Request for Bid

Fixed-Price Defined Scope of Work to Complete Characterization

Solicitor

Friends Hospital

4641 Roosevelt Boulevard

Philadelphia, Pennsylvania 19124

PADEP FACILITY ID #51-23029

PAUSTIF CLAIM #2008-0029(F)

Date of Issuance

June 11, 2013

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	June 27, 2013 by 5 p.m.
Mandatory Pre-Bid Site Visit	July 2, 2013 at 11 a.m.
Deadline to Submit Questions	July 9, 2013 by 5 p.m.
Bid Due Date and Time	July 18, 2013 by 3 p.m.

Contact Information

ICF International	Solicitor	Technical Contact
Mr. Ronald Moore ICF International 4000 Vine Street Middletown, PA 17057 Email – Ronald.Moore@icfi.com	Mr. Vance Barto Friends Hospital 4641 Roosevelt Blvd Philadelphia, PA 19124	Mr. Mark Bedle B&B Diversified Enterprises, Inc. PO Box 16 Barto, PA 19504 Phone – 610-845-0640 Fax – 610-845-0650 Email – mbedle@bbde.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 for any out-of-scope work on this project.

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

Please note that the total fixed-price bid must include all costs, including those cost items that the bidder may regard as "variable". These variable cost items will not be handled outside of the total fixed price quoted for the SOW. 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 implementation). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW "as is" may result in a bid not being considered.

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.). If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk. Added costs resulting from bid errors, omissions, or faulty assumptions will not be considered for PAUSTIF reimbursement.

7. A detailed schedule of activities for completing the proposed SOW including reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the SOW. Each bid must provide a schedule that begins with execution of the Remediation Agreement with the Solicitor and ends with completion of the final Milestone proposed in this RFB. Schedules must also indicate the approximate start and end 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 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 Address

Friends Hospital
4641 Roosevelt Boulevard
Philadelphia, PA 19124
City of Philadelphia, Philadelphia County

Site Location and Operation Information

The Site is an approximate 100-acre property occupied by a 192-bed hospital, consisting of several buildings. The Site is located near the intersection of Roosevelt Boulevard and Whitaker Avenue in the Frankford section of Northeast Philadelphia, Philadelphia County, Pennsylvania. The hospital was previously heated by two (2) 15,000-gallon No. 6 fuel oil underground storage tanks (USTs) that were located in a tank field on the northwest side of the facility's powerhouse building. The powerhouse is located on the north side of the hospital. The two (2) 15,000-gallon No. 6 fuel oil USTs were excavated and removed from the Site in May 2010. Other USTs located on the hospital property include one (1) 1,000-gallon No. 2 fuel oil (southeast of the former No. 6 heating oil USTs), one (1) 1,000-gallon diesel above ground storage tank (AST) (north of the powerhouse), and one (1) 100-gallon diesel AST associated with a fire pump. Also, a 300-gallon UST and a 1,000-gallon gasoline UST were excavated and removed from the Site in 1996 and 1998, respectively. The closest body of water to the Site is the Tacony Creek, which runs across the undeveloped, southern portion of the Site property. The Site and the surrounding area is supplied potable water from the City of Philadelphia Water Department. A Site Plan Map is provided in Attachment 3 as Figures 1.

Site Background Information

A review of PADEP files and the eFACTS website revealed the following three (3) separate historic releases at the Site:

- On September 22, 1992, there was a release of No. 6 fuel oil at the Site when product was delivered to the wrong tank. Product overflowed from the vent pipe of the UST mistakenly filled and 125 gallons No. 6 fuel oil was released onto the ground surface. A Notice of Violation (NOV) was issued by PADEP on November 3, 1992. Impacted soils were excavated from the first six (6) to twelve (12) inches below surface grade and removed from the Site for proper disposal. No information was available as to the exact location of this release.

- On June 26, 1996, a 300-gallon gasoline UST and associated product piping were excavated and removed from the Site. An UST Closure Report was completed and submitted to PADEP in December 1996. The UST was indicted to have "no holes" and the product piping was described to be in "fair condition with minor corrosion." Groundwater was encountered during the excavation and impact to groundwater and soil was indicated. Contaminated soil was excavated and removed from the Site at the time of the UST closure activities. PADEP issued a letter dated April 24, 1997, indicating that "no further action was required regarding the closure of the (300-gallon) tank." The exact location of the 300-gallon gasoline UST could not be determined from the available files. However, based on photos in the UST Closure Report, the former location of the UST does not appear to be in the same area of the Site that is the concern of the current claim.

