Mail, FedEx, UPS, or other delivery method does not guarantee delivery to this address by the due date and time listed in the Calendar of Events for submission. Companies mailing bids should allow adequate delivery time to ensure timely receipt of their bid.

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

In addition, the bidder shall provide:

1. The bidder's proposed unit cost rates for each expected labor category, subcontractors, other direct costs, and equipment;
2. The bidder's proposed markup on other direct costs and subcontractors (if any);
3. The bidder's estimated total cost by task consistent with the proposed SOW identifying all level-of-effort and costing assumptions; and

4. A unit rate schedule that will be used should there be 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. 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.

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 or RACR). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW "as is" may result in a bid not being considered.
3. A copy of an insurance certificate that shows the bidder's level of insurance consistent with the requirements of the Remediation Agreement. Note: The selected consultant shall submit evidence to the Solicitor before beginning work that they have procured and will maintain Workers Compensation; commercial general and contractual liability; commercial automobile liability; and professional liability insurance commensurate with the level stated in the Remediation Agreement and for the work to be performed.
4. The names and brief resumes/qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)).
5. Responses to the following specific questions:
    a. Does your company employ a Pennsylvania-licensed Professional Geologist that is designated as the proposed project manager? How many years of experience does this person have?
    b. How many Pennsylvania Chapter 245 projects is your company currently the consultant for in the PADEP Region where the site is located? Please list up to ten.
    c. How many Pennsylvania Chapter 245 Corrective Action projects involving an approved SCR, RAP and RACR has your company and/or the Pennsylvania-

licensed Professional Geologist closed (i.e., obtained Relief from Liability from the PADEP) using any standard?

d. Has your firm ever been a party to a terminated PAUSTIF-funded Fixed-Price (FP) or Pay-for-Performance (PFP) contract without attaining all of the Milestones? If so, please explain.

6. A description of subcontractor involvement by task. Identify and describe the involvement and provide actual cost quotations/bids/proposals from all significant specialized subcontracted service (e.g., drilling/well installations, laboratory, etc.). <u>If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk</u>. **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 of each of the tasks/milestones specified in the Scope of Work, and indicate the timing of all proposed key milestone activities.

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, unreasonable provisions, and exceptions may result in the bid response being deemed “unresponsive”.

General Site Background and Description

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

Site Description / UST Release

The former Wayne Pumps property ("subject property" or "Site") is located at 1194 Wayne Avenue, near the town of Indiana, Pennsylvania, located on the northwest corner of Wayne Avenue and Rose Street in an area that is used for a mix of commercial and residential purposes. The subject property is comprised of a parcel of land encompassing ~44,000 square feet (~one acre) and is currently occupied by a single-story building (garage, office, and storage), four additional storage buildings, and several carport-type structures. Majority of the Site is a mixture of light vegetation along with asphalt and gravel surfaced areas. Property use adjoining the subject property includes roadway right-of-ways (ROW) for Wayne Avenue and Rose Street to the southeast and southwest, respectively; a commercial business to the northeast; and a natural drainage tributary, Marsh Run to the northwest followed by commercial businesses beyond Marsh Run. The Site and surrounding properties are shown on Figure 1 in Attachment 3A. Below-grade utilities on-site and in the area of the subject property consist of natural gas, water, sanitary, and storm sewer service, but the locations of these utilities have changed over time and are not known with certainty and shall be evaluated by the successful bidder.

At the time the release was discovered in December 1998, the subject property was owned and operated by the Claimant, Mr. and Mrs. Benkowski, with activities that included retail gasoline, diesel fuel, and kerosene sales. Closure via removal of the UST systems were initiated in December 1998 and continued into January 1999, and included six USTs, a 2,000-gallon diesel fuel steel UST (Tank 001), two 3,000-gallon diesel steel USTs (Tanks 002 and 003), two 10,000 gallon gasoline steel USTs (Tanks 004 and 005), and an unregistered 1,000-gallon kerosene steel UST; along with the associated product piping and dispenser islands. The kerosene UST was formerly located southwest of the Site building, and the remaining five USTs, were formerly located in a common tank cavity on the northeastern side of the Site building. The gasoline and diesel dispenser island was formerly located on the southeastern side of the Site building. See Figure 2 in Attachment 3A for the locations of the former UST systems. [1]

Since at least the 1970's, the Site was used historically for the storage and dispensing/retail sales of unleaded gasoline and diesel. It is reported that Tanks 001, 002, and 003 were

[1] Attachment 3C, *Underground Storage Tank System Closure Report Form"*, prepared by Chestnut Ridge Construction, dated January 4, 1999. Site plan in report shows only five USTs that were removed. Subsequent reports prepared by the claimant's consultant, J.Scott Bush Company indicated six USTs (two gasoline & two diesel USTs plus one 1,000 gallon kerosene UST).

installed in 1978 and Tanks 004 and 005 were installed in 1984[2]. The Claimant purchased the subject property in 1986 and leased the Site to William Satterlee, CEO of Mahoning Distribution's Indiana Card System who registered Tanks 001 through 005 with the PADER on September 4, 1990 identifying Mahoning Distribution as "Owner Name". The lease between the Claimant and Mahoning Distribution/Indiana Card System expired in October 1995 and the ownership of the USTs was transferred to the Claimant on March 31, 1996. The subject property was sold to the current owners, Mr. and Mrs. Kenneth McMunn after the USTs were removed, with current Site activities including the retail sale and installation of truck accessories. The Site no longer stores and dispenses petroleum products. The release of unleaded gasoline that is subject of this claim was discovered during removal of the UST systems in December 1998 and January 1999.

During facility inspections by PADEP in 1995, petroleum contaminated soils were discovered near the dispenser island and beneath the fill ports for the USTs. Additionally, stained soil was noted along the suction fuel conveyance piping. A UST closure notification form was submitted to the PADEP in June 1998 (See Attachment 3C). The UST system closure activities in December 1998 for Tanks 001 through 005 were performed by Chestnut Ridge Construction, Inc. located in New Alexandria, PA 15670. Tanks 001 through 005 and associated piping were reportedly in fair to good condition when they were removed, with the likely source of the release being "…overfills, possible line leaks and dispenser servicing for all USTs and fuel conveyance piping."[3] Confirmation of a release was identified by petroleum odors and staining in soils observed around the fill ports and piping between the tank cavity and pump islands.[4] Groundwater was reportedly encountered in the tank cavity excavations, which was pumped into a tank staged near the excavation, and was transported off site for disposal. An undocumented quantity of contaminated soils was removed from the site for off-site disposal. No information regarding any post-excavation confirmatory soil sampling is available, if performed was not provided in the files received from PADEP, PAUSTIF, or the UST removal contractor.

