COMPETITIVE BID SOLICITATION FOR THE COMPLETION OF A SITE CHARACTERIZATION REPORT AND A REMEDIAL ALTERNATIVES EVALUATION

Bethlehem Rodgers Street Garage
2307 Rodgers Street
Bethlehem, PA 18018
PADEP FACILITY ID #48-19596
PAUSTIF CLAIM #99-344(M)

May 21, 2012

The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF) on behalf of the claimant for the above referenced claim is soliciting bidders for a fixed price contract project. Specifically, this Request for Bid (RFB) is seeking qualified firms to prepare and submit a fixed price proposal to complete a Site Characterization Report (SCR) and a remedial alternatives evaluation for the Bethlehem Rodgers Street Garage (Site) in Bethlehem, Pennsylvania. A petroleum release to both soil and groundwater has been confirmed at the Site and an SCR is still needed to meet the Pennsylvania Department of Environmental Protection (PADEP) site characterization requirements. The Solicitor has an open claim (Claim #1999-344(M)) with the PAUSTIF and the work outlined in this RFB will be completed under this aforementioned claim. Reimbursement of Solicitor-approved reasonable, necessary and appropriate costs (within claim limits) for the work described in this RFB will be provided by PAUSTIF.

This RFB includes five (5) major components with subtasks presented in an outline format for cost analysis and implementation. The fixed costs proposed by the consultant bidder shall be based on the scope of work provided in the RFB. Expenses in excess of the quoted price for the contract shall be the consultant's responsibility. The scope and budget for any identified out of scope activities must be pre-approved to be eligible for payment. Any costs associated with deviations from the scope that did not receive prior approval from the solicitor and PAUSTIF, or its representatives, will not be reimbursed.

Specifically, this RFB seeks competitive bids from qualified consultants to complete additional characterization activities, prepare an appropriate SCR, evaluate potential remedial strategies, and facilitate progress towards site closure in a timely, efficient, and cost effective manner.

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 Fund's third party administrator, ICF International (ICF), to the attention of Deb Cassel, Contracts Administrator.** She 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 firms who 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: Deb Cassel. The outside of the shipping package containing the bid response must be clearly marked and labeled with "Bid – Claim #1999-344(M)"**. 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 below for submission. Firms mailing bid responses should allow adequate delivery time to ensure timely receipt of their bid package.

The bid response must be received by 3:00 PM, on Tuesday, June 26, 2012. Bids will be opened immediately after the 3:00 PM deadline on the due date. Any bid packages 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 Fund's third party administrator, ICF's office is closed on the bid response due date, the deadline for submission will automatically be extended to the next business day on which the office is open. The Fund's third party administrator, ICF, may notify all firms who attended the mandatory site meeting of an extended due date. The hour for submission of bid responses shall remain the same. Submitted bid responses are subject to Pennsylvania Right-to-Know Law.

On behalf of ICF and PAUSTIF, the Technical Contact will assist the Solicitor in evaluating the bids but the Solicitor will ultimately choose with whom to negotiate the mutually agreeable contract. The bid evaluation will consider, among other factors, total bid cost, unit costs, schedule, qualifications, and contract terms and conditions (no priority or relative weighting is implied by the order of these factors). The Solicitor anticipates informing the selected consultant with an approval to proceed within twelve (12) weeks of the bid response deadline. Please note that when the contract is in place with the consultant selected by the Solicitor, all other firms submitting bid packages will be notified that the contract was awarded.

ICF REPRESENTATIVE AND TECHNICAL CONTACT INFORMATION

ICF Representative

Ms. Tracy Aubel
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Technical Contact

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NOTE: All questions regarding this RFB solicitation and the subject site conditions must be directed to the Technical Contact and submitted in writing with the understanding that all questions and answers will be provided to all bidders. If questions are to be submitted via email, please note the following in the subject line of the email: Bethlehem Rodgers Street Garage RFB Questions Claim No. 1999-344(M). Bidders must neither contact nor discuss this RFB Solicitation with the Solicitor, PAUSTIF, or ICF International unless approved by the Technical Contact. Bidders may discuss this RFB solicitation with subcontractors and vendors to the extent required for preparing the bid response.

SITE LOCATION, OPERATION, AND BACKGROUND INFORMATION

Site Address

Bethlehem Rodgers Street Garage
2307 Rodgers Street
Bethlehem, PA 18018
City of Bethlehem, Northampton County

Site Location and Operation Information

The Site is a municipal maintenance and storage facility for the Parks Department of the City of Bethlehem (claimant). The Site is located at 2307 Rodgers Street in Bethlehem, Pennsylvania. The Site has two (2) buildings of slab on grade construction. The site buildings are used for maintenance of city vehicles and storage of landscaping equipment. The Site is mostly paved with some small grass and wooded areas. The former underground storage tank (UST) field is located near the northeast corner of the Site and contained one (1) 4,000 gallon unleaded gasoline UST, which was installed in 1975. The UST was removed on December 12, 1996. The surrounding properties are a mix of residential properties to the west and south and city athletic fields to the east and north. Bethlehem Water Authority provides public water to the Site and surrounding properties.

Site Background Information

On December 12, 1996, a visual inspection of the exposed 4,000 gallon unleaded gasoline UST and associated piping during UST removal activities was conducted. During the inspection, UST was reportedly observed in good condition with no holes present. However, the associated piping was observed to be in fair to poor condition with some holes present. Petroleum impacted soil was observed in the vicinity of the UST field and associated piping. Approximately 50.1 tons of petroleum impacted soil was removed from the excavation area and disposed of at an approved offsite waste disposal location. A total of four (4) post excavation soil samples were collected and submitted for laboratory analysis. The aforementioned soil samples were analyzed for unleaded gasoline parameters. Analytical results indicated that samples collected from beneath the UST and along sidewalls of the excavation were below current medium specific concentrations (MSC). Analytical results indicated that the sample collected from beneath the dispenser area exceeded current MSC's for benzene, toluene, ethylbenzene, naphthalene, and MTBE. On December 19, 1996 a release was reported to the PADEP. A UST Closure Report was submitted to the PADEP on June 16, 1997.

On January 19, 2000, site characterization activities at the Site were initiated in response to the release reported to the PADEP on December 19, 1996.

On March 29, 2000, a total of six (6) soil borings (RSB-1 through RSB-6) were advanced in order to characterize the soil in the vicinity of the former UST area. The six (6) soil borings were advanced to a total depth of between 4.5 and 16.5 feet. Bedrock was encountered at approximately 10 feet below grade (ftbg) in RSB-2. Bedrock was not encountered at all other

soil boring locations. A total of seven (7) soil samples were collected and submitted for laboratory analysis. The aforementioned soil samples were analyzed for unleaded gasoline parameters. Analytical results for soil samples collected from RSB-2 indicated the presence of naphthalene and ethylbenzene in concentrations above statewide health standards (SHS). Analytical results for soil samples collected from all other locations indicated that all parameters were either below laboratory detection limits or below SHS.

On May 10, 2000, one (1) groundwater monitoring well (MW-1) was installed at the Site in a downgradient location from the former UST field. The two-inch diameter monitoring well was advanced to a total depth of 110 feet and had 88 feet of PVC riser installed in the well. Bedrock was encountered at approximately 5 ftbg. A groundwater sample was collected from MW-1 on May 12, 2000. Analytical results from the groundwater sample collected from MW-1 indicated the presence of MTBE in concentrations above current MSCs. Analytical results for all other parameters were below laboratory detection limits.

On October 20, 2000, a Site Characterization Report (SCR) was submitted to the PADEP on behalf of the claimant.

In October 2001, the PADEP requested the installation of two (2) additional monitoring wells to further characterize groundwater at the Site.

In November 2001, two (2) groundwater monitoring wells (MW-2 and MW-3) were installed at the Site to horizontally characterize groundwater at the Site. The two (2) two-inch monitoring wells were installed to a total depth of 102 feet and had 75 feet of PVC riser installed in the wells. Bedrock was encountered at approximately 26 ftbg in both wells.

On June 17, 2002, a groundwater monitoring and sampling event was conducted at the Site on all wells. The aforementioned samples were analyzed for leaded and unleaded gasoline parameters. Analytical results for the groundwater samples collected from MW-1 indicated the presence of MTBE in concentrations above SHS. Analytical results for groundwater samples collected from all other locations indicated that all parameters were either below laboratory detection limits or below SHS.

On September 23, 2002, a groundwater monitoring and sampling event was conducted at the Site on all wells. The aforementioned samples were analyzed for unleaded gasoline parameters, with the exception of xylenes and MTBE. Analytical results for groundwater samples collected from all locations indicated that all parameters were below laboratory detection limits.