- In June 1998, four (4) USTs were excavated and removed from the Site. A confirmed release of unleaded gasoline was reported on June 15, 1998 with impact to soil and groundwater. Cleanup was completed on June 18, 1998 and the case was closed in November 2004. Files indicate that the area impacted by the June 19, 1998 gasoline UST failure, is on the other side of the Site from the heating oil tanks that are the concern of the current claim. This release was covered under former Claim Number 1998-249(F). A brief summary of the release is described in the paragraph below.

On June 15, 1998, four (4) USTs were excavated and removed from the Site. The tanks removed included a 275-gallon diesel, a 1,000-gallon diesel, a 3,000-gallon diesel and a 1,000-gallon gasoline. The gasoline UST and associated product piping were indicted to be in "poor condition" with pitting present in the sides of the UST. Ten (10) soil borings (B-1 through B-10) were advanced in and downgradient of the former UST excavation. Soil samples were collected from each boring location. A perched groundwater table was encountered in borings B-3 and B-5 and groundwater samples were collected from these locations. The soil analytical results indicated no compounds of concern (COCs) above the PADEP Statewide Health Standards (SHS). The groundwater analytical results from B-3 indicated the concentrations of some COCs greater than the PADEP SHS. Three (3) monitoring wells (MW-1 through MW-3) were installed in the vicinity of the former gasoline UST and early analytical results indicated concentrations of benzene in MW-2 and MTBE in MW-2 and MW-3 greater than their respective PADEP SHS. As previously stated, files indicate that the area impacted by the June 19, 1998 gasoline UST failure is on the other side of the Site from the heating oil tanks that are the concern of the current claim. A SCR dated November 12, 1999, was submitted to PADEP and was approved on May 10, 2000.

On December 3, 2006, there was a release of approximately 5,500 gallons of No. 6 fuel oil from vent piping associated with two (2) 15,000-gallon USTs at the Site. The release occurred due to the failure to close a valve between the tanks during fueling, causing one (1) of the USTs to

overflow through the vent pipes. An undetermined amount of fuel oil migrated into a water runoff, which leads to an unnamed tributary of the Tacony Creek, and was migrating downstream. As part of an emergency response effort, oil absorbent booms were installed and a temporary soil dam was constructed. With PADEP's permission, contaminated soil was removed from the streambed and was replaced with clean materials. Remedial actions included the recovery of approximately 5,000 gallons of oil directly from the ground surface, impacted soil removal from between the vent pipes and the drainage area, steam cleaning of the water run-off pipe and trees, and removal of impacted surface water from the tributary. PADEP issued a NOV for this release dated December 15, 2006. The release was covered under former Claim Number 2006-0197(F).

Also on December 3, 2006, approximately one (1) foot of water exhibiting an oily sheen was observed coming from a pipe in the basement of the powerhouse boiler room. Oil impacts were also observed at a drainpipe into the unnamed tributary of the Tacony Creek, located approximately 150 yards from the tank area. Oil absorbent booms were placed in the stream near the outfall. The water was removed from the basement utilizing a vacuum equipped tank truck and what appeared to be an oil/water separator was observed. "There was a considerable amount of oil-covered debris in this area (of the oil/water separator). Oil was observed to have been adhering to the walls of the basement. No other possible sources of oil were found within the boiler room. A camera was used to try and determine the source of the water in the pipe located in the boiler room basement. However, the passage was blocked approximately two (2) feet from the entry point." Oil contamination was also observed in a manway that accessed the pipe leading from the oil water separator to the stream outfall. The stream outfall, the manway and the boiler room basement were cleaned of oil residue and were being checked weekly for any reoccurrence of oil. During the weekly checks, no additional oil contamination was observed in any of the locations. The location of the oil/water separator, manway and stream outfall, as well as the suspected area of concern that was effected by the December 3, 2006 heating oil spill, are included on Figure 1.

On December 19, 2007, three (3) stream sediment samples were collected from the unnamed tributary of the Tacony Creek. Laboratory analytical results revealed no COC concentration greater than the PADEP SHS.