Historical Investigations, Characterization, & Interim Remedial Activities

Known historical site investigation activities associated with Claim #1998-0529F have been performed by J. Scott Bush Company on behalf of the Claimant, and are documented in a February 21, 2000 Site Characterization Investigation Report (Attachment 3D) and a October 16, 2002 Environmental Site Characterization Investigation Soil Remedial Action Completion Report (Attachment 3E) for the former Wayne Pumps Site. The February 2000 investigation documented the advancement and sampling of soil borings and installation of monitoring wells at the subject property in early December 1999 in an effort to determine the nature and extent of soil and groundwater contamination associated with the former UST systems. Reportedly, a total of 29 soil borings (TB-1 through TB-29) were advanced around the two separate former tank cavities and the former dispenser island to depths ranging from 4 to 12 feet below ground surface (bgs) using hollow stem auger and split spoon sampling methods. The soil borings

[2] No information on the installation date or use of the kerosene UST was provided.
[3] *Underground Storage Tank System Closure Report Form"*, prepared by Chestnut Ridge Construction, dated January 4, 1999.
[4] *"Notification of Reportable Release, Notification of Contamination"* form to PADEP, dated December 23, 1998.

were logged and recovered soils were screened with a photoionization detector (PID). A total of six soil samples were selected (one from each boring, TB-3, TB-5, TB-13, TB-18, TB-26, & TB-28) and submitted for laboratory analysis which included benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, methyl tert butyl ether (MTBE), fluorene, phenanthrene, and total lead using USEPA Methods 5035, 6010B (total lead) 8270C (fluorene and phenanthrene), and 8260. Soil sample results indicated exceedences of the standards, existing at the time, for benzene, ethylbenzene, naphthalene, and MTBE. Soil boring locations are shown in Figures 3 and 4 in Attachment 3A.

Six groundwater monitoring wells were also installed in December 1999 and groundwater samples were collected from all six wells on January 9, 2000. Groundwater samples collected from wells MW-4 and MW-5 were analyzed using USEPA Method 5030B and 8270. Groundwater samples collected from wells MW-1, MW-2, MW-3, and MW-6 were analyzed using USEPA Methods 5030/8021B, 8011, 6020, 8270C, and MTBE. The constituents with concentrations exceeding the PADEP Statewide Health Standards (SHS) were MTBE at MW-1 and benzene, cumene, naphthalene, and MTBE at MW-6. Groundwater samples from the other four wells did not contain concentrations of the petroleum constituents exceeding the laboratory method detection limits (MDLs).

There are also three additional wells at the Site, with two located south of the Site building and one east of MW-6. It is unknown when these three wells were installed or the purpose of these wells. The three "unknown" wells are constructed of 8- and 10-inch PVC and extend to a depth of approximately 9-feet. Approximate well locations are shown on Figure 4 in Appendix 3A.[5]

The February 2000 report recommended excavating approximately 800 to 1,000 tons of impacted soils from both former UST cavities and the area formerly occupied by the dispenser island. There was also a recommendation to install a groundwater pump and treat system to mitigate petroleum impacted groundwater.[6]

Based on the observations recorded during the removal of the UST systems and the results of the December 1999 characterization activities, the Claimant's consultant (J. Scott Bush Company) performed soil excavation activities between February 2001 and April 2001 that resulted in the removal of 3,206.69 tons of impacted soil transported off-site for disposal. The completed soil excavation in the area of the former gasoline and diesel UST cavity was "L"-shaped (~153-feet long & 30-feet wide) with a completed depth reportedly governed by the depth of the sandstone bedrock encountered at a depth of ~14 feet. The completed excavation in the area of the former kerosene UST cavity was ~62-feet long, 33-feet wide, and 14-feet in depth, upon which sandstone bedrock was encountered.[7] In addition, two test pits were also completed at the Site on September 17, 2001. One soil sample was collected from each test pit. The locations for soil excavations and test pits are shown on Figure 5, in Attachment 3A.

Confirmatory soil samples were collected from the sidewalls of the completed excavations

[5] Wells were found during a site visit in Sept. 2013. No information is available regarding the purpose of the wells, and no construction logs or sampling data were found in the site's records.
[6] No groundwater pump & treat remedial system was installed at the site.
[7] No information was provided regarding backfilling of the excavations, including if any excavated soils were re-used as backfill.

during each phase of the soil removal activities. A total of 30 soil samples were collected and analyzed via USEPA Method 5035/8260B and 8270C for diesel fuel and unleaded / leaded gasoline parameters. A site plan showing the confirmation soil sample locations is provided on Figure 5 in Attachment 3A, and a summary of the soil sample analytical results is provided in Attachment 3B, table 2.

The October 16, 2002 report, documents the soil excavation activities, confirmation soil sampling, groundwater monitoring results, and recommendations for follow-up activities. The 2001 soil excavation activities appear to have been performed over several weeks as seen in the sample collection dates for the confirmation soil samples (eight collected on April 5, 2001, 10 collected on April 26, 2001, eight collected on August 20, 2001, and four collected on September 13, 2001).

The post-excavation confirmation soil samples collected from the excavation in the area of the former diesel and gasoline UST cavity were collected from areas along the completed excavation sidewalls and designated unique numbers, which are summarized in Attachments 3A and 3B. Analytical results from six soil samples, which included two samples collected from sidewall #4 (SS-7 and SS-8) and four samples collected from sidewall #1 (1, 2, 3 and 4), contained concentrations of benzene exceeding PADEP SHS. No soil samples were collected from sidewall numbers 5, 6, 7, and 8. No confirmation soil samples were collected from the excavation completed in the area of the former kerosene UST. Two soil samples collected from the test pits completed near the former kerosene UST did not contain constituent concentrations exceeding PADEP SHS.

The unconsolidated overburden material beneath the asphalt and gravel surface, outside the former tank cavities and excavation areas consists of fill material (i.e. mixture of silty clay, brick fragments, limestone gravel, boulders) to a depth primarily ranging from ~4 to 8 feet, with exception to the northern portion of the Site where the fill material extended to a depth of up to ~12 feet. A subsurface void space was also encountered in this area.[8] See Figures 3 and 4 (Attachement 3A) for the location of these subsurface voids. Soils underlying the fill material is primarily silty clay which extends to the depth of a sandstone bedrock, encountered at depths of ~12 to 14 feet below grade. Monitoring wells MW-1 through MW-6 are installed to depths ranging from 11.8 to 15.3 ft. bgs, with screened intervals of 3.5 ft to the total depths of the wells at MW-1, MW-2, MW-3, and MW-6, and 4 ft to the total depth of the wells at MW-4 and MW-5. Water levels in the overburden wells (MW-1 through MW-6) were generally 7 to 10 feet below grade.

Claimant's / Solicitor's chosen closure approach for the Site is Site-Specific Standards (SSS) for both soils and groundwater.

PADEP reviewed and disapproved of the October 2002 report offering several comments / reasons for the disapproval. A copy of PADEP's disapproval letter, dated December 3, 2002, is provided in Attachment F. A summary of PADEP's comments from the December 3, 2002 disapproval letter included –

[8] Based on review of boring logs.

- Report does not include all of the items necessary to be considered a complete Site Characterization Report or Remedial Action Completion Report under Sections 245.310 and 245.313 of the Storage Tank and Spill Prevention Act.
- Report describes additional sampling proposed for the contaminated soils that remain at the facility.
- The content of the document appears to be that of a work plan rather than a Report requiring review and comment by the Department.
- Any attainment sampling for soil should follow the requirements of the Land Recycling Program (Act 2), including 25 Pa. Code Chapter 250.703 and 250.707.
- Generally, site characterization samples are not appropriate to be used as attainment samples. Groundwater contamination also needs to be investigated at this facility.

Following receipt of PADEP's disapproval letter, J. Scott Bush Company prepared seven quarterly groundwater monitoring reports documenting groundwater monitoring and sampling events at the six on-property monitoring wells from April 2008 through April 2010. Each of the quarterly reports are included as attachments 3G through 3M.