On January 6, 2003, a groundwater monitoring and sampling event was conducted at the Site on all wells. The aforementioned samples were analyzed for leaded and unleaded gasoline parameters. Analytical results for groundwater samples collected from all locations indicated that all parameters were either below laboratory detection limits or below SHS.

On January 14, 2003, the PADEP issued a letter to the claimant requesting additional activities at the Site to further horizontally and vertically delineate contamination at the Site.

On March 27, 2003 a meeting was held between the claimant, the previous consultant, and the PADEP to discuss recent activities conducted at the Site and the results of those activities.

On June 23, 2003, a work plan detailing future site characterization activities to be conducted at the Site, which also included results from recently completed site characterization activities, was submitted to the PADEP on behalf of the claimant.

On October 7, 2003, the PADEP sent an e-mail to the claimant providing comments related to investigation and reporting procedures, as well as specific comments related to the Site. No further activities were performed at the Site until PADEP's comments were resolved.

On August 25, 2004, the PADEP issued a letter to the claimant requesting the status of remedial activities conducted at the Site.

On March 9, 2005, a status report was sent to PAUSTIF on behalf of the claimant, which included a brief site history and a description of future activities to be conducted at the Site.

On July 21, 2005, a status report was sent to PAUSTIF on behalf of the claimant, which included a brief site history and a description of future activities to be conducted at the Site.

On October 19, 2005, a status report was sent to PAUSTIF on behalf of the claimant, which included a description of future activities to be conducted at the Site.

On April 9, 2007, the PADEP issued a Notice of Violation (NOV) to the claimant. The PADEP requested that a progress report be completed and submitted to the PADEP by May 9, 2007 and a SCR be completed and submitted to the PADEP by October 5, 2007.

On April 18, 2007, a progress report was submitted to the PADEP on behalf of the claimant.

On July 31, 2007, a revised Work Plan was submitted to the PADEP on behalf of the claimant detailing future site characterization activities. Following discussions and e-mail correspondence with the PADEP an extension was granted for the submittal of a SCR Addendum (SCR-A), which is stated in a letter from the PADEP to the claimant dated January 18, 2008.

On November 27, 2007, the PADEP issued a NOV to the claimant. The NOV stated that a SCR had not been submitted to the PADEP prior to the October 5, 2007 deadline that was stated in the NOV dated April 9, 2007 that was issued to the claimant. The November 27, 2007 NOV also stated that a SCR must be submitted to the PADEP by January 25, 2008 to avoid further actions being taken by the PADEP.

On December 21, 2007, the claimant and the PADEP entered into a Letter Agreement of the Parties relating to site characterization activities at the Site.

On January 11, 2008, an extension request for the submittal of a SCR was sent to the PADEP on behalf of the claimant.

On January 18, 2008, the PADEP issued a letter to the claimant discussing the submittal of a SCR. The letter stated that an extension for the submittal of a SCR to the PADEP had been approved with a new deadline of May 30, 2008.

On January 28, 2008, a total of five (5) soil borings (RSB-7 through RSB-11) were advanced on the south side of the former UST area in order to further delineate soil and groundwater contamination in the vicinity of the former UST area. The five (5) soil borings were advanced to a total depth of between 5.5 feet and 12 feet. Bedrock or refusal was encountered approximately between 5 ftbg and 12 ftbg. A total of ten (10) soil samples were collected and submitted for laboratory analysis. The aforementioned soil samples were analyzed for unleaded gasoline parameters. Analytical results for soil samples collected from all locations indicated that all parameters were either below laboratory detection limits or below SHS.

On January 28-31, 2008, one (1) monitoring well (MW-4) was installed at the Site southeast of the former UST field in order to further horizontally delineate groundwater at the Site. The two-inch monitoring well was installed to a total depth of 119 feet and had 89 feet of PVC riser installed in the well. Bedrock was encountered at approximately 11 ftbg.

On March 5, 2008, a groundwater monitoring and sampling event was conducted at the Site on all wells. The aforementioned samples were analyzed for unleaded gasoline parameters and Natural Attenuation parameters. Analytical results for groundwater samples collected from MW-4 indicated the presence of MTBE in concentrations above SHS. Analytical results for groundwater samples collected from all locations indicated that all parameters were either below laboratory detection limits or below SHS.

On March 5, 2008, a 4-hour pump test was conducted on MW-4 to determine the hydraulic connection between monitoring wells and to evaluate hydraulic characteristics of the aquifer.

On March 21, 2008, a site survey was conducted in order to survey all monitoring well locations and elevations.

On April 15, 2008, a SCR Addendum was submitted to the PADEP on behalf of the claimant. The SCR Addendum detailed the history of the site, release information, investigations completed, and discussed proposed remediation. The SCR Addendum indicated that the gasoline release in the vicinity of the former UST field was minimal and only associated with the fuel dispenser line. The SCR Addendum indicated that no impacts to soil remain in the vicinity of the former UST field and only minimal impact remains within groundwater in the vicinity of the former UST field. The SCR Addendum indicated that concentrations of MTBE (42 ug/L) exceeded the SHS in groundwater collected from MW-4. According to the SCR Addendum, contaminant migration is likely to be slow based on the low hydraulic conductivity observed during a 4-hour pump test and that natural attenuation appears to be effective in reducing MTBE concentration in the vicinity of the former UST field. The SCR Addendum indicated that there are no groundwater receptors in the vicinity of the source area. The SCR Addendum indicated that the PADEP's site specific health standard has been selected for both soil and groundwater at the Site. The SCR Addendum recommends that the current MTBE concentrations found in

groundwater in MW-4 be utilized as the site-specific standard and that an additional four quarters of groundwater monitoring was necessary to demonstrate attainment of the that standard.

On June 17, 2008, the PADEP issued a letter to the claimant stating that the SCR Addendum dated April 15, 2008 was disapproved for the following reasons:

> "In accordance `with the Pennsylvania Code Title 25 250.204 (e) Subparagraph (2), defining the horizontal extent of concentrations of regulated substances above the standard shall require more than one round of groundwater sampling taken a sufficient number of days apart to yield independently valid results. Based on the Department's review of the report, the one groundwater sampling event conducted on March 5, 2008 on monitoring well MW-4 is not adequate in defining the extent of contamination at the site. Based on your January 7, 2008 e-mail, the Department was under the assumption that the first round would be collected two weeks after the installation of the monitoring well and the second round would be collected one month after the first round."
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> "Based on the Department's review of the report, attainment soil sampling should have been conducted from the location that exhibited the highest concentration of compounds of concern, identified as the "Line" sample. This soil sample exhibited concentrations of benzene at 23 parts per million (ppm), toluene at 260 ppm, naphthalene at 64 ppm and methyl tertiary butyl ether (MTBE) at 14 ppm. Consistent with Pennsylvania Code Title 25 250.703(b), the soil to which the attainment criteria are applied shall be determined by circumscribing with an irregular surface those concentrations detected during characterization which exceed the selected standard. Where this soil is to be removed from the site, the attainment demonstration applies to the base of the excavation defined by the limit of the excavation. Also, the remediator should obtain the soil samples for Synthetic Precipitation Leaching Procedure (SPLP) from areas that are representative of the soil type and horizon impacted by the release of the regulated substance. The soil samples should be collected from the area within the impacted soil area (See The Land Recycling Technical Guidance Manual, Section II – Remediation Standards, B. Statewide Health Standard, Page 26, Subparagraph i, entitled Choosing the Soil-to-Groundwater Numeric Value)."
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> "Institutional controls may be necessary on-site to insure there aren't any issues with any future receptors (i.e. installation of a potable well on-site). If the City of Bethlehem has an ordinance preventing the installation of potable wells this will be sufficient in preventing groundwater use on-site. If the City of Bethlehem does not have an ordinance regarding access to public water supply and does not require a property owner to connect, an institutional control may be required on impacted properties preventing the installation of potable wells. An environmental covenant will be required whenever an engineering or institutional control is used to demonstrate the attainment of an Act 2 remediation standard for any cleanup conducted under an applicable Pennsylvania environmental law.

The letter stated that further site characterization activities should be completed and a report detailing those activities should be submitted to the PADEP.

On January 6, 2009, the PADEP issued a letter to the claimant approving the SCR Addendum dated April 15, 2008 with the following modification:

> "In accordance with the Pennsylvania Code Title 25 250.204 (e) Subparagraph (2), defining the horizontal extent of concentrations of regulated substances above the standard shall require more than one round of groundwater sampling taken a sufficient number of days apart to yield independently valid results. This issue will be addressed by the collection of samples from the monitoring wells for four quarters. The selected Act 2 standard for groundwater will be based on the results of the proposed groundwater sampling."