On December 19 and 20, 2007, three (3) groundwater monitoring wells (MW-1, MW-2 and MW-3) were installed at the Site. A total of two (2) soil samples were collected from each monitoring well borehole near the ground surface and immediately above the anticipated soil-groundwater interface during installation activities. Laboratory analytical results indicated trace

concentrations of several COCs in the shallow soil samples collected from MW-2 (1') and MW-3 (1'). However, all detected concentrations were at levels less than the PADEP SHS.

The first round of groundwater samples were collected from the three (3) monitoring wells on January 10, 2008 and the laboratory analytical results did not indicate the presence of any COCs at concentrations above the laboratory detection limits.

On October 17, 2008, a SCR was submitted to PADEP. The SCR summarized activities and investigations completed at the Site. Included in the SCR was the Soil Boring and Monitoring Well Construction Logs, as well as figures noting the sampling locations. Analytical data from the soil, groundwater and stream sediment samples are summarized in the SCR.

On October 21, 2008, eight (8) additional stream sediment samples were collected as directed by the PADEP in a letter dated July 3, 2008. An additional outfall (Outfall #2) was discovered downstream of the previously identified outfall (Outfall #1) and impact of oil contamination was reportedly visible. The laboratory analytical results indicate that none of the COCs were present at concentrations above the applicable PADEP SHS.

In a letter dated December 11, 2008, the PADEP indicates that although the laboratory analytical results for the additional stream sediment samples collected on October 21, 2008 did not indicate the presence of COC concentrations at levels above the applicable PADEP SHS, additional work is still required in order to restore the stream channel to it's pre-release state. Specifically, PADEP requests that actions be made to "restore the physical integrity of the stream and provide for it's long-term stability. Reasons for these actions to take place are to prevent mass erosion of channel sediments to downstream waters, to provide appropriate substrate in the channel for the aquatic community to return to the stream, and to ensure that the Friends Hospital sanitary sewer line that is currently exposed in the bed of the channel will be protected from physical damage in the long-term." In order to achieve these goals, PADEP "strongly recommends installing a series of rock vanes…that will protect the sewer line, prevent bank erosion and reestablish a more natural "step pool" pattern, consistent with the original channel."

On May 5, 2010, the two (2) 15,000-gallon, No. 6 fuel oil USTs, and associated product piping, were excavated. A section of the product piping was found to be encased in an asbestos material and was left in place until it could be properly removed on a later date. Potentially

contaminated soil was encountered during the UST removal activities and a total of 866.10 tons were excavated and transported off-site for proper disposal. The USTs were described to be in "good condition with no holes observed." Contamination was reportedly visible on the groundwater encountered in the excavation and described as an "oily froth with sheen." On May 5 and 6, 2010, a vacuum equipped tank truck was utilized to recover 5,181 gallons of groundwater from the excavation for proper disposal. A total of four (4) soil samples and two (2) water samples were collected from the UST excavation during May 2010 closure activities. The laboratory analytical results for soil and groundwater, collected during closure of the USTs did not exhibit any COC concentrations above the applicable PADEP SHS.

Following appropriate asbestos abatement activities, the remaining product piping was excavated on April 20, 2011. A total of eight (8) soil samples were collected from the product piping run excavation. The laboratory analytical results from the samples collected during the closure of the product piping, did not exhibit any COC concentrations above the applicable PADEP SHS.

A Notice of Contamination (NOC) was made to PADEP on May 5, 2010 when the USTs were excavated and again on April 20, 2011 when "Stained soil was observed beneath the product supply and return piping where the piping enters the boiler house structure. Over-excavation of stained soil was limited due to the close proximity of the contaminated area to the boiler house foundation, live high pressure steam lines and a 13,200 volt electrical line."

An UST System Closure Report Form, dated August 22, 2011, was completed in an effort to summarize the May 2010 and April 2011 UST closure activities.

During a site visit on August 14, 2012, visible product was observed in groundwater puddled on the floor of the powerhouse basement. As a result, on August 27, 2012, groundwater samples were collected from MW-1, MW-3, the oil/water separator sump, the former oil/water separator discharge pipe, a manway in the area of MW-3, the storm sewer discharge into the tributary (Outfall #1), and from the powerhouse basement floor. Monitoring well MW-2 was found destroyed, therefore, no sample could be collected. Due to laboratory error, the basement floor sample was re-collected on September 12, 2012. Laboratory analytical results indicated that no COCs were present in any of the samples collected above the laboratory detection limits, except the basement floor samples. Both chrysene and pyrene were detected in the basement floor samples at concentrations above the applicable PADEP SHS on August 27, 2012. The

groundwater analytical results and a Groundwater Concentration Map (Figure 3) are included in Attachment 3.