In an attempt to address PADEP's comments on the October 2002 report, J. Scott Bush Company prepared a Remedial Action Plan and Remedial Action Completion Report, dated January 10, 2013 (Attachment 3N). PADEP indicated that the report did not meet key requirements identified in 25 PA Code Chapters 245 (Administration of the Storage Tank and Spill Prevention Program, including 245.309, 245.310 and 245.313 and 25 PA Code Chapter 250 (Administration of Land Recycling Program) in their letter dated February 7, 2013. A copy of the letter is provided as Attachment 3O. PADEP concluded that the report was considered incomplete and could not be approved. A summary of PADEP's comments on the January 2013 report included the following –

- Site Characterization Reports and Remedial Action Plans require a separate submittal so the Department can take a separate action (approval, disapproval, modify) as noted in 25 P A Code Chapters 245.310 and 311.
- Two (2) copies of a Site Characterization Report and Remedial Action Plan are required under 25 PA Code Chapters 245.310(a), 245.311(a) to facilitate the Department's review process.
- The site map does not include all features required under 25 PA Code Chapter 245.310(a)(2).
- A discussion of the type and characteristics of the released substances was not included (25 PA Code Chapter 245.310(a)(6)).
- Details of the release(s) was/were not included as required under 25 PA Code Chapter 245.310(a)(9). It is not clear whether additional characterization work is necessary proximal to the excavation walls that slumped during soil removal activities (25 PA Code Chapter 245.310(a)(12)).

- A risk assessment is to be included in the SCR that conforms to 25 PA Code Chapter 250.404 and 250.409 and 25 PA Code Chapter 245.310(a)(31)(32).
- The site does not meet Non-Use Aquifer, Statewide Health Standards as stated in the Report. The Non-Use Standards is applied as stated in section 7.0 of the Report. In order to apply this standard to a site, a Non-Use Aquifer Determination is to be submitted to the Department (25 PA Code Chapter 250.303), and an action taken (25 PA Code Chapter 245.310(a)(27)).
- The Report does not include boring logs, groundwater contour and contamination maps (25 PA Code Chapter 245.3 10(a)(14), (15), (16), (22), including remaining soil contamination around/under the existing building. The Department cannot determine if the locations of soil and groundwater borings/wells are appropriate.
- No clear site conceptual model was presented (25 PA Code Chapter 245.310(a)(23)).
- Results of all sampling data was not included (25 PA Code Chapter 250.204(f)(4)).
- No justification for the use of the Quick Domenico model was presented, nor model validation or calibration (25 P A Code Chapter 250.204(f)(5)).
- According to the property owner, a sewer line was installed across the site between the building and State Route 119 in 2011/2012. Depth of the excavation may have reached 16 feet, and cut through part of the soil excavation area. No mention of this was included in the Report, nor an evaluation to the potential migration of vapors or groundwater.
- The Report (containing what the Department would consider a Remedial Action Completion Report set forth by regulation (25 PA Code Chapter 245.313)) is disapproved. The Report does not include the requirements set forth by the regulations, as listed above. In order for the site to be in compliance with applicable requirements, these items must be addressed.

As a follow up to the site activities, PAUSTIF arranged for and conducted a site visit on September 30, 2013 to inspect the site, inspect the wells, document the condition(s) of the wells, and to collect water samples from wells that were determined to be representative of site conditions. A summary of site conditions is noted below:

- MW-1 – In poor condition with only a steel 12-inch cover laying over the well casing. No seal on the well and therefore, surface water and sediment readily flow into the well. Total depth of the well was about 8-feet (completion depth was 13-feet).
- MW-2 – In poor condition and open to the elements, therefore, surface water and sediment flow into the well. Total depth of the well was 8.4-feet (completion depth was 12-feet).
- MW-3 –Unable to locate well.

- MW-4 – In good condition and collected a water sample from the well. See Table 3 below.
- MW-5 – Unable to locate the well and may have been destroyed during the construction of a new sanitary sewer line installed across the property about 2 years ago.
- MW-6 – In good condition and collected a water sample from the well. See Table 3 below.
- Identified 3 unknown wells constructed of 8 or 10-inch PVC with depths of 8 to 9.5 feet. Based on their construction, they did not appear to be monitoring wells and no background information was provided by the site owner for their placement/use.

Table 3. Groundwater Analytical Results Summary
Former Wayne Pumps

Water samples collected on 9/30/13
Results are micrograms per liter

Constituents	Well Number	
	MW-4	**MW-6**
Benzene	<1.0	5.8
Ethylbenzene	<1.0	<1.0
Isopropylbenzene	<1.0	1.1
MTBE	<1.0	<1.0
Naphthalene	<2.0	<2.0
Toluene	<1.0	<1.0
Total Xylenes	<3.0	<3.0
1,2,4 Trimethylbenzene	<1.0	<1.0
1,3,5 Trimethylbenzene	<1.0	<1.0
Total depth of well, feet	14	11.35
Depth to water (top of PVC), feet	7.19	8.59

Samples analyzed by ALS, Middletown, PA; lab reports included in attachment 3P.

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

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the Scope of Work (SOW) specified herein. PADEP – Southwest Regional Office (SWRO) representative, **has reviewed and commented on the SOW provided within this RFB**.

Objective

Solicitor seeks competitive, fixed-price bids, for this Defined Scope of Work RFB to complete the eight (8) milestones (A through H) outlined below to complete the site characterization as specified by the PADEP Act 2 and Chapter 245 regulations and guidelines, and prepare / submit a combined Site Characterization Report / Remedial Action Plan (SCR / RAP) or SCR / Remedial Action Completion Report (SCR / RACR), depending on the conditions encountered. To be deemed responsive, each bid ***must*** respond in detail to each of the milestones, including describing the bidder's understanding of the conceptual site model and how that model relates to the bidder's proposed approach to executing the SOW. In other words, bidders shall respond to the SOW as stated herein to enable as much of an "apples-to-apples" comparison of the bids as possible. The Solicitor has elected to pursue environmental site closure under the PADEP Act 2 Site Specific Standards (SSS) for both soil and groundwater via a demonstration of pathway elimination or site-specific risk-based numerical goals for those constituents for which attainment of the SHS cannot be readily demonstrated.

The strategy for this effort will be to complete site characterization activities and prepare a combined SCR / RACR on the assumption that, with implementation of institutional or engineering controls (as needed), it can be demonstrated that no current or future exposure pathways exist (or risks are acceptable for potentially complete pathways). However, if during production of the SCR it is determined that remedial action will likely be required for elimination of all pathways, then a combined SCR / RAP will be submitted in lieu of submitting a combined SCR / RACR. If preparing a RAP does prove necessary, implementation of the RAP will be performed separately, i.e., not as an amendment to the agreement resulting from this solicitation.

Constituents of Concern (COCs)

The COC for soils, and groundwater are the post-March 2008 short list for unleaded gasoline, which consist of benzene, toluene, ethylbenzene, xylenes (BTEX); MTBE, isopropylbenzne (cumene), naphthalene, 1,2,4-Trimethylbenzene (1,2,4-TMB), and 1,3,5-Trimethylbenzene (1,3,5-TMB).