On August 24, 2010, a Final Report was submitted to the PADEP on behalf of the claimant. The report detailed the history of the site, release information, investigations completed, and discussed proposed remediation. The report indicated that the gasoline release in the vicinity of the former UST field was minimal and only associated with the fuel dispenser line. The report indicated that no impacts to soil remain in the vicinity of the former UST field and only minimal impact to groundwater was detected prior to 2009. According to the report, contaminant migration is likely to be slow based on the low hydraulic conductivity observed during a 4-hour pump test and that natural attenuation appears to be effective in reducing MTBE concentration in the vicinity of the former UST field. The report indicated that there are no groundwater receptors in the vicinity of the source area. According to the report, a soil sample that was collected from the "Line" sample location in 2010 indicated no soil impact remains in that area. The report also states that groundwater concentrations have naturally attenuated below MSC's for all compounds of concern. The report recommends based on these findings the case be closed with no further action required.

On October 22, 2010, the PADEP issued a letter to the claimant stating that the Final Report August 24, 2010 was disapproved for several reasons including the following:

- The vertical and horizontal extent of all impacted media (soil, groundwater, and vapors) have not been defined and/or evaluated;
- Groundwater monitoring wells installed at the Site were improperly constructed and need to be replaced with properly constructed wells;
- Additional groundwater monitoring wells need to be installed to assess whether contamination found in MW-1 and MW-4 has migrated beyond the existing monitoring well network;
- The extent of soil contamination at the Site has not been vertically or horizontally delineated;
- Soil and groundwater samples collected at the Site were not analyzed for the same contaminants of concern. Therefore, groundwater and soil samples should be re-collected and analyzed for the same contaminants of concern for both leaded and unleaded gasoline parameters;

- The Final Report does not meet contextual requirements due to the report not including supporting data;
- The SPLP sampling was conducted incorrectly;
- The conclusion that MTBE detected in the source area has naturally attenuated is not verified;
- An ecological evaluation was not included in the report; and
- The Geologic cross-section map was incorrectly designed.

The letter stated that additional characterization and sampling should be conducted at the Site in order to further characterize all media of concern. The letter also states that a progress report and a revised SCR detailing the additional activities should be submitted to the PADEP for review.

On December 1, 2010, a letter was sent on behalf of the claimant to the PADEP in response to the PADEP's Final Report disapproval letter dated October 22, 2010. The letter offers explanations and/or corrective actions taken related to the comments provided by the PADEP in the disapproval letter. The letter requests a discussion of PADEP's comments and states that no further activities have been performed at the Site pending that discussion. The letter also requests an extension for future site characterization reporting.

On July 8, 2011, a workplan was prepared and submitted to PADEP for review and comment. The workplan was prepared to address PADEP's concerns with the Site and complete the characterization. No immediate response was received.

On January 23, 2012, a response was received from the PADEP regarding the workplan submitted on July 8, 2011.

On February 21, 2012, a revised workplan and response to the January 23, 2012 correspondence was submitted to the PADEP. A copy of the February 21, 2012 revised workplan and response letter as well as the initial July 8, 2011 workplan and the January 23, 2012 PADEP correspondence are included in Attachment 1.

Bidders are directed to the pertinent available documentation (including reports, figures, correspondence and analytical data) that has been provided in Attachment 1 for additional site background details.

PROPOSED SCOPE OF WORK

The scope of work has been prepared using the guidelines of Pennsylvania Code Title 25, Chapter 245 (The Storage Tank and Spill Prevention Program) and Chapter 250 (The Land Recycling Program). There are several key elements that must be completed in order for the approach outlined in this RFB to be successful. The critical elements include the following:

- Prepare the appropriate project guidance documents;

- Complete a full Sensitive Receptor Survey;

- Complete a site survey, map the important features of the Site and evaluate groundwater flow (Please note that a digital version of the map is not available and as such will not be provided to the selected consultant);

- Conduct a soil boring investigation;

- Complete a fracture trace analysis and geophysical investigation;

- Install perched water monitoring points;

- Install overburden/weathered rock monitoring wells;

- Install bedrock monitoring wells;

- Complete aquifer testing on the monitoring well network;

- Complete soil gas sampling;

- Conduct groundwater monitoring and sampling events;

- Complete fate and transport modeling to assess soil, groundwater, and vapor intrusion media pathways to determine if and the extent to which dissolved phase hydrocarbons have or may be expected to migrate beyond the property boundary now or in the future;

- Prepare and submit a SCR;

- Complete a risk assessment evaluation using the applicable guidance documents in an effort to appropriately evaluate exposure pathways;

- Remedial Alternatives Analysis should be completed for the Site to compare cleanup alternatives and evaluate which remedial action is most appropriate for the Site; and

- Prepare a Risk Assessment and Feasible Remedial Alternatives Analysis Report for the Site.

In addition to the above base Scope of Work, the following ***Optional Cost Adders*** need to be addressed in your bid response. These costs adders will not be part of your initially approved contract. However, if it becomes necessary to complete any of these activities, they will be completed under the Remediation Agreement signed as part of this project.

- ***Optional Cost Adder #1*** – Provide a Unit Cost to complete an additional groundwater monitoring and sampling event. The scope of work for this cost adder should follow Task 3.0.

- ***Optional Cost Adder #1a -*** The cost provided should be to complete only one (1) event with all wells (proposed and current) in the network being sampled.
- ***Optional Cost Adder #1b -*** The cost provided should be to sample one (1) additional perched water monitoring point during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, waste, etc.
- ***Optional Cost Adder #1c -*** The cost provided should be to sample one (1) additional overburden/weathered bedrock monitoring well during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, waste, etc.
- ***Optional Cost Adder #1d -*** The cost provided should be to sample one (1) additional bedrock monitoring well during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, waste, etc.

- ***Optional Cost Adder #2 –*** Provide a Unit Cost to Prepare a Summary Progress Report for submittal to the PADEP. The Progress Report should detail the observations documented during the event, summarize the analytical results, map the groundwater flow direction for the Site, provide iso-concentration maps for compounds exceeding the SWHS, provide hydro-graphs, discuss the interim remediation efforts (if any), and provide additional scheduling details for upcoming events. Once the report is approved by the Solicitor, the report can be finalized and submitted to the PADEP. The progress reports discussed are being proposed to meet the PADEP obligation on progress reporting before RAP approval.

- ***Optional Cost Adder #3*** – Provide a Unit Cost to extend the Pump test for four (4) additional hours at the Site. The pump test would be extended if stabilization does not occur by the end of the eight (8) hour pump test.

- ***Optional Cost Adder #4*** – Provide a Unit Cost to abandon monitoring well(s) in accordance with Pennsylvania Act 610 and the Groundwater Monitoring Guidance Manual dated February 29, 1996. Upon completion, a well abandonment report will be prepared and submitted to the DCNR on behalf of the claimant. Bidders should specify in the bid packages how the wells will be abandoned and the site restoration activities included in the specified costs. Following the installation of the proposed bedrock monitoring wells, the Professional Geologist at the selected consulting firm will review the available construction logs for the current monitoring well network and make a determination as to whether some, none, or all of the wells need to be appropriately abandoned and possibly replaced. Due to the uncertainty as to how many wells may need to be abandoned, please provide costs for the following:

  - ***Optional Cost Adder #4a -*** Abandonment of one (1) of the current monitoring wells.
  - ***Optional Cost Adder #4b -*** Abandonment of two (2) of the current monitoring wells during one (1) event.
  - ***Optional Cost Adder #4c -*** Abandonment of three (3) of the current monitoring wells during one (1) event.

- ***Optional Cost Adder #4d -*** Abandonment of four (4) of the current monitoring wells during one (1) event.

- ***Optional Cost Adder #5 – Provide a Unit Cost to install one (1) additional perched water monitoring points.*** The scope of work for this cost adder should follow Task 2.2.1 construction guidelines. Please provide costs for the following:

  - ***Optional Cost Adder #5a –*** Installation of one (1) additional perched water monitoring point during a separate event. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
  - ***Optional Cost Adder #5b -*** Installation of one (1) additional perched water monitoring point as an add-on to a drilling investigation. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

- ***Optional Cost Adder #6 – Provide a Unit Cost to install one (1) additional overburden/weathered bedrock monitoring well.*** The scope of work for this cost adder should follow Task 2.2.2 construction guidelines. Please provide costs for the following:

  - ***Optional Cost Adder #6a –*** Installation of one (1) additional overburden/weathered bedrock monitoring well during a separate event. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
  - ***Optional Cost Adder #6b -*** Installation of one (1) additional overburden/weathered bedrock monitoring well as an add-on to a drilling investigation. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

- ***Optional Cost Adder #7 – Provide a Unit Cost to install one (1) additional bedrock monitoring well.*** The scope of work for this cost adder should follow Task 2.2.2 construction guidelines. Please provide costs for the following:

  - ***Optional Cost Adder #7a –*** Installation of one (1) additional bedrock monitoring well during a separate event. Assume the bedrock monitoring well will be installed to a depth of 50 feet. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
  - ***Optional Cost Adder #7b -*** Installation of one (1) additional bedrock monitoring as an add-on to a drilling investigation. Assume the bedrock monitoring well will be installed to a depth of 50 feet. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
  - ***Optional Cost Adder #7c –*** Per foot cost for drilling and constructing a monitoring well that extends past the 50 foot depth assumed in Optional Cost Adder #7a and #7b. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

- ***Optional Cost Adder #8 –*** Provide a Unit Cost to update the Site's survey to include the additional well location(s). The scope of work for this cost adder should follow Task 2.3.