On August 22, 2012, a total of four (4) soil borings (B-1 through B-4) were advanced at the Site as part of a geophysical investigation performed for the proposed construction of two (2) modular structures located in the area of the former UST field. “Oil contamination” was encountered in B-3 at eight (8) ftbsg. The boring locations are presented on Figure 4 in Attachment 3. The Boring Exploration Logs can be found in of the September 2012 Geotechnical Investigation Report included in Attachment 3.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the Scope of Work (SOW) specified herein.

Objective

This RFB is seeking qualified firms to prepare and submit a fixed price proposal to complete a Defined Scope of Work. Specifically, this RFB seeks competitive bids 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. A petroleum release has been confirmed at the Site in both soil and groundwater.

Constituents of Concern (COCs)

The list of COCs.for this Site include the following:

- Benzene
- Naphthalene
- Flourene
- Anthracene
- Phenanthrene

- Pyrene
- Benzo(a)anthracene
- Chrysene
- Benzo(b)fluoranthene
- Benzo(a)pyrene
- Benzo(g,h,i)perylene

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:[1]

- Conduct necessary, reasonable, and appropriate project planning and management activities until the project (i.e., Remediation Agreement) is completed. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control, scheduling, and other activities (e.g., utility location). Project planning and management activities will also

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

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 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

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

- **Scheduling:** As part of this RFB, the selected consultant shall provide a clear deadline (i.e. within 30 days of the contract being executed) as to when each of the milestones will be completed. This includes the expected date (i.e. within 90 days of the contract being executed) when the draft SCR will be submitted to the Solicitor, PAUSTIF and B&B for review. 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/PAUSTIF 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.

- **Scope of Work:** 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.

- **Field-Screening Instrument:** Each consultant should determine and state in their bid response the appropriate field-screening instrument to be used during the completion of the SOW. Specifically, the product associated with this investigation is No. 6 heating oil. As such, the type of field-screening instrument should be able to detect the presence of hydrocarbons associated with that type of product.

- **Safety Measures**: Each consultant should determine the level of safety measures needed to appropriately complete the milestones. Specifically, if a consultant feels it is appropriate and necessary to complete activities such as a hole clearing activities, the cost should be included in their proposal and costs. More importantly, if a consultant includes the cost to complete safety activities, 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.

- **Waste Disposal:** The IDW waste (including soil/rock cuttings, development water, and liquids generated during installation and aquifer testing) should be disposed of per the instructions included in the "General SOW Requirements" section of the RFB. 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 milestones included in the SOW. Containerized soil and groundwater may be temporarily stored on site, but should be removed from the Site in a timely manner. 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 milestones 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.

- **Health & Safety Memo:** Bidders are directed to review the Friends Hospital Health & Safety Memorandum included in Attachment 3. The aforementioned memorandum addresses some health and safety concerns related to this project in relation to the scope of work included in the RFB.

- **Optional Cost Adder Milestones:** Milestone A through Milestone K represents the base Scope of Work for this RFB solicitation. These milestones have been specifically developed in an effort to complete the PADEP's site characterization requirements. In addition to the above base Scope of Work, the Optional Cost Adder Milestones (Milestone L through Milestone O) need to be addressed in your bid response. These cost 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.

The following Milestones are to be included in bid responses:

Milestone A – 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.

Milestone B – Private Utility Markout - Prior to any intrusive investigation work at the Site (i.e. soil borings, monitoring well drilling), a private markout is to be conducted at the Site to confirm the location of the steam lines, the sanitary sewer lines, and the storm water sewer lines as well as any other obstruction or underground utility present in the vicinity of the powerhouse and the former powerhouse UST field. The locations of the identified features should be marked with white paint on the asphalt areas and white flags in grassy areas. A report shall be provided with an explanation of the identified features. The identified features should be included in the site survey described in Milestone G.