General SOW Requirements

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

- The Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended),

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

During completion of the milestone objectives specified below and throughout implementation of the project, the selected consultant shall:[9]

- Conduct necessary, reasonable, and appropriate project planning and management activities until the project (i.e., Remedial Action Plan / Remedial Action Completion Report) is completed. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control (QA/QC), scheduling, and other activities (e.g., utility location). Project planning and management activities will also include preparing and implementing plans for Health and Safety, Waste Management, Field Sampling/Analysis, and/or other plans that are necessary and appropriate to complete the SOW, and shall also include activities related to establishing any necessary access agreements. Project planning and management shall include identifying and taking appropriate safety precautions to not disturb site utilities; including but not limited to contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.
- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water shall be disposed of in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request.
    - **If the site is located in PADEP Southwest Region:** All investigation derived wastes shall be handled and disposed of per PADEP's Southwest Regional Office guidance. Investigation derived wastes include personal protective equipment, disposable equipment, soil and drill cuttings and groundwater obtained through monitoring well development and purging, as well as equipment decontamination fluids. Investigation derived

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

wastes must be containerized in DOT-approved drums and staged on-site in a pre-determined location, pending results of laboratory analyses and selection of final disposal method(s). Each container must be labeled to indicate contents, site location and date of generation. It is the selected consultant's responsibility to conform with current PADEP Southwest Regional Office guidance requirements.

- **If the site is located in any PADEP Region other than Southwest:** All investigation derived wastes shall be handled and disposed of per PADEP's Regional Office guidance. It is the selected consultant's responsibility to conform with current PADEP Regional Office guidance requirements in the region where the site is located.

- Be responsible for providing the Solicitor and facility operator with adequate advance notice prior to each visit to the property. The purpose of this notification is to coordinate with the Solicitor and facility operator to ensure that appropriate areas of the property are accessible. Return visits to the site will not constitute a change in the selected consultant's SOW or result in additional compensation under the Remediation Agreement.

Site – Specific Milestones

Milestones A through H below represent the base SOW for this RFB solicitation. These milestones have been developed in an effort to complete PADEP site characterization requirements. In addition to the base SOW, the Optional Cost Adder Milestones (Milestones I through N) must be addressed by bidders in the bid response. These cost adders will not initially be part of the contract SOW and some or all may never become part of the contract SOW. However, if it becomes necessary to complete any of these activities, they will be completed under the Remediation Agreement contract signed as part of this project. Written email authorization from both PAUSTIF and the Solicitor will be required prior to implementation of any Optional Cost Adder Milestones.

Since the Solicitor is not the property owner, bidders shall be responsible for securing an access agreement with the current property owner prior to beginning any work of the milestones. Access to the property is to be acquired for the purpose of performing each of the milestones in this RFB. Bids shall anticipate and include the level of effort / costs involved with all elements of securing access to the subject property. The costs associated with site access shall be included within Milestone A.

Milestone A – Background Research. Bidders shall provide a firm fixed price to research, review, and report on background information necessary to support the site characterization. At a minimum the bids for this task shall cover the following activities:

- Prepare a complete history beginning when the site was first developed and its past site use(s) including a summary of historical regulated and unregulated UST and dispensing operations;

- Determine regional and local geology, hydrogeology, and hydrology;

- Evaluate the potential for contributing off-site sources of contamination (e.g., leaking UST sites);
- Investigate whether a local groundwater use ordinance exists;
- Identify potential sensitive receptors;
- Research local groundwater use and identify the nature / location of any public and private water supplies within a ½-mile radius of the site;
- Identify, locate (depth & orientation) of all buried utilities at the facility and on surrounding parcels that may serve as preferential contaminant migration pathways;
- Evaluate potential ecological receptors (if any); and
- Develop a preliminary conceptual site model.

Findings from the work completed under this milestone shall be summarized in the SCR.

Milestone B – Professional Site Survey. Under this milestone, bidders shall provide a firm, fixed-price quote for completion of a survey of the subject property, site features, well locations, and appropriate surrounding features by a professional surveyor licensed in the Commonwealth of Pennsylvania. This task shall include preparation of a scaled base map of the site, including, at a minimum, property boundaries, buildings and other site structures, utility manholes, sanitary sewer lines, septic systems, storm sewer catch basins, storm water lines, water supply lines, natural gas lines, electric utility poles, and overhead electric/telephone/cable lines. Work under this milestone shall also include:

- Obtaining tax maps of the subject property and surrounding adjoining & adjacent properties;
- Surveying in locations and ground surface elevations for the soil borings completed under Milestone C, below; and
- Surveying in the ground surface (top of surface cover) and the top-of-casing (PVC riser pipe) elevations and locations for existing groundwater monitoring wells and monitoring wells completed under Milestone D.

Monitoring well and soil boring locations should include northing and easting coordinates. All elevations should be relative to the North American Vertical Datum of 1988 (NAVD 88) and recorded to the nearest 0.01 foot. Results of the professional survey should be displayed on an appropriately scaled site plan (including an accurate bar scale) to be included in the combined SCR.

Milestone C – Additional Soil Characterization / Delineation. Although soil samples have been collected / analyzed at the Site, additional delineation is necessary due to uncertainty in past soil sampling methodology and concerns that soil contamination may not be adequately characterized and delineated. Additional soil characterization is needed to – a) verify and delineate soil impacts exceeding SHS identified via previous soil sampling activities; and b)

determine whether there are any impacts with regards to the TMBs, since none of the previous soil sampling included analysis of TMBs.

Under this task, bidders shall provide a fixed-price cost for implementing a soil boring program to assess the magnitude and extent of potential soil impacts in the following areas: along a south sidewall ("Wall 1") of the 2001 soil excavation, northeast side of the existing Site Building (see Figure 5, attachment 3A); along a portion of the eastern sidewall of the 2001 soil excavation, in areas of previous soil samples "SS-7" and "SS-8" (near MW-1); area of previous soil boring TB-13; along the southern sidewalls of the 2001 soil excavation along wall 5; in the area of the former kerosene UST; and on the western sides of the 2001 soil excavation along walls 7, 8, and 11. Each bid shall assume advancing ten (10) soil borings plus one background soil boring (see below for details on the background soil boring). **Each bid must provide the proposed locations on a site drawing, along with the rationale for each location**. Each bid shall also describe the methods used to investigate utilities so that this work can be accomplished safely and without risking damage to the below grade utilities.

The general objectives of the soil borings and associated sampling are to identify residual contaminant source area(s) associated with the former UST systems and to delineate the extent and magnitude of residual soil contamination associated with these sources. The selected consultant shall consider the possibility that final boring locations may need to be adjusted to avoid subsurface obstacles based on information gained from Milestones A and B and the utility location work. If a bidder believes that additional borings (beyond 10) should be placed elsewhere, the bidder shall identify the location(s) and provide its supporting rationale for each additional boring location. However, all bidders shall base their bids on completing exactly 10 soil borings, plus one background boring, plus the requisite sampling and laboratory analyses. The costs associated with any additional borings (greater than 11) shall be provided separate from the fixed price for this milestone.

Each soil boring shall achieve a depth that ensures vertical delineation of unsaturated and saturated soils down to bedrock. For the purposes of this bid, bidders shall assume each soil boring shall be completed to an average depth of 14 feet below grade based on the range in depth to bedrock encountered during previous characterization activities.

In addition to contacting PA One Call and other methods to locate below grade utilities, bidders shall assume clearing the initial five (5) feet of each boring location using air knife / vacuum extraction. Below five feet, each soil boring shall be advanced using hollow-stem auger / split-spoon sampling methods. Continuous soil samples shall be collected for description of lithologic characteristics, groundwater occurrence, and staining / odor indicative of potential petroleum impacts. The samples shall be screened in the field using a calibrated photoionization detector (PID) and standard headspace methods. One soil sample per boring shall be submitted for laboratory analysis (ten total) for PADEP's short list unleaded gasoline parameters. This soil sample shall be collected from the depth interval exhibiting the highest organic vapor concentration based on PID headspace screening. If no elevated organic vapor levels are measured along the length of a boring and no staining and/or odors are evident, the one sample shall be obtained either from the depth interval immediately above the water table or from the soil immediately above the bedrock interface, whichever occurs first.