The bid package should follow the task format outlined below. A cost summary sheet to be attached to your proposal is included as Attachment 2. Proposals should also include a detailed description of the anticipated costs for each task including labor rates, time requirements, and equipment costs as broken out in the detailed cost sheet included as Attachment 3. The scope of work that we are requesting is provided below:

Task 1.0 Project Planning / Management:

Task 1.1 Preparation of Project Guidance Documents – Proposed documents to be prepared include a site specific health and safety plan, a field sampling and analysis plan, and a quality assurance/quality control plan. Where applicable, the pertinent project guidance documents should be prepared in accordance with Chapter 245.

Task 1.2 Project Management – The successful bidder shall complete necessary, reasonable, and appropriate project management activities for the duration of the contract period consistent with release investigation projects. Such activities would be expected to include client communications / updates, meetings, permitting, record keeping, subcontracting, personnel and subcontractor management, quality assurance / quality control, scheduling and other activities.

Task 1.3 Sensitive Receptor Survey – A Sensitive Receptor Survey (SRS) should be conducted for this Site. Sensitive receptors evaluated for this Site should include area water usage, surface water bodies, and subsurface underground utilities and basements. Submitted bids should specify what activities will be included in the SRS activities (i.e. review of tax maps and property assessment records; area canvass; PNDI search, etc.). A 1,000-foot radius water usage survey should be completed as part of the SRS in an effort to document the area water use. As part of the water usage survey, the selected consultant should complete the following:

1. Conduct a private and public well search by obtaining an area specific report;
2. Obtain and review tax maps for the area;
3. Contact the local municipality and water authority to confirm water usage in the area of the Site and any local restrictions on water usage;
4. Review of previously completed sensitive receptor surveys;
5. Review of county property assessment records;
6. Canvass of the area; and
7. Field verification of water supply to surrounding properties.

Results of the SRS are to be taken into consideration during the execution of the project and are to be summarized and included in the SCR to be submitted to PADEP.

Task 1.4 Fracture Trace Analysis and Geophysical Investigation – In an effort to collect sufficient data to confirm and/or position the bedrock monitoring wells in appropriate locations, the selected consultant will complete a fracture trace analysis as well as a geophysical investigation. A Professional Geologist will attempt the fracture

trace analysis; however, there are concerns that the development of the site and surrounding properties may prohibit the collection of sufficient defendable data. As such, a geophysical investigation that includes electrical resistivity imaging and seismic refraction should be completed. The fracture trace analysis and geophysical investigation must be completed prior to the installation of the five (5) bedrock monitoring wells (MW-5, MW-6, MW-7, MW-8 and MW-9). The Professional Geologist will utilize the information from the analysis and investigation as well as actual site conditions to determine the locations of the five (5) aforementioned bedrock monitoring wells. The SCR will discuss the efforts completed and provide the locations in which the five (5) bedrock monitoring wells were installed.

Task 2.0 Additional Site Characterization and Interim Remedial Activities:

Task 2.1 Soil Boring Investigation – In an effort to delineate the soil at the Site, a soil boring investigation is being proposed at the Site. As part of the investigation, the selected consultant will advance a total of 16 soil borings at the Site. The approximate locations of the 16 soil borings (B-1 through B-16) are provided on the attached figure for your review. Specifics on the proposed investigation are provided below:

- Soil borings will be advanced to groundwater, bedrock, or refusal, whichever is encountered first. However, in the event that there is no evidence of petroleum hydrocarbon impact (includes olfactory, visual, and field instrument detections) for more than 25 feet, then the boring maybe terminated. Soil samples will be collected continuously in five (5) foot intervals and will be logged by an on-site geologist for soil classification and structure, odor, soil moisture, soil texture, color, and screened with a photoionization detector (PID).

- With regards to soil borings B-1 through B-14, soils exhibiting the highest PID reading in each borehole will be collected for submittal to a laboratory for analysis. An additional soil sample will be collected at the bedrock interface or just above groundwater in an effort to delineate the soil sample with the highest PID reading. If a boring exhibits no PID readings, a soil sample will be collected from approximately five (5) to six (6) feet below surface grade of the boring and then again at the base or refusal.

- Soil borings B-15 and B-16 will be advanced immediately adjacent to previous soil sampling locations Line 5 and RSB-2, respectively, in an effort to determine the current condition of the soil as well as to vertically delineate the previous exceedances. With regards to B-15 (immediately adjacent to Line 5), the selected consultant will attempt to collect a soil sample from five (5) feet below surface grade, a second sample from approximately four (4) feet below the first sample (at approximately nine (9) feet below surface grade), and then again at the base or refusal. For boring B-16 (immediately adjacent to RSB-2), a total of four (4) soil samples are proposed. The first sample will be collected from five (5) feet below surface grade to six (6) feet below surface grade. The second sample will be

collected from 12 feet below surface grade to 13 feet below surface grade. The third sample will be collected approximately four (4) feet below the second sample at an approximate depth of 16 feet below surface grade to 17 feet below surface grade. If the boring is able to be advanced to a depth greater than 17 feet below surface grade, then a fourth sample will be collected at the bedrock interface or just above groundwater. If the soil boring cannot be advanced to 16 feet below surface grade then the third (and final sample) will be collected at the maximum depth able to be sampled.

- A total of 35 soil samples are proposed to be collected both in laboratory-sterilized sample jars and using the Encore sampling method. The samples will then be placed on ice and delivered to an accredited laboratory for chemical analysis. Soil samples will be collected and analyzed for the PADEP unleaded gasoline short list (benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, isopropylbenzene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene). The analytical data, field results; boring logs, and sampling map from the event will be summarized and included in a SCR.

- The locations of the 16 soil borings (B-1 through B-16) are provided on the attached figure for your review. All soil boring locations will be advanced in the locations proposed in the RFB, unless the presence of utilities, obstructions, or safety concerns requires a change in the location. Prior to the advancement of the soil borings, the selected consultant will be required to complete a private markout at the Site to identify the location of obstructions and underground utilities. If due to valid concerns the general locations of the proposed borings need to be altered more than eight (8) feet from the approximate locations provided on the attached figure, then the selected consultant will be required to contact the PADEP, discuss the need for the changes, and provide the PADEP with a revised soil boring location map.

- If a consultant feels it is appropriate and necessary to complete hole clearing activities before advancing the borings, the cost should be included in their proposal and costs. If a consultant includes the cost to complete air-knifing, they should state it in their proposal and discuss why it is appropriate and necessary. As discussed in the RFB, cost is not the only factor when evaluating proposals and other factors are taken into consideration during the review process, including appropriate safety measures.

- In addition, one (1) duplicate sample and one (1) equipment blank sample will be collected and submitted per day of sampling.

- Samples should be properly handled under chain of custody documentation protocol and kept cold from sample collection until the samples are relinquished to the accredited laboratory.

- One (1) soil sample should also be analyzed for fraction of organic carbon and porosity to facilitate modeling efforts (Please make sure you choose the appropriate porosity parameter based on the predictive model selected as part of Task 4.1).

- The laboratory to be utilized should be identified in the bid package. Upon receipt of the results, the consultant should forward a copy of the analytical data to the Solicitor and PAUSTIF (or its designated representative).

- Compile the field findings and laboratory data into a summary table and comprehensive soil boring logs.

Task 2.2 Monitoring well installation activities- For this RFB, a total of five (5) additional bedrock monitoring wells, three (3) shallow monitoring wells and three (3) perched water monitoring points are proposed.

Task 2.2.1 Installation of perched water monitoring points – A total of three (3) shallow monitoring points are proposed for installation at this Site to investigate whether a perched water bearing zone is present. During advancement of the soil borings with the split spoon capabilities of the hollow stem auger rig, three (3) of the soil borings B-10 (immediately adjacent to RSB-8), B-11, and B-12 will be converted to small diameter monitoring wells (MW-10, MW-11, and MW-12).