Milestone C – Soil Boring Investigation – In an effort to fully investigate the impact to the soil media from the confirmed UST release, a series of soil borings is being proposed. Specifically, the activities include the completion of eighteen (18) soil borings (SB-1 through SB-18) utilizing a direct push sampling approach (e.g., Geoprobe®). Specifics on the proposed investigation are provided below:

- The proposed locations of the eighteen (18) soil borings (B-1 through B-18) are provided on the attached Figure 1. 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. If due to valid concerns prior to the advancement of borings, the general locations of the proposed borings need to be altered significantly from the approximate locations provided on the attached figure, then the selected consultant will be required to contact the Technical Contact, discuss the need for the changes, and provide the Technical Contact 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 hole-clearing, 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.

- 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 40 feet, then the boring maybe terminated. Soil samples will be collected and logged continuously by an on-site geologist for soil classification and structure, odor, soil moisture, soil texture, color, visual petroleum impacts and screened with an appropriate field-screening instrument. Soils should be described using the Unified Soil Classification System.

- A total of 36 soil samples (two (2) soil samples per boring) shall be collected and submitted to an accredited laboratory for analysis. One (1) sample from each boring should be collected from the soil interval exhibiting the highest field-screening reading or evidence of petroleum impacts (i.e., staining, free product, etc.) in each borehole. The second soil sample will be collected at the bedrock interface or just above groundwater (if encountered) in an effort to delineate the soil impacts. If no elevated field-screening readings or other indicators of impact are observed, the first sample should be collected from either the one (1) ftbsg to two (2) ftbsg interval or the twelve (12) ftbsg to thirteen (13) ftbsg interval, depending on the location of the sample relevant to the historic release locations and depth to groundwater. For example, if no elevated field-screening readings or evidence of petroleum impacts are observed and the soil boring location is

near the area of the 2006 surface release, than the first sample should be collected from the one (1) ftbsg to two (2) ftbsg interval and then again at the base or refusal. If no elevated field-screening readings or evidence of petroleum impacts are observed and the soil boring location is near the area of the former USTs (near B-3), than the first sample should be collected from approximately the seven (7) to nine (9) ftbsg interval and then again at the base or refusal.

- Soil samples for volatile analyses shall be collected using Encore Samplers (or equivalent) and field-preserved in laboratory-provided glassware with the appropriate preservatives (e.g., methanol or sodium bisulfate) provided by the laboratory in general accordance with USEPA Method 5035 and the PADEP guidance. Soil samples for semi-volatile analyses should be collected and preserved in general accordance with USEPA Method 8270C and the PADEP guidance.

- 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.

- Soil samples shall be analyzed for the PADEP No. 6 heating oil parameters, specifically benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene, in accordance with Pennsylvania's Storage Tank Regulation procedures and cleanup standard criteria as specified in Pennsylvania's Act 2.

- 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.

Milestone D – Basement Investigation – In the past, and most recently as September 2012, free product has been identified on groundwater puddled on the concrete floor in the basement of the powerhouse. In an effort to fully investigate the impact to the soil surrounding the basement, the collection of three (3) soil samples from beneath the basement floor is being proposed. Specifically, the activities include coring through the concrete floor of the basement and collecting soil samples. Specifics on the proposed investigation are provided below:

- The locations of the three (3) soil samples (S-1 through S-3) are provided on the attached Figure 4. The concrete should be cored in the locations proposed in the RFB, unless the presence of obstructions or safety concerns requires a change in the location. If due to valid concerns prior to coring the concrete, the general locations of the proposed soil samples need to be altered significantly from the approximate locations provided on the attached figure, then the selected consultant will be required to contact the Technical Contact, discuss the need for the changes, and provide the Technical Contact with a revised sample location map.

- After removing the core from the basement floor, the sample should be collected from the native soil located immediately below the concrete base materials (i.e. gravel, modified stone). Soil samples will be collected and logged by an on-site geologist for soil classification and structure, odor, soil moisture, soil texture, color, and screened with an appropriate field-screening instrument. Soils should be described using the Unified Soil Classification System. An attempt should be made to seal the borings after collection of the soil samples.

- A total of three (3) soil samples (one (1) per coring location) shall be collected and submitted to an accredited laboratory for analysis. Soil samples for volatile analyses shall be collected using Encore Samplers (or equivalent) and field-preserved in laboratory-provided glassware with the appropriate preservatives (e.g., methanol or sodium bisulfate) provided by the laboratory in general accordance with USEPA Method 5035 and the PADEP guidance. Soil samples for semi-volatile analyses should be collected and preserved in general accordance with USEPA Method 8270C and the PADEP guidance.

- 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.