Soil samples shall be analyzed for the post-March 2008 PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate quality assurance/quality control (QA/QC) samples shall also be obtained for laboratory analysis.[10] Based on these analytical results, the approximate dimensions and volume of remaining residual source material exceeding the PADEP Act 2 SHS MSCs for soil, if any, shall be estimated.

In addition to the 10 soil borings described above, one additional boring shall be completed at a background location. One saturated or intermittently saturated soil sample shall be collected from this boring for fraction organic carbon (FOC) analysis to assist with the fate-and-transport modeling effort. The sample shall also be analyzed for the current PADEP short list of unleaded gasoline parameters to verify background conditions. In addition, one Shelby tube sample shall be obtained from this boring to be analyzed by an accredited geotechnical laboratory for total porosity and soil bulk density.

To accommodate the possible need to advance borings deeper than 14 feet (on average) resulting in total drilling of more than 154 feet (10 soil borings plus one background boring) and in the event that additional soil samples is necessary and appropriate based on field observations and in order to delineate the vertical extent of soil contamination, bidders shall provide the following unit costs on the Bid Cost Spreadsheet (Attachment 2) under “Schedule of Unit Rates”.

- Price per each additional foot of soil boring beyond the assumed cumulative 154 feet for all borings added together ($/foot, inclusive of boring advancement, logging, screening, abandonment, surface restoration, and waste management / disposal); and
- Price per each additional soil sample collection & laboratory analysis for PADEP short list parameters beyond the 11 assumed ($/sample).

If during implementation of this Milestone gross soil impacts are evident based on field screening data and observations and additional soil borings are necessary for characterizing and delineating the soil impacts, these additional borings will be handled under Cost Adder Milestone I. Written email approval from Solicitor and PAUSTIF will be required before beginning the work and the requisite milestone-specific supporting documentation identified in the executed contract will be required for reimbursement.

Each bidder’s fixed-price cost for this milestone shall also account for: (i) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call, and clearing the borehole location to a minimum depth of 5 feet; (ii) professional surveying of the soil boring locations and elevations for inclusion on the site plan and geologic cross sections; (iii) sealing each boring with bentonite and an asphalt or concrete surface patch after completion; and (iv) management of IDW. The soil boring program methods and results

[10] Each bidder’s approach to implementing Milestone C shall clearly identify the number of samples, QA/QC measures, analytes, and other key assumptions affecting the bid price.

with supporting documentation (e.g., waste manifests, boring logs, etc.) shall be detailed in the SCR.

Milestone D – Installation of Monitoring Wells. A total of six shallow overburden wells, along with three "unknown" shallow overburden wells, have been installed on-property during previous characterization activities; however, monitoring wells MW-1, MW-2, MW-3, and MW-5, and the three "unknown" wells have either been destroyed, are missing, or have been irreparably damaged / questionable integrity and are no longer suitable for the collection of representative groundwater samples.[11] Historical groundwater data obtained from wells MW-1 and MW-6 have had concentrations of the COC exceeding SHS. In addition, given the shallow depth to bedrock (~14 feet) and soil impacts exceeding SHS extended to the depth of bedrock, characterization activities have not investigated whether groundwater in the underlying bedrock has been impacted with the COC in concentrations exceeding SHS. Therefore, supplemental characterization activities are necessary to evaluate the existing data, and determine with input from PADEP the locations and depth for additional monitoring wells both in the shallow overburden and bedrock.

Under this milestone, bidders shall provide a firm fixed-price cost for abandoning existing shallow wells MW-1, MW-2, MW-3, MW-5, and the three "unknown" wells, and installing five (5) new shallow overburden monitoring wells and three (3) new bedrock monitoring wells. Each bid shall explain the bidder's technical approach to complete the well abandonments. Bidder's shall assume that each well would be abandoned by grouting the well and removing the casing consistent with PADEP guidelines, and including well head removals and re-surfacing using either concrete / asphalt, as necessary. This work shall also include photo-documenting the abandonment work and completion / submittal of the well abandonment forms to demonstrate completion of the on-site activities.

Each bid must identify the proposed locations for the five shallow overburden and three bedrock wells on a site drawing, and include a discussion detailing the rationale for each location. The bids shall demonstrate an understanding that the general objectives for installing the new wells are to delineate the horizontal extent of dissolved-phase contaminants in the shallow overburden and bedrock groundwater; interpret groundwater flow; enable any representative aquifer testing (if required); facilitate contaminant fate-and-transport modeling (if required); and evaluate natural attenuation processes. The intended well locations are (i) a background, presumed upgradient location; (ii) presumed source area(s); and (iii) at the presumed down-gradient property line. It is presumed that the final well locations would be adjusted by the selected consultant to avoid subsurface obstacles based on information gained from Milestone A and the utility location work.

If during implementation of this milestone it is determined that one or more additional monitoring wells are necessary to complete groundwater characterization, these additional wells will be handled under Cost Adder Milestone J. Written email approval from Solicitor and PAUSTIF will be required before beginning the work.

[11] Well MW-5 has been destroyed during previous utility work at the site.

Borings for the shallow overburden monitoring wells shall be advanced to intersect the shallow water table. For costing purposes, bidders shall assume that each shallow overburden monitoring well boring will be advanced to the bedrock surface, a depth of 14 feet below grade, and each bedrock well boring will attain a depth of 40 feet, although the total depth is likely to vary based on actual field conditions encountered. Bidders shall assume advancing all monitoring well borings using a multi-purpose drill rig capable of hollow stem auger / continuous split-spoon sampling for the overburden material and air rotary / hammer-rotary drilling methods for the bedrock. Continuous soil samples of the overburden and bedrock cuttings shall be examined in the field and described for lithology, groundwater occurrence, and potential staining / odor indicative of hydrocarbon contamination. Although the bid shall assume no soil samples will be collected from the bedrock monitoring well boreholes for laboratory analysis, the soil samples shall be screened in the field with a PID. Should field screening and/or visual or olfactory observations suggest petroleum impacts to soil in these monitoring well locations, bidders shall use the unit cost for sample collection and laboratory analysis as provided for Milestone C on the Cost Spreadsheet (Attachment 2).[12] If any soil samples are collected for laboratory analysis, these samples shall be analyzed for the post-March 2008 PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels.

The shallow overburden and bedrock groundwater monitoring wells will be constructed in accordance with the PADEP Groundwater Monitoring Guidance Manual. Bidders shall assume constructing each well of 2-inch diameter Schedule 40 PVC casing and well screen. Although well depths may vary based on actual conditions encountered at each location, the final construction must ensure that the screened interval intersects the water table surface and accounts for seasonal groundwater fluctuations. For cost comparison purposes, bidders shall assume 9 feet of well screen for overburden wells and 15-feet of screen for the bedrock wells.