For the perched water bearing zone monitoring points, the borehole will be drilled to an anticipated maximum depth of approximately 15 feet bsg, and a monitoring well will be constructed using no more than 5 feet of schedule 40 PVC flush threaded casing and with schedule 40 PVC flush threaded 0.010 slot size screening to be installed in the remaining length of the well column. The total depth and screening interval provided are approximated based on limited available information. A protective flush-mounted manhole will be cemented in place around the PVC riser and finished flush with surface grade. Each monitoring well will be completed with a watertight locking cap for security.

Task 2.2.2 Installation of overburden/weathered rock monitoring wells - A total of three (3) monitoring wells (MW-13, MW-14, and MW-15) are proposed for installation to investigate whether a shallow water bearing zone is present in the overburden/weathered rock at the Site. Drilling will be conducted under the supervision of a Pennsylvania-licensed Professional Geologist and the construction specifications will be determined by the Professional Geologist and dictated by actual site conditions (i.e. actual depth to competent bedrock, actual depth to groundwater, etc.).

The wells will be drilled and constructed in accordance with generally accepted practices as outlined in the PADEP Groundwater Monitoring Guidance Manual, dated January 1, 1999 (Document # 383-3000-001). The overburden/weathered rock

monitoring wells will be constructed using schedule 40 PVC flush threaded casing and schedule 40 PVC flush threaded 0.010 slot size screening in the well column. The selected consultant will install the wells to a depth above or slightly into the competent rock, but no more that five (5) feet into competent bedrock. A protective flush-mounted manhole will be cemented in place around the PVC riser and finished flush with surface grade. Each monitoring well will be completed with a watertight locking cap for security.

Task 2.2.3 Installation additional bedrock monitoring wells - As part of the characterization activities, the installation of five (5) additional bedrock monitoring wells are being proposed in an effort to complete the delineation efforts in the bedrock aquifer. The proposed location of the monitoring wells is provided on the attached site map.

The five (5) bedrock wells are anticipated to be advanced to a total estimated depth of 115 feet below surface grade. However, based on available information, it is possible that water bearing fractures may be present in the bedrock at shallower depths. As such, the consulting firm selected during the bidding process will be instructed that if water is encountered at a shallower bedrock depth, then it needs to be appropriately investigated. In addition, B&B will remind the selected consulting firm that careful consideration needs to be taken when installing the five (5) proposed bedrock monitoring wells. Specifically, the wells should not be over drilled, under screened, or screened across the overburden and bedrock.

During the installation of the five (5) proposed bedrock monitoring wells, the Professional Geologist may determine that water is present at a shallower bedrock depth and needs to be investigated with additional, appropriately constructed monitoring well(s). The shallower bedrock wells would be constructed as determined appropriate by the Professional Geologist and dictated by actual site conditions.

Drilling is to be conducted under the supervision of a Pennsylvania-licensed Professional Geologist and the construction specifications will be determined by the Professional Geologist and dictated by actual site conditions (i.e. actual depth to bedrock, actual depth to groundwater, etc.). The wells should be drilled and constructed in accordance with generally accepted practices as outlined in the PADEP Groundwater Monitoring Guidance Manual, dated January 1, 1999 (Document # 383-3000-001). Based on anticipated drilling conditions, a Pennsylvania-licensed driller should install the wells using air-rotary methods.

As part of the installation of the additional monitoring wells, the selected consultant should consider the following:

- All monitoring wells will be advanced in the locations proposed in the RFB, unless the presence of utilities, obstructions, or safety concerns requires a change in the location with the exception of the bedrock monitoring wells. The fracture trace analysis and geophysical investigation will be completed prior to the

installation of the five (5) bedrock monitoring wells (MW-5, MW-6, MW-7, MW-8 and MW-9). The Professional Geologist will utilize the information from the analysis and investigation as well as actual site conditions to determine the locations of the five (5) aforementioned bedrock monitoring wells. The Site SCR will discuss the efforts completed and provide the locations in which the five (5) bedrock monitoring wells were installed. The proposed locations of the monitoring wells are provided in Attachment 1;

- The wells should be drilled and constructed in accordance with generally accepted practices as outlined in the PADEP Groundwater Monitoring Guidance Manual, dated January 1, 1999 (Document # 383-3000-001);

- Drilling should be conducted under the supervision of a Pennsylvania-licensed Professional Geologist, although a field supervisor may be used in the field on a day-to-day basis. The field supervisor should visually inspect subsurface materials encountered during drilling, screen cuttings with a PID, and complete field well construction logs. When encountered, soils should be described using the Unified Soil Classification System. Bedrock should be described using USGS descriptive protocol, with the identification of the depth of and size of potential fractures and/or other subsurface anomalies;

- The newly installed monitoring wells should be developed to promote adequate hydraulic connection between the aquifer and the well. Depending on the depth and amount of sediment in the well, development should be completed via mechanical surging using either a bailer or an electric submersible pump, or by airlift techniques. The IDW waste and purge water should be disposed of per the PADEP Northeast Regional Office (NERO) guidance; check with the NERO for current requirements. Bidders will be responsible for arranging any offsite waste disposal (if required) and including costs in their bid response to cover the disposal of all potential waste related to the tasks included in the SOW. Please estimate the volume of waste using your professional opinion, experience, and the data provided. Invoices submitted to cover additional costs on waste generated as part of activities included under the fixed price contract for this Site will not be paid. The groundwater may be temporarily stored on site, but should be removed from the Site in a timely manner;

- Soil/rock cuttings and liquids generated during the drilling activities should be disposed of offsite in a manner consistent with the protocols set forth by the PADEP. Disposal of soil/rock cuttings should be arranged through a certified waste disposal subcontractor. In an effort to eliminate or minimize the need for change orders on a fixed price contract, please include costs to dispose of all anticipated volumes of waste in your bid response. ICF and PAUSTIF will not entertain any assumptions on the contract with regards to a volume of waste (i.e. project costs assume that no more than one (1) ton of soil cuttings will require disposal after the installation of the additional monitoring wells). Bidders will be

responsible for including costs in their bid response to cover the disposal of all potential waste related to the tasks included in the SOW. Please estimate the volume of waste using your professional opinion, experience, and the data provided. Invoices submitted to cover additional costs on waste generated as part of activities included under the fixed price contract for this Site will not be paid;

- Compile the field findings into comprehensive monitoring well construction diagrams and logs; and

- Following the installation of the proposed bedrock monitoring wells, the Professional Geologist at the selected consulting firm will review the available construction logs for the current monitoring well network and make a determination as to whether some, none, or all of the current wells need to be appropriately abandoned and possibly replaced. All monitoring well locations will be advanced in the locations proposed in the work plan, unless the presence of utilities, obstructions, or safety concerns requires a change in the location.

Task 2.3 Soil Gas Sampling – During the characterization of the Site, a total of three (3) soil gas samples are proposed to be collected during each of the two (2) soil gas sampling events. Please note that USTIF will only pay the selected firm for the actual number of events conducted (i.e. if a firm includes the costs to complete 2 events, but only 1 events are conducted; then the firm will only be paid for the 1 event completed). The selected consultant should be prepared to conduct the first soil gas sampling event at the Site within two (2) weeks of the execution of the contract and conduct the second event approximately six (6) weeks after the first event. As part of the soil gas investigation, the selected consultant should consider the following:

- All soil gas points will be advanced in the locations proposed in the RFB, unless the presence of utilities, obstructions, or safety concerns requires a change in the location. The proposed locations of the soil gas points are provided on the attached Site Plan in Attachment 1.

- The vapor intrusion investigation should be completed in a manner consistent with the Land Recycling Technical Guidance Manual – Section IV.A.4 Vapor Intrusion Into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standards, Document 253-0330-100, dated January 24, 2004.

- Samples should be collected in laboratory provided Summa canisters equipped with laboratory calibrated flow regulators and analyzed for the PADEP Constituents list for unleaded gasoline via TO-15.

- The laboratory to be utilized should be identified in the bid package. Upon receipt of the results, the consultant should forward a copy of the analytical data to the solicitor and PAUSTIF (or its designated representative).

Results from soil gas sampling events will be summarized and presented to the PADEP in the SCR.