- Soil samples shall be analyzed for the PADEP No. 6 heating oil parameters, specifically benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene,

benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene, in accordance with Pennsylvania's Storage Tank Regulation procedures and cleanup standard criteria as specified in Pennsylvania's Act 2.

- 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.

- Upon completion of the soil boring and basement investigations (Milestones C and D), a summary report (Soil Boring / Basement Investigation Report) based on the findings of the investigations, including an AutoCAD map with the boring/sample locations, boring logs, and tables summarizing the analytical data, 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 proceeding with the monitoring well installations described below in Milestone E.

Milestone E – Monitoring Well Installation – In order to fully characterize the dissolved phase plume in the overburden aquifer and obtain the data necessary to evaluate exposure pathways for the risk assessment, a total of eight (8) monitoring wells (MW-2A and MW-4 through MW-10) are to be installed at the Site. MW-2A will be installed in the location of the former MW-2, which was destroyed during Site renovations. The proposed locations of the monitoring wells are provided on the attached Figure 4. The Technical Contact may change the proposed locations of the wells after reviewing the Soil Boring / Basement Investigation Report, as described above in Milestones C and D. As part of the installation of the wells, the selected consultant should consider the following:

- All monitoring well locations will be advanced in the locations proposed in the RFB, unless instructed otherwise by the Technical Contact or the presence of utilities, obstructions, or safety concerns requires a change in the location. The proposed location of the monitoring wells is provided on Figure 4 in Attachment 3. If due to valid concerns prior to drilling, the general locations of the proposed monitoring wells need to be altered significantly from the approximate locations provided on the attached figure, then the selected consultant will be required to contact the Technical Contact, discuss the need for the changes, and provide the Technical Contact with a revised well location map.

- The eight (8) monitoring wells will be advanced to a total estimated depth of twenty (20) ftbsg with approximately five (5) feet of four-inch diameter, schedule 40 PVC flush threaded casing and approximately fifteen (15) feet of four-inch diameter, schedule 40 PVC flush threaded 0.010 slot size screening. The upper five (5) feet will be cased and the annular space will be sealed in an effort to prevent possible vertical movement through the borehole from the shallower intervals to deeper water bearing zones. 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 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 may install the wells using either hollow-stem auger or air-rotary methods. In addition, B&B will remind the selected consulting firm that careful consideration needs to be taken when installing the eight (8) proposed monitoring wells. Specifically, the wells should not be over drilled, under screened, or screened across the overburden and bedrock.

- A flush-mounted manhole shall be cemented into place to complete the well at grade level. A locking, pressure fit, watertight cap will be used to prevent the infiltration of surface runoff and rainwater and to restrict access by unauthorized individuals.

- 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 an appropriate field-screening instrument, 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.

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

Milestone F – Stream Staff Gauge Installation – Based on the proximity of the stream (tributary to the Tacony Creek), a staff gauge (SG-1) is to be installed at the location noted on the attached Figure 4 in Attachment 3. The staff gauge should be used to mark the stream sampling location as well as aid in the determination of the groundwater flow pattern at the Site. The staff gauge should be appropriately installed, surveyed, tied into the monitoring well network, and the elevation of the stream calculated using the survey and field data from the groundwater monitoring events discussed in Milestone G.

Milestone G – Site Survey – Following the completion of Milestone B, Milestone C, Milestone E and Milestone F, a professional survey of the Site by a Pennsylvania-licensed surveyor including all current site features (e.g., buildings, property boundaries, monitoring wells, sanitary and storm sewers, etc.) shall be completed. All monitoring wells, soil borings, the staff gauge, the Site building, the oil/water separator, sanitary and storm sewer lines, property boundaries and other important Site features are to be surveyed 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 are to be surveyed. The benchmark elevation shall be obtained by referencing the approximate ground surface elevation of the property or from an available benchmark from a USGS topographic map or benchmark elevation marker located at the Site. In conjunction with collecting depth to groundwater readings during sampling events and in an effort to establish groundwater flow at the Site, tops of casing for the existing monitoring wells are to be surveyed to facilitate the construction of a Site wide groundwater flow map. In addition, the presence of SPL (if detected) needs to be taken into consideration when calculating the static water levels in the wells and constructing a Site wide groundwater flow map. 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 which will provide additional information as to the groundwater flow direction in the monitored aquifer.