Annulus materials shall consist of a filter-pack of silica sand of appropriate grain size for the formation screened and well-screen slot size used, extending to a height of approximately two feet above the top of the screen section overlain by a well seal consisting of hydrated bentonite pellets with a minimum thickness of two feet for the overburden wells and three feet for the bedrock wells. The bentonite seal for the bedrock wells must be within competent bedrock and of sufficient thickness to reduce the potential for creating a migratory pathway or cross contamination of aquifers. The remaining annulus shall be filled with a cement / bentonite slurry to within approximately one-foot below grade. For cost estimating purposes, bidders shall assume surface finishing consisting of an expandable locking cap fitted to the top of the PVC riser and a flush-mounted traffic-rated manhole with a bolt-on lid. The flush-mounted manholes shall be set into a 2 ft. by 2 ft. concrete pad.

To accommodate the possible need to install wells deeper than 14 feet (on average) for the overburden and 40 feet (on average) for the bedrock, bidders shall provide the following unit costs on the Bid Cost Spreadsheet (Attachment 2).

[12] The additional analysis of the soil samples would require Solicitor and PAUSTIF pre-approval.

- Excess Hollow-Stem Auger Drilling/Well Installation Footage. Bidders shall provide a unit cost per lineal foot ($/foot) for excess hollow-stem drilling/well installation (i.e., the total lineal well footage installed in excess of the 14-foot x 5 wells = 70-foot quantity assumed in the bid). This unit cost shall include borehole advancement using hollow-stem augers, logging and screening, well construction materials, well installation labor, and waste management and disposal in the event that additional well footage is required.
- Excess Air Rotary / Hammer-Rotary Drilling. Bidders shall quote a unit cost per lineal foot ($/foot) for excess air rotary / hammer-rotary drilling and well installation (i.e., the total lineal well footage installed in excess of the 40-feet x 3 wells = 120-foot quantity assumed in the bid). This unit cost shall include borehole advancement via air rotary / hammer-rotary, logging and screening, well construction materials, well installation labor, and waste management and disposal in the event that additional well footage is required.

Each bidder's fixed-price cost for this task shall account for: (i) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call and clearing each borehole location to a minimum depth of 5 feet using vacuum excavation; (ii) well development activities; (iii) management of IDW; and (iv) professional surveying of the new well locations and top-of-casing elevations. Well drilling / installation and development activities along with supporting documentation (e.g., waste manifests, boring logs and construction details, etc.) shall be documented in the SCR.

Milestone E – Groundwater Monitoring & Sampling. Under this task, bidders shall provide a firm fixed-price to complete two (2) groundwater monitoring and sampling events; an initial event that collects samples from all newly installed wells and existing wells MW-4 and MW-6; and a second confirmatory event that collects water samples from all on-property wells. The costs for the two groundwater monitoring and sampling events will be separated into Milestones E1 and E2 on the Bid Cost Spreadsheet (Attachment 2).

The initial groundwater monitoring and sampling event shall be performed within two weeks of installing and developing the new wells, but no sooner than one week after the wells have been developed. The subsequent confirmatory monitoring and sampling event shall be conducted no less than four and no more than six weeks after the initial event.[13] During each event, the depth to groundwater and any potential separate-phase hydrocarbons (SPH) shall be gauged in all available monitoring wells prior to purging any of the wells for sampling. Groundwater level measurements obtained from the monitoring wells during both events shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient.

[13] If the initial and confirmation rounds of groundwater sampling results indicate that groundwater characterization is not complete, additional delineation shall be completed prior to conducting any further groundwater monitoring sampling events (Cost Adder Milestone K). Installation and monitoring of any necessary additional monitoring wells will be handled under Cost Adder Milestone J, and will require Solicitor and PAUSTIF approval before beginning the work. Should work be required to gain property access for well installation, this will be handled outside the Remediation agreement.

Each of the monitoring wells shall be purged and sampled utilizing standard low-flow techniques and in accordance with the PADEP Groundwater Monitoring Guidance Manual and standard industry practices. Any well exhibiting more than a sheen of SPH shall not be purged and sampled.[14] Bidders shall manage equipment decontamination fluids and groundwater generated by the well purging and sampling activities in accordance with PADEP SWRO guidance.

Groundwater samples collected during these two events shall be analyzed for the post-March 2008 PADEP short-list of unleaded gasoline parameters (BTEX, MTBE, isopropylbenzene, 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.[15] In addition, each event shall include collection of field measurements and for natural attenuation parameters. Field parameters to be measured at each overburden and bedrock well shall consist of pH, temperature, specific conductance, dissolved oxygen (measured in-situ), and oxidation/reduction potential.

The conduct and results of these two events shall be documented in the SCR and shall at least include a description of the following: narrative description of the sampling procedures and results; tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered; groundwater elevation contour maps depicting groundwater flow direction in both the overburden and bedrock; tabulated historical quantitative groundwater analytical results; laboratory analytical report(s); one site-wide iso-concentration contour map for the overburden and one for the bedrock for each compound detected in any one well above the SHS during the quarter (if needed); and treatment and disposal documentation for waste generated.

Milestone F – Aquifer Characterization Testing. Based on the available document record, it appears that no data has been collected concerning the hydraulic properties of either the shallow overburden groundwater or bedrock groundwater to date. Therefore, in order to establish hydraulic parameters for the shallow overburden and bedrock groundwater, support contaminant fate-and-transport modeling, and assist with developing a conceptual site model, the bidders shall perform single-well slug testing on both the shallow overburden and bedrock groundwater. The costs for the slug testing activities will be separated into Milestone F1 (shallow overburden wells) and Milestone F2 (bedrock wells) on the Bid Cost Spreadsheet (Attachment 2). Bidders shall provide firm fixed-price costs to perform the slug tests on three shallow overburden monitoring wells and the three bedrock monitoring wells, and each bid must identify the wells to be used for slug testing, rationale, and provide a description of the proposed slug test procedures and the planned techniques for reducing the data. The slug tests shall be performed in accordance with accepted industry standards and the data shall be reduced /

[14] SPH has not historically been observed at the Site. If measurable SPH is discovered, any work to address this SPH would be considered a changed condition of the fixed price contract, and will require Solicitor and PAUSTIF approval of a work plan and cost estimate before beginning any work.

[15] 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), purge water disposal methods, QA/QC measures, analytes, and other key assumptions affecting the bid price.

evaluate using appropriate methods. (e.g., Bouwer and Rice slug test solution for determining the hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells [1976]). Documentation of the slug testing methods, results, and conclusions shall be provided in the SCR, and the slug testing results shall be utilized in the fate-and-transport modeling described in Milestone G.

Milestone G – Contaminant Fate-and-Transport Modeling. After completing groundwater monitoring well installations and sampling (Milestones D and E), and if the new wells installed as part of Milestone D and existing wells MW-4 and MW-6 contain detectable concentrations of one or more dissolved-phase constituents above respective PADEP SHS, quantitative contaminant fate-and-transport modeling shall be developed to calibrate to current conditions and predict future contaminant distribution. The costs for the fate-and-transport modeling efforts will be separated into Milestones G1 and G2 on the Bid Cost Spreadsheet (Attachment 2). **Note: <u>One or both of these milestones shall not be completed if the detected concentrations of the dissolved-phase constituents do not exceed USEPA Regional Screening Levels (or PADEP Act 2 SHS-MSCs for used aquifer/non-residential setting) in the shallow overburden and/or bedrock groundwater</u>.**[16]

Milestone G1 shall only include fate and transport modeling of the shallow overburden groundwater zone, and Milestone G2 shall only include fate and transport modeling of the bedrock groundwater.