Task 2.4 Site Survey – Following the installation of the additional monitoring wells and soil gas sampling points, a Pennsylvania-licensed surveyor will survey and map the Site and all pertinent features. All identified monitoring wells, soil gas sampling points and any supply well (if any supply wells are discovered during the sensitive receptor survey) locations will be surveyed relative to an arbitrary benchmark, the Site buildings, property boundaries, and important Site features with the purpose of placing their horizontal coordinates on a scaled site map. In addition, the vertical coordinates of the new monitoring well top of casings and surface grade will be surveyed. In conjunction with collecting depth to groundwater readings during sampling events and in an effort to establish groundwater flow in each of the identified water bearing zones at the Site. Tops of casing for the existing monitoring wells will also be surveyed to facilitate the construction of Site wide groundwater flow maps. In addition, the presence of SPL (if detected) will be taken into consideration when calculating the static water levels in the wells and constructing Site wide groundwater flow maps (a groundwater flow map will be generated for each identified aquifer). Groundwater elevation data collected following the installation of the additional monitoring wells along with data from the site survey will be utilized to produce a series of summary figures to be included in the SCR which will provide additional information as to the groundwater flow direction in each aquifer identified (both overburden and bedrock) at the Site.

Task 2.5 Aquifer testing – Slug tests, Step test and Pump test –

Task 2.5.1 Slug Tests – Rising head slug testing will be conducted on three (3) of the monitoring wells at the Site. A PVC slug will be used to displace the static water level in the well while a transducer will record water levels before the slug is placed in the well, during the recovery of the water level back to the original static water level, and following the removal of the slug. Transducers should be used to monitor the water levels in the wells during each of the slug tests. The data collected by the transducer during the slug tests, the selected consultant will calculate Site-specific hydrogeologic values including permeability. All of the calculated values will allow for the modeling efforts and risk assessment activities to be conducted with Site specific data rather than using published values. In addition, the data collected during the slug testing of the monitoring wells will be evaluated to determine the appropriate monitoring well to be used for the step test and the eight (8) hour pump test. Results from the slug testing activities are to be summarized and included in the SCR to be submitted to PADEP.

Task 2.5.2 Step Test – The bedrock monitoring well demonstrating the highest permeability during the slug test will be used for the step test and the subsequent eight (8) hour pump test. The selected consultant will conduct a two-hour step test on the well determined by the slug test results to have the highest permeability. The data

collected during the step drawdown test will be used to determine an optimal pumping rate and yield for the constant rate pumping test. Results from the step testing activities are to be summarized and included in the SCR to be submitted to PADEP.

Task 2.5.3 Pump Test – Once the pumping rate has been determined, an eight (8) hour constant rate pumping test will be conducted by the selected consultant on the selected monitoring well at the Site. Transducers will be used to monitor the resultant water levels in the pumping well and surrounding overburden and bedrock monitoring wells to be determined at a later date. Also, the remaining monitoring well network should be gauged periodically throughout the test to provide additional aquifer characterization data. Data collected during the constant rate pumping test will be analyzed and used to calculate Site specific aquifer values including hydraulic conductivity, transmissivity, storage capacity, and groundwater seepage velocity. All of the calculated values will allow for the modeling efforts and risk assessment activities to be conducted with Site specific data rather than using published values. Results from the pump testing activities are to be summarized and included in the SCR to be submitted to PADEP. The IDW waste and purge water should be disposed of per the PADEP Northeast Regional Office (NERO) guidance; check with the NERO for current requirements. Bidders will be responsible for arranging any offsite waste disposal (if required) and including costs in their bid response to cover the disposal of all potential waste related to the tasks included in the SOW. In an effort to eliminate or minimize the need for change orders on a fixed price contract, please include costs to dispose of all anticipated volumes of waste in your bid response. ICF and PAUSTIF will not entertain any assumptions on the contract with regards to a volume of waste (i.e. Project costs assume that no more than 1,000 gallons of groundwater will require disposal after the completion of the pump test). Bidders will be responsible for including costs in their bid response to cover the disposal of all potential waste related to the tasks included in the SOW. Please estimate the volume of waste using your professional opinion, experience, and the data provided. Invoices submitted to cover additional costs on waste generated as part of activities included under the fixed price contract for this Site will not be paid. The groundwater may be temporarily stored on site, but should be removed from the Site in a timely manner.

Task 3.0 Groundwater Monitoring and Sampling:

Following the installation and development of the five (5) additional bedrock monitoring wells, three (3) shallow monitoring wells and three (3) perched water monitoring points, the selected consultant will gauge and sample the expanded monitoring well network. For this RFB, please assume the total number of groundwater monitoring and sampling events that will be needed is two (2) events. Please note that USTIF will only pay the selected firm for the actual number of events conducted (i.e. if a firm includes the costs to complete two (2) events, but only one (1) event is conducted; then the firm will only be paid for the one (1) event completed). The selected consultant should be prepared to conduct the first groundwater sampling event at the Site approximately two (2) weeks after the installation of the proposed monitoring wells and conduct

the second event approximately four (4) weeks after the first event. Each event should include the following:

- Collect water level readings from each of the monitoring wells using an interface probe capable of distinguishing water and/or the presence or absence of product to the nearest 0.01 feet;

- Record the depth to water readings from the monitoring wells and then use the data to determine water level elevations such that groundwater flow direction can be confirmed;

- Groundwater sampling activities should be conducted in accordance with generally accepted practices as outlined in the final version of the PADEP Groundwater Monitoring Guidance Manual;

- Prior to the collection of groundwater samples, the water column in each of the monitoring wells should be purged by either the removal of approximately three (3) volumes of the water column or via low flow sampling method;

- Sampling equipment should be decontaminated prior to sample collection in accordance with generally accepted industry practices;

- Following purging activities, groundwater samples should be collected as quickly as practical from each of the wells directly from a bailer into laboratory supplied bottleware;

- The IDW waste and purge water should be disposed of per the PADEP Northeast Regional Office (NERO) guidance; check with the NERO for current requirements. Bidders will be responsible for arranging any offsite waste disposal (if required) and including costs in their bid response to cover the disposal of all potential waste related to the tasks included in the SOW;

- Samples should be properly handled under chain of custody documentation protocol and kept cold from sample collection until the samples are relinquished to the accredited laboratory;

- Groundwater samples collected during each of the events will be sent to an accredited laboratory to be tested for the required constituents of concern in accordance with Pennsylvania's Storage Tank Regulation procedures and cleanup standard criteria as specified in Pennsylvania's Act 2. Specifically, each sample will be analyzed for PADEP unleaded gasoline short lists (benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, isopropylbenzene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene);

- In addition to the samples collected from the monitoring wells, one (1) duplicate sample and one (1) equipment blank sample will be collected and submitted per day of sampling; and

- The laboratory to be utilized should be identified in the bid package. Upon receipt of the results, the consultant should forward a copy of the analytical data to the solicitor and PAUSTIF (or its designated representative). Following collection of the second round of groundwater monitoring and sampling data, a determination will be made whether additional characterization efforts will be needed or if the completed efforts have fully characterized and delineated the groundwater and soil at the Site. The selected consultant will keep the PADEP updated on the progress of the investigation.

Task 4.0 Fate and Transport Modeling and Site Characterization Report:

Task 4.1 Fate and Transport Modeling – Fate and Transport evaluations shall be completed as appropriate and consistent with Act 2 guidance documents in order to assess the potential for contaminant migration. This evaluation should take into consideration both the groundwater and soil exceedances at the Site. Each firm should evaluate the data and site specific information provided and determine the most applicable model or models needed to complete appropriate fate and transport modeling for the Site. Please specify which modeling software will be used to predict fate and transport of the constituents of concern exceeding the PADEP statewide health standards in groundwater at the release location and its applicability to the Site.

Task 4.2 Preparation of a Site Characterization Report - Following the completion of the activities proposed in Task 1.0 and Task 2.0 as well as the two (2) groundwater sampling events from Task 3.0 and the Fate and Transport Modeling noted in Task 4.1, the selected consultant will prepare a SCR for the Site. The information gathered during the aforementioned tasks should be incorporated into a comprehensive SCR that will be submitted to the PADEP and will facilitate the objective to complete regulatory requirements governing the SCR and gain PADEP approval for the report. Specifically, the report should summarize the results of the recent investigations, the findings of the previous investigations, a comprehensive Site history, sensitive receptor information, risk assessment, geologic data, results and analysis of the aquifer testing, discussion on the completed remediation efforts, summary of the predictive modeling efforts completed, and a series of summary tables, appendices, and figures illustrating the information provided in the report.

The Report will be completed following the guidelines specified in Pennsylvania Code, Title 25, Chapter 245 and the Land Recycling Program (Act 2) Technical Guidance Manual for a Site Characterization Report. The selected consultant will also present significant conclusions and make recommendations for future work at the Site in the SCR. The report will be appropriately signed and sealed by a licensed Professional Geologist.