Milestone H – Aquifer Testing –

Milestone H1 - Slug Tests – Rising head slug testing will be conducted on four (4) 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.

Milestone H2 - Step Test – The 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.

Milestone H3 – 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 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.

Milestone I – Groundwater Monitoring and Sampling – For this RFB, please assume the total number of groundwater monitoring and sampling events that will be needed is two (2) events. During each of the two (2) groundwater monitoring and sampling events, the selected consultant shall collect samples from each of the ten (10) monitoring wells (MW-1, MW-2A, MW-3 through MW-10), from the stream staff gauge location (SG-1), and from the oil/water separator in the powerhouse basement. Please note that USTIF will only pay the selected consultant 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 and development of the eight (8) proposed monitoring wells. 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.

- Collect a water level reading from the stream sample location utilizing a staff gauge capable of distinguishing water 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.

- 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 analyzed for the PADEP No. 6 heating oil parameters 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 benzene, naphthalene, phenanthrene, pyrene, and chrysene.

- 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.

- 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 PAUSTIF and the Technical Contact updated on the progress of the investigation.

Milestone J – Fate and Transport Modeling and Site Characterization Report –

Milestone J1 - 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 COCs exceeding the PADEP SHS in groundwater at the release location and its applicability to the Site.

Milestone J2 - Preparation of a Site Characterization Report - Following the completion of the activities proposed in Milestone A through Milestone I as well as the Fate and Transport Modeling noted in Milestone J1, the selected consultant will prepare an SCR for the Site. The information gathered during the aforementioned milestones 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 (if applicable), 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, modeling results and analysis, and sensitive receptor information) shall be submitted electronically (in Adobe PDF format) and in hard copy to the Solicitor, ICF / PAUSTIF 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 consultant.

Milestone K - Feasible Remedial Alternatives Analysis –

Milestone K1 – 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 Feasible Remedial Alternatives Analysis Report. Information/data generated during the interim remedial activities conducted at the Site should be taken into consideration.

Milestone K2 – Feasible Remedial Alternatives Analysis Report - Following the completion of the proposed Remedial Alternatives Analysis, a Feasible Remedial Alternatives Analysis Report should be prepared for the Site. The report should detail the procedures and findings from the activities completed in Milestone A through Milestone I 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 milestone.

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.

- **Milestone L – 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 I.

    - ***Milestone L1 -*** The cost provided should be to complete only one (1) event with all the monitoring wells (existing and proposed), the staff gauge location, and the oil/water separator being sampled.

    - ***Milestone L2 -*** The cost provided should be to sample one (1) additional monitoring well during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, waste, etc.

    - ***Milestone L3 -*** The cost provided should be to collect one (1) additional non-monitoring well groundwater sample (i.e. – manway, basement floor, discharge

pipe, staff gauge location etc.) during a groundwater sampling event. The provided cost would be to cover all labor, equipment, laboratory, etc.

- **Milestone M – Preparation of Summary Progress Report (Cost Adder Milestone)**– 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, PAUSTIF and the Technical Contact, 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.

- **Milestone N – Installation of Additional Monitoring Wells (Cost Adder Milestone)** – Provide a Unit Cost to install one (1) additional shallow water monitoring well. The scope of work for this cost adder should follow Milestone E construction guidelines. Please provide costs for the following:

    - ***Milestone N1*** – Installation of one (1) additional monitoring well during a separate event. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

    - ***Milestone N2 -*** Installation of one (1) additional monitoring well as an add-on to a drilling investigation. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

- **Milestone O – Update Survey (Cost Adder Milestone)** – Provide a Unit Cost to update the Site's survey to include any additional monitoring well location(s). The scope of work for this cost adder should follow Milestone G.

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

    a. Friends Hospital Health & Safety Memorandum
    b. Figures
        i. Figure 1 – Site Plan Map
        ii. Figure 2 – Stream Sample Location Map
        iii. Figure 3 – Groundwater Concentration Map – August 27, 2012
        iv. Figure 4 – Proposed Monitoring Well, Soil Sampling and Staff Gauge Location Map
    c. Site Characterization Report dated November 12, 1999 (for non-related gasoline release)
    d. Site Characterization Report dated October 17, 2008 (for No. 6 fuel oil release)
    e. UST Closure Report dated August 22, 2011
    f. Groundwater Analytical Data from August 2012 Sampling Event
    g. Geotechnical Investigation Report dated September 2012