Prior to implementing this task, the selected consultant shall contact the PADEP project officer for his/her input on the type of modeling to be performed. Use of the PADEP New Quick Domenico model may be appropriate for any modeling of the shallow overburden groundwater; however, it is not appropriate for bedrock groundwater. Therefore, each bid shall assume the use of New Quick Domenico for the modeling effort in the shallow/overburden[17] and each bid must assume the use of MT3D coupled with MODFLOW to be used for the bedrock aquifer. Bidders are invited to recommend a different fate and transport model for the bedrock groundwater; however, the fixed price cost provided for Milestone G2 on the Bid Cost Spreadsheet (Attachment 2) shall be based on the use of MT3D and MODFLOW modeling approach. If a bidder is recommending an alternative fate and transport model for the bedrock groundwater, bidder shall include the cost difference within the text of the bid, along with the rationale for this alternative model. Bidders shall also assume that because of the proximity of surface water (Marsh Run) to the Site, surface water modeling and evaluation using applications such as SWLOAD5B and PENTOXSD will also be necessary.

The fate-and-transport modeling completed under G1 and G2 shall utilize the data generated from the slug testing and any relevant historical site characterization data. Each bidder shall describe in detail the specific proposed approach to completing the fate and transport modeling for this site. The fixed-price cost shall include documenting the modeling effort in the SCR. This documentation shall describe all model input/output, provide a thorough explanation of model construction, justify all input parameters, and include a detailed discussion of the

[16] The successful bidder will only be reimbursed for milestones actually required and completed.
[17] Should the PADEP subsequently disagree with the use of Quick Dominico, such work to perform alternative fate & transport modeling will be subject to the "New Conditions" section of the Fixed-Price Agreement.

modeling results and conclusions regarding current and predicted future plume stability (or lack thereof).

Milestone H – Prepare a Draft and Final SCR with Risk Assessment Combined with RACR or RAP. Upon completing Milestones A through G described above, the selected consultant shall prepare a combined SCR / RACR or SCR / RAP in draft form for review and comment by the Solicitor and PAUSTIF. The report will be for closure to PADEP's site specific standards (SSS) for soils and SHS for groundwater; however, if groundwater conditions do not appear to meet the requirements for a SHS closure, then SSS will be used for groundwater. This combined SCR / RACR or SCR / RAP shall contain all necessary information required under 25 PA Code §245.309, 245.310, 245.311, and 245.313 and be of sufficient quality and content to reasonably expect PADEP approval. Each bidder's project schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft document. The final report shall address comments received from the Solicitor and PAUSTIF on the draft report before it is submitted to the PADEP for its review.

The combined report shall document, describe, and evaluate all findings provided from Milestones A through G above (and any necessary cost adder milestones), incorporate information and relevant findings from the previous site documentation (as necessary), and contain all necessary and appropriate figures, tabulated data, and appendices to comply with the regulatory requirements for and to obtain PADEP approval of these documents.[18]

This SCR shall include updating the conceptual site model (CSM) for the Site and its vicinity based on evaluating the results of the site characterization tasks outlined above. Information contained in the prior site investigation reports may also be referenced, although bidders are reminded that an SCR has not been approved by PADEP. Information considered in developing the CSM shall consist of, but should not necessarily be limited to, stratigraphic and lithologic characteristics / relationships; a discussion of the type and characteristics of the released substances; groundwater elevations and flow direction; hydrogeologic controls on groundwater movement and contaminant transport; intrinsic aquifer parameters; the distribution of hydrocarbon contaminants in soil and groundwater; evaluation of potential sensitive receptors, and consideration of the contaminant fate-and-transport modeling results.

The SCR shall also identify potentially complete on- and off-site exposure pathways associated with known site contamination. These pathways shall be identified with the understanding that Solicitor is willing to have the following restrictions placed on their property to achieve a SSS closure:

1. No potable water wells (e.g., if groundwater exceeds PADEP's SHS);
2. Vapor barrier on future building construction (e.g., if current site soil and/or groundwater contaminant levels exceed PADEP's screening levels);

[18] Necessary Cost Adders may prompt adjustments to the scopes of work specified herein for any of the preceding milestones or if additional site characterization may prove necessary. Should this occur, the selected consultant should assume that: (a) the schedule for completing this Milestone will need to be adjusted (assuming the PADEP grants the necessary extensions), and (b) any added cost involved in documenting the additional activities in the SCR / RACR shall be incorporated into the costs for the adjusted/added scope of work under the specific task.

3. Vapor mitigation (engineering control) on existing structures (e.g., radon type venting if current site soil and/or groundwater contaminant levels exceed PADEP's screening levels); and
4. Soil management plan for future digging on excessively contaminated portions of property (e.g., if soil contaminants exceed SHS).

Bidders shall assume that the PADEP will provide groundwater use covenant waivers for roadways adjoining the property. Additionally, bidders shall assume that a post remediation care monitoring plan is an option to address future potentially complete pathways for off-site properties. Any necessary post remedial care work will be handled outside the remediation agreement associated with this RFB.

Should potentially complete pathways still exist despite the above, a risk assessment shall be performed (see Cost Adder **Milestone M**, below) and included in the SCR. If the exposure evaluation and risk assessment determines that the institutional controls identified above (if necessary to implement) are sufficient to render the site contamination safe under current and future site use conditions (restricted as necessary), the SCR shall be accompanied by a RACR. The SCR / RACR shall include, as needed, the draft Environmental Covenant (EC) [19] language, petition to PADEP for roadway EC waiver, and proposed post remediation care plan (See Cost Adder **Milestone N** for finalization and filing of the EC, if needed). If the risk assessment determines that the risk for a particular pathway is excessive relative to the maximum that is considered by PADEP to be allowable using realistic exposure scenarios, the SCR shall be accompanied by a RAP and shall identify the media-specific numerical contaminant concentrations (exposure point concentrations) that would not present an excessive level of risk as the cleanup goal to be addressed by the RAP. At a minimum the RAP shall present a screening of remedial alternatives and a preliminary remedial feasibility/alternatives analysis for at least three viable options for site remediation, and shall identify any additional site characterization that may be needed to finalize remedial planning.

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

Milestone I – Additional Soil Borings (Cost Adder Milestone). Provide a unit cost to advance one (1) additional soil boring during the mobilization for Milestone C. The unit cost shall be inclusive of boring advancement, logging, screening, abandonment / surface restoration, and any waste handling / disposal. The scope of work for this cost adder should follow Milestone C guidelines. The unit prices for additional drilling footage and additional soil sampling under Milestone C shall also apply to this cost adder milestone.

[19] The PADEP expects the draft environmental covenant language to employ all of the model language found on PADEP's website.

Milestone J – Installation of Additional Monitoring Wells (Cost Adder Milestone). Provide the following fixed price costs for installation of additional monitoring wells. The scope of work for this cost adder shall follow Milestone D guidelines; including the assumption regarding drilling footage (assume 14-foot well depth for shallow overburden and 40-foot depth for bedrock wells). The unit prices under Milestone D for excess hollow-stem auger drilling and excess air rotary / hammer-rotary drilling shall also apply to this cost adder milestone.