Within 120 days of contract execution, a draft SCR and all AutoCAD maps / plans included in the report (e.g., site plan / base map, groundwater elevation maps, dissolved plume maps, soil contaminant distribution maps, etc.) and appendices (e.g., boring logs, tables, waste disposal documentation, aquifer testing and analysis, transducer survey results and analysis, and sensitive receptor information) shall be submitted electronically (in Adobe PDF format) and in hard copy to the Solicitor, ICF / USTIF and the Technical Contact for review / comment prior to finalizing the SCR. Once the selected consultant has addressed comments on the draft, the selected consultant shall finalize and issue the report to the PADEP. The draft report is to be submitted no later than the date specified in the schedule presented by the selected bidder.

Task 5.0 Risk Assessment and Feasible Remedial Alternatives Analysis:

Task 5.1 Risk Assessment Evaluation – A risk assessment evaluation shall be completed consistent with the guidelines provided in the Act 2 Guidance Manual (applicable portions of *Sections II.C.4 IV.G and IV.H*). These sections provide general information on risk assessment; developing site appropriate standards; discuss potential for pathway elimination; and guidance on site-specific human health assessment procedures. This guidance should be followed to conduct a risk assessment. Results of the risk assessment should be taken into consideration when developing a feasible remedial strategy and determining which standards would be appropriate for the Site. Results of the evaluation should be discussed in the Risk Assessment and Feasible Remedial Alternatives Analysis Report.

Task 5.2 – Remedial Alternatives Analysis - A Remedial Alternatives Analysis should be completed for the Site to compare cleanup alternatives and evaluate which remedial action is most appropriate for the Site. The evaluation should specifically focus on eight (8) key considerations including cost-effectiveness, proven performance, public and environment protectiveness, regulatory compliance, reliability, practical implementation, health & safety and effects on public health and the environment. The findings of the Remedial Alternatives Analysis will be summarized and presented as part of the Risk Assessment and Feasible Remedial Alternatives Analysis Report. Information/data generated during the interim remedial activities conducted at the Site should be taken into consideration.

Task 5.3 – Risk Assessment and Feasible Remedial Alternatives Analysis Report - Following the completion of the proposed Risk Assessment Evaluation and Remedial Alternatives Analysis, a Risk Assessment and Feasible Remedial Alternatives Analysis Report should be prepared for the Site. The report should detail the procedures and findings from the completed baseline risk assessment and describe the calculations and resultant estimate of the amount of hydrocarbon mass present in the Site's subsurface. It should also take into consideration and summarize the assumption, parameters, and predictions from the predictive modeling scenarios included in the SCR. Figures and appendices supporting the findings of the report should be attached to further illustrate the current condition of the Site. The report should appropriately evaluate the Site and assess the risks as well as provide a proper closure strategy and remedial alternative for

the Site. Information/data generated during the interim remedial activities conducted at the Site should be incorporated into this task.

All AutoCAD maps / plans included in the report (e.g., site plan / base map, proposed remediation location map, dissolved plume maps, soil contaminant distribution maps, etc.) and appendices (e.g., boring logs, tables, remediation technology information, fate and transport modeling, risk assessment and sensitive receptor information) shall also be submitted electronically on CD and in hard copy to Solicitor and Technical Contact for review / comment prior to finalizing it. Once the selected consultant has addressed comments on the draft, the selected consultant shall finalize and issue the report to the PADEP.

Task 1.0 through Task 5.0 above represents the base Scope of Work for this RFB solicitation. These tasks have been specifically developed in an effort to complete the PADEP's site characterization requirements. In addition to the base Scope of Work tasks, ***Optional Cost Adders*** are being requested for the following tasks:

- ***Optional Cost Adder #1*** – Provide a Unit Cost to complete an additional groundwater monitoring and sampling event. The scope of work for this cost adder should follow Task 3.0.
    - ***Optional Cost Adder #1a -*** The cost provided should be to complete only one (1) event with all wells (proposed and current) in the network being sampled.
    - ***Optional Cost Adder #1b -*** The cost provided should be to sample one (1) additional perched water monitoring point during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, waste, etc.
    - ***Optional Cost Adder #1c -*** The cost provided should be to sample one (1) additional overburden/weathered bedrock monitoring well during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, waste, etc.
    - ***Optional Cost Adder #1d -*** The cost provided should be to sample one (1) additional bedrock monitoring well during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, waste, etc.

- ***Optional Cost Adder #2*** – Provide a Unit Cost to Prepare a Summary Progress Report for submittal to the PADEP. The Progress Report should detail the observations documented during the event, summarize the analytical results, map the groundwater flow direction for the Site, provide iso-concentration maps for compounds exceeding the SWHS, provide hydro-graphs, discuss the interim remediation efforts (if any), and provide additional scheduling details for upcoming events. Once the report is approved by the Solicitor, the report can be finalized and submitted to the PADEP. The progress reports discussed are being proposed to meet the PADEP obligation on progress reporting before RAP approval.

- ***Optional Cost Adder #3 –*** Provide a Unit Cost to extend the Pump test for four (4) additional hours at the Site. The pump test would be extended if stabilization does not occur by the end of the eight (8) hour pump test.

- ***Optional Cost Adder #4*** – Provide a Unit Cost to abandon monitoring well(s) in accordance with Pennsylvania Act 610 and the Groundwater Monitoring Guidance Manual dated February 29, 1996. Upon completion, a well abandonment report will be prepared and submitted to the DCNR on behalf of the claimant. Bidders should specify in the bid packages how the wells will be abandoned and the site restoration activities included in the specified costs. Following the installation of the proposed bedrock monitoring wells, the Professional Geologist at the selected consulting firm will review the available construction logs for the current monitoring well network and make a determination as to whether some, none, or all of the wells need to be appropriately abandoned and possibly replaced. Due to the uncertainty as to how many wells may need to be abandoned, please provide costs for the following:

    - ***Optional Cost Adder #4a -*** Abandonment of one (1) of the current monitoring wells.
    - ***Optional Cost Adder #4b -*** Abandonment of two (2) of the current monitoring wells during one (1) event.
    - ***Optional Cost Adder #4c -*** Abandonment of three (3) of the current monitoring wells during one (1) event.
    - ***Optional Cost Adder #4d -*** Abandonment of four (4) of the current monitoring wells during one (1) event.

- ***Optional Cost Adder #5 – Provide a Unit Cost to install one (1) additional perched water monitoring points.*** The scope of work for this cost adder should follow Task 2.2.1 construction guidelines. Please provide costs for the following:

    - ***Optional Cost Adder #5a –*** Installation of one (1) additional perched water monitoring point during a separate event. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
    - ***Optional Cost Adder #5b -*** Installation of one (1) additional perched water monitoring point as an add-on to a drilling investigation. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

- ***Optional Cost Adder #6 – Provide a Unit Cost to install one (1) additional overburden/weathered bedrock monitoring well.*** The scope of work for this cost adder should follow Task 2.2.2 construction guidelines. Please provide costs for the following:

    - ***Optional Cost Adder #6a –*** Installation of one (1) additional overburden/weathered bedrock monitoring well during a separate event. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
    - ***Optional Cost Adder #6b -*** Installation of one (1) additional overburden/weathered bedrock monitoring well as an add-on to a drilling

investigation. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

- ***Optional Cost Adder #7 – Provide a Unit Cost to install one (1) additional bedrock monitoring well.*** The scope of work for this cost adder should follow Task 2.2.2 construction guidelines. Please provide costs for the following:

    - ***Optional Cost Adder #7a –*** Installation of one (1) additional bedrock monitoring well during a separate event. Assume the bedrock monitoring well will be installed to a depth of 50 feet. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
    - ***Optional Cost Adder #7b -*** Installation of one (1) additional bedrock monitoring as an add-on to a drilling investigation. Assume the bedrock monitoring well will be installed to a depth of 50 feet. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
    - ***Optional Cost Adder #7c –*** Per foot cost for drilling and constructing a monitoring well that extends past the 50 foot depth assumed in Optional Cost Adder #7a and #7b. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

- ***Optional Cost Adder #8 –*** Provide a Unit Cost to update the Site's survey to include the additional well location(s). The scope of work for this cost adder should follow Task 2.3.

SCHEDULING

As part of this RFB, the selected consultant shall be prepared to install the new monitoring wells at the Site within 21 days of the contract being executed and submit the draft SCR to the Solicitor, ICF / USTIF and the Technical Contact within 105 days of the contract being executed. In addition, a detailed schedule indicating when specific activities and reports (soil investigation, aquifer testing, report submittal, groundwater sampling, well installation activities, etc.) will be completed needs to be prepared and included in the bid response. All on-site work should be completed during the normal working days and hours of 8 am to 5 pm from Monday through Friday.

RESPONSIBILITY

The selected consultant will be the consultant of record for the Site. They will be required to take ownership and responsibility for the project and will be responsible for representing the interests of the Solicitor and ICF/USTIF with respect to the project. This includes utilizing their professional judgment to ensure reasonable and appropriate actions are recommended and undertaken to protect sensitive receptors, adequately characterize the Site, and move the Site towards closure.

QUALIFICATION QUESTIONS

Proposals need to provide answers to the five (5) qualifications and experience questions provided below:

- Does your company employ the Pennsylvania licensed Professional Geologist (P.G.) that is designated as the proposed project manager? How many years of experience does this person have?

- How many Chapter 245 projects are your company currently consultant on record for in the Northeast region and all regions of Pennsylvania?

- How many Chapter 245 projects have your company and/or the proposed Pennsylvania licensed P.G. worked on in the Northeast region and all regions of Pennsylvania during the last five (5) years?

- How many Chapter 245 projects have your company and/or the Pennsylvania licensed P.G. closed (i.e., obtained relief from liability from the PADEP) using either the Statewide Health Standards or Site Specific Standards? Please list.

- Has your company ever walked away from a PAUSTIF Fixed Price Contract or Pay For Performance contract without attaining all of the Milestones? If so, please explain why the contract was not fulfilled?

CONTRACT INFORMATION AND BID INSTRUCTION

The Solicitor wishes to execute a mutually agreeable fixed price contract based on unit prices for labor, equipment, materials, subcontractors/vendors and other direct costs. The prices provided in the bid will remain in effect for the duration of the project (i.e. no escalation clause). The total fixed cost quoted by the selected consultant will be the maximum amount to be paid by the Solicitor unless a change of scope is authorized and determined to be reasonable, necessary, and appropriate. *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 response 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.* A copy of the proposed fixed price contract is included in Attachment 4.

The bidding firm will need to include the following in their proposal:

- A demonstration of the bidder's understanding of the objectives of the project and the bidders approach to achieving those objectives efficiently based on the existing site information provided in this RFB;

- Provide a clear description, specifics, and original language of how the proposed work scope will be completed. The bid package should specifically discuss all tasks that will be completed under the fixed price contract and what is included (i.e. explain your groundwater sampling method, which guidance documents will be prepared, what will be completed as part of the SRS, etc.);

- A fixed price cost estimate for work through the completion of the characterization activities;

- Provide a detailed schedule of activities for completing the proposed scope of work inclusive of reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the scope of work;

- Indication of whether the bidder accepts or seeks changes to the proposed contract / terms and conditions;

- The bidder's level of insurance;

- The bidder's proposed unit cost rates for each expected labor category, subcontractors, other direct costs and equipment;

- The bidder's proposed markup on other direct costs and subcontractors (if any);

- Identify and describe the involvement of subcontractors;

- Identify any exceptions, assumptions, or special conditions applicable to scope;

- Cost by task and total costs must be defined within the proposal text and on the cost spreadsheets (Attachment 2 and Attachment 3);

- The bidder's total cost by task consistent with the proposed scope of work identifying all level-of-effort and costing assumptions;

- A statement of qualifications including that of any major subcontractor(s);

- Describe your approach to working with the PADEP from project inception to submittal of the SCR. 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;

- Describe how the Solicitor and ICF/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;

- Answers to the qualification questions discussed in the RFB;

- Complete the provided Milestone Payment Schedules included as Exhibit B and Exhibit C in the contract included as Attachment 4;

- Identify the names of the proposed project team for the key project staff, including the proposed Professional Geologist of Record who will be responsible for overseeing the work and applying a professional geologist's seal to the project deliverables;

- If a firm feels it is appropriate and necessary to complete hole clearing activities, the cost should be included in their proposal and costs. More importantly, if a firm includes the cost to complete hole clearing, they should specify it in their proposal and discuss why it is appropriate and necessary and indicate which methods will be utilized and to what extent. As discussed in the RFB, cost is not the only factor when evaluating proposals and other factors are taken into consideration during the review process, including appropriate safety measures;

- Bids should provide an appropriate total cost in the summary and detailed cost spreadsheets, milestone schedules, and text to cover the SOW presented in the RFB text. Specifically, if the bid proposes the completion of 2 quarterly groundwater sampling events then the costs to complete both events should be included in cost listed on the spreadsheets for that task. The total costs provided on the cost spreadsheet should not just include the completion of one (1) quarterly event; and

- Please make sure that costs provided for each task are consistent between the submitted attachments (i.e. cost provided for the soil boring investigation is listed as $4,000.00 in the cost summary sheet, detailed cost sheet, both milestone payment schedules (Schedule B and Schedule C), and the text of the submitted bid). If a discrepancy in costs is noted during the review of the bids, the costs listed in the summary cost sheet (Attachment 2) will be used as the costs during the bid evaluation.

The bidder shall provide its bid using the format identified in this RFB and will provide brief descriptions of each task in the body of the bid document. In addition, the bidder will complete both the cost summary sheet included as Attachment 2, and the detailed cost sheet included as Attachment 3. An electronic version of the cost spreadsheets included in Attachment 2 and Attachment 3 (in Microsoft Excel Format) have been provided.

In addition to the cost spreadsheets, each bidder should modify the Milestone / Proposed Payment Schedules included as Exhibit B and Exhibit C (in Microsoft Word Format) of the fixed price contract in Attachment 4 to reflect the bidder's anticipated time schedule. The detailed cost spreadsheet and the RFB SOW will be incorporated as attachments to the Fixed Price Contract (also included in Attachment 4). Actual milestone payments will occur after all tasks in the milestone (as documented in Exhibit B and Exhibit C in the Fixed Price Contract) have been successfully completed and results (reports, analytical data package, boring logs, etc.) have been provided to the Solicitor and ICF/USTIF.

Please bid the scope of work as provided in the RFB. Consultants are welcome to propose or suggest a change in the SOW; however the consultant should bid the SOW as presented in the RFB and provide any suggested modification to the SOW and provide the cost difference (+ or -) separately in the proposal.

The scope of work, as described in this RFB, shall be conducted in accordance with industry standards / practices, and consistent with the PADEP requirements and guidelines. The selected consultant's work to complete the tasks discussed will be subject to ongoing review by the PAUSTIF or its representatives to assess whether the work actually completed and the associated incurred costs are reasonable, necessary, and appropriate.

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 tasks identified in the bid. The standard practice of tracking total cumulative costs by bid task will also be required to facilitate invoice review.

The bid responses must clearly and unambiguously accept the provided contract or must clearly cross reference any requested changes.

In an effort to eliminate or minimize the need for change orders on a fixed price contract, please include costs to dispose of all anticipated volumes of waste in your bid response. ICF and PAUSTIF will not entertain any assumptions on the contract with regards to a volume of waste (i.e. Project costs assume that no more than 500 gallons of groundwater will extracted during the aquifer testing and require disposal). Bidders will be responsible for including costs in their bid response to cover the disposal of all potential waste related to the tasks included in the SOW. All waste generated during the completion of tasks related to the SOW may be temporarily stored on site, but must be disposed of offsite in a timely manner. Please estimate the volume of waste using your professional opinion, experience, and the data provided. Invoices submitted to cover additional costs on waste generated as part of activities included under the fixed price contract for this Site will not be paid.

Each bid package received will be assumed to be good for a period of 120 days after receipt unless otherwise noted. Please note that ICF, PAUSTIF, and B&B will treat the bids as confidential, but that limited general information may be released by the solicitor and/or B&B after the bid selection process is completed. In addition for your reference, a copy of the PAUSTIF Competitive Bidding Fact Sheet is provided in Attachment 5. The aforementioned guidance document can provide you with additional information of the bidding process.

MANDATORY SITE VISIT

On Thursday, June 7, 2012, the Technical Contact (or designee) will be at the site at 10:00 am to answer questions and conduct a site tour for a limited number of participants per firm. Please inform the Technical Contact at least five (5) business days in advance of the aforementioned meeting date as to whether your firm will be in attendance. In order to accurately track meeting

participants, the subject line of the email must state the following: Bethlehem Rodgers Street Garage RFB Bid Walk Claim No. 1999-344(M). **Any firm that does not attend the June 7, 2012 mandatory site visit will not be eligible to submit a bid response.**

ATTACHMENTS

Attachment 1 – Tables, Figure, Historical Documentation and Correspondence
Attachment 2 – Cost Summary Sheet
Attachment 3 – Detailed Cost Sheet
Attachment 4 – Fixed Price Contract with Milestone / Proposed Payment Schedules
Attachment 5 – USTIF Competitive Bidding Fact Sheet