- **Milestone J1** – Total fixed cost for the boring advancement and installation of one (1) shallow overburden monitoring well during a separate drilling mobilization following completion of the original Milestone D work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, and reporting related to the installation of one monitoring well. The fixed cost shall also include collection of one soil sample from the well boring under the Milestone C guidelines.
- **Milestone J2** – Total fixed cost for the boring advancement and installation of one (1) bedrock monitoring well during a separate drilling mobilization following completion of the original Milestone D work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, and reporting related to the installation of one monitoring well.
- **Milestone J3** – Unit cost for installation of one (1) additional shallow overburden monitoring well during a Milestone J1 or J2 drilling mobilization. The provided cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, and reporting. The fixed cost shall also include collection of one soil sample from the well boring under the Milestone C guidelines.
- **Milestone J4** – Unit cost for installation of one (1) additional bedrock monitoring well during a Milestone J1 or J2 drilling mobilization. The provided cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, and reporting.

Milestone K – Additional Groundwater Monitoring and Sampling (Cost Adder Milestone). Provide a unit cost to complete an additional groundwater monitoring and sampling event. The scope of work for this cost adder should follow Milestone E.

- **Milestone K1** – Unit cost for completing one (1) groundwater monitoring and sampling event at all shallow overburden monitoring wells installed as per Milestone D.
- **Milestone K2** – Unit cost for completing one (1) groundwater monitoring and sampling event at all bedrock monitoring wells installed as per Milestone D.
- **Milestone K3** – Unit cost for monitoring and sampling one (1) additional shallow overburden monitoring well during a sampling event for the other shallow overburden wells. The unit cost shall be inclusive of all labor, equipment, laboratory analysis, waste handling/disposal, etc.

- **Milestone K4** – Unit cost for monitoring and sampling one (1) additional bedrock monitoring well during a sampling event for the other bedrock wells. The unit cost shall be inclusive of all labor, equipment, laboratory analysis, waste handling/disposal, etc.

Milestone L – Update Site Survey (Cost Adder Milestone). Provide a unit cost to update the site survey to include any additional soil boring and/or monitoring well location(s). The scope of work for this cost adder shall follow Milestone B.

Milestone M - Risk Assessment (Cost Adder Milestone). Should potentially complete exposure pathways exist following the evaluation of exposure pathways under Milestone H, a risk assessment shall be performed and incorporated into the SCR. Under this task bidders shall provide a fixed-price cost for completing risk assessment activities beyond the fate and transport and exposure pathway evaluation activities that are part of Milestones G and H.

The risk assessment shall use appropriate and standardized risk assessment methodologies and reporting consistent with 25 PA Code 250.409. This milestone shall include calculation of current and future potential risks associated with the potentially complete pathways determined under Milestone H. The work shall include comparison of contaminant levels against applicable screening criteria[20] and calculation of risk-based numerical site-specific standards for screened contaminants with respect to any complete exposure pathway that cannot reasonably be eliminated by means of environmental covenants. The successful bidder will be responsible for producing a risk assessment that is approved by PADEP.

The risk assessment shall encompass an exposure assessment, toxicity assessment, and risk characterization. The identification of exposure pathways for the Site shall be based upon guidance from the American Society for Testing and Materials (ASTM) and the United States Environmental Protection Agency (USEPA), as required by Act 2, Section 250.404

The risk assessment deliverable shall include separate Exposure Pathway Flowcharts graphics for (a) On-Site; (b) Off-site; and (c) roadway right-of-way to support the risk assessment text. These charts shall graphically depict the thought process in identifying the potentially complete pathways for each of the three areas. The exposure evaluation charts shall include the exposure pathway steps of Constituent Source, Receiving Media, Transport Mechanisms, Exposure Routes and current and future human receptors (i.e., facility workers, construction workers, trespassers, residents, and recreational users and others).

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

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

concentrations (EPCs) were calculated[21] for each contaminated media with a potentially complete human exposure pathway and summarize the calculated EPCs.

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

The risks shall be assessed under two separate potential exposure scenarios:

1. Potentially complete on- and off-site exposure pathways without any institutional controls; and
2. Potentially complete on- and off-site exposure pathways with certain institutional controls in place. Under this scenario bidders shall determine which of the following on-site restrictions would be necessary to reduce the human health risks to acceptable levels.
    - No potable water wells;
    - No residential land use;
    - Vapor barrier on future building construction;
    - Vapor mitigation (engineering control) on existing structures (e.g., radon type venting) if current vapor intrusion risks are excessive; and
    - Soil management plan for future digging on excessively contaminated portions of property.

Bidders shall assume that no environmental covenants / land use restrictions will be implemented on off-site properties but that PADEP will provide an environmental covenant waiver with respect to future installation of potable wells in the roadway right-of-ways. With respect to vapor intrusion, bidders shall assume for the purposes of this risk assessment that the cleanup goals are across-the-board site-specific standards meaning that PADEP's Land Recycling Program Technical Guidance Manual – Section IV.A.4. Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard, does not apply to this risk assessment work.

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

In addition, an ecological screening assessment shall be updated to determine if the site poses an unacceptable risk to ecological receptors. The screening assessment shall be conducted in accordance with Section IV.H of the Pennsylvania Land Recycling Program's Technical

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

Guidance Manual and USEPA Region 3 risk assessment screening criteria insofar as is necessary for determining any potential ecological risk.

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

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

Additional Information

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

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

List of Attachments			
1	**Remediation Agreement**		
2	**Bid Cost Spreadsheet**		
3	**Site Information / Historic Documents**		
#	**Document Date**	**Document Title**	**General Description**
A	**Figures**	**Site plan and areas of investigations**	**Figures 1 through 5**
B	**Summary Tables**	**Soil analytical results summaries**	**Tables 1 and 2**
C	**December 1998**	**UST Closure Report**	**58 page document**
D	**February 21, 2000**	**Site Characterization Investigation Report for Wayne Pumps**	**93 page document describing soil borings and well installations.**
E	**October 16, 2002**	**Environmental Site Characterization Investigation Soil Remedial Action Completion Report for Wayne Pumps.**	**125 page report documenting soil remediation at the property.**
F	**December 3, 2002**	**Letter from PADEP to Claimant**	**2 page letter from PADEP indicating that the Environmental Site Characterization Investigation Soil Remedial Action Completion Report for Wayne Pumps dated October 18, 2002 was not approved.**
G	**August 21, 2008**	**Second Quarter 2008 Groundwater Monitoring Report for Wayne Pumps**	**43 page report with analytical results.**
H	**October 31, 2008**	**Third Quarter 2008 Groundwater Monitoring Report for Wayne Pumps**	**46 page report with analytical results.**
I	**January 23, 2009**	**Fourth Quarter 2008 Groundwater Monitoring Report for Wayne Pumps**	**43 page report with analytical results.**
J	**May 8, 2009**	**First Quarter 2009 Groundwater Monitoring Report for Wayne Pumps**	**55 page report with analytical results.**
K	**September 29, 2009**	**Third Quarter 2009 Groundwater Monitoring Report for Wayne Pumps**	**43 page report with analytical results.**
L	**January 18, 2010**	**Fourth Quarter 2009 Groundwater Monitoring Report for Wayne Pumps**	**50 page report with analytical results.**

List of Attachments			
M	**April 14, 2010**	**First Quarter 2010 Groundwater Monitoring Report for Wayne Pumps**	**41 page report with analytical results.**
N	**January 10, 2013**	**Remedial Action Plan and Remedial Action Completion Report**	**366 page document that was disapproved on Feb. 7, 2013**
O	**February 7, 2013**	**Letter from DEP to claimant**	**Disapproval of SCR-RAP-RACR**
P	**September 30, 2013 (Sample Collection Date)**	**Analytical Results, ALS, Middletown, PA**	**10 pages showing analytical results for wells MW-4 and MW-6 sampled on Sept. 30, 2013